Tris(hydroxymethyl)aminomethane and Tris(hydroxymethyl)aminomethane hydrochloride (“Tris and Tris HCl") from China

Investigation Nos. 701-TA-793 and 731-TA-1789 (Preliminary)

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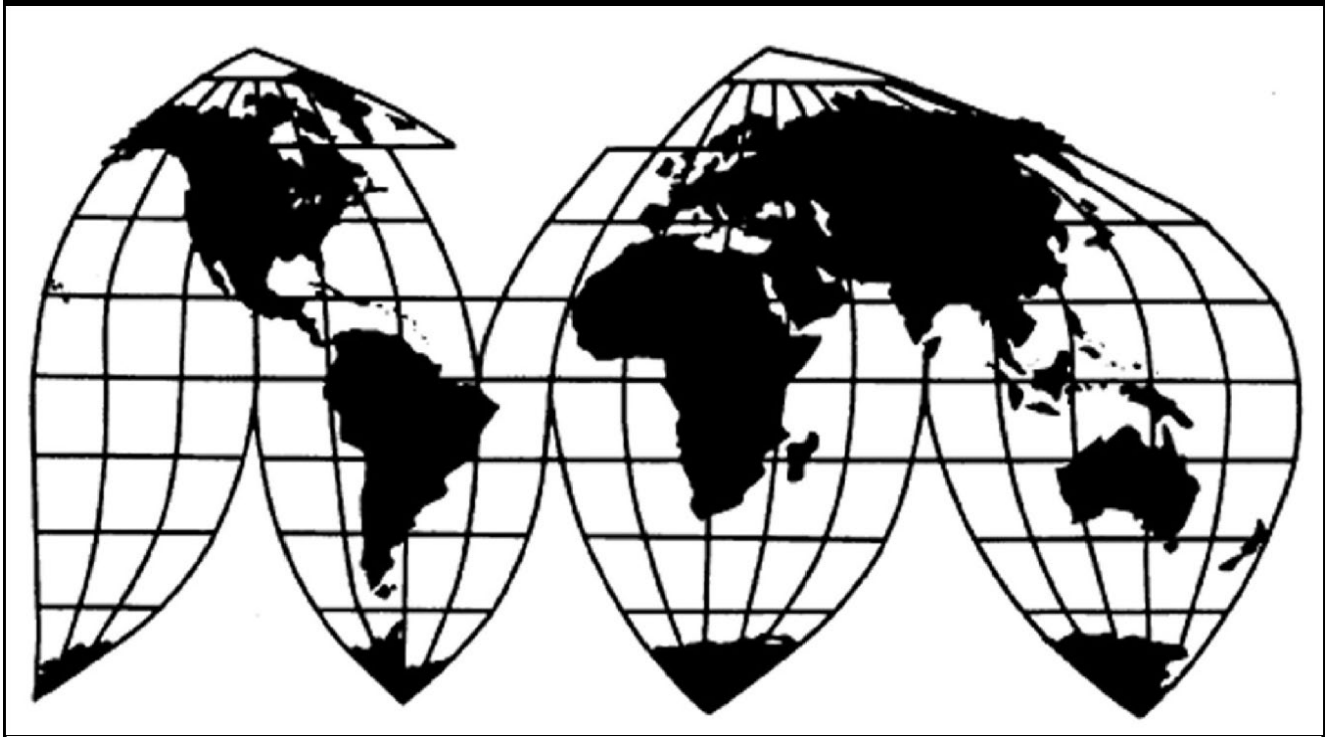
U.S. International Trade Commission



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U.S. International Trade Commission

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

U.S. International Trade Commission

Washington, DC 20436
www.usitc.gov

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Note.—Information that would reveal confidential operations of individual firms may not be published. Such information is identified by brackets ([ ]) in confidential reports and is deleted and replaced with asterisks (***) in public reports. Zeroes, null values, and undefined calculations are suppressed and shown as em dashes (—) in tables. If using a screen reader, we recommend increasing the verbosity setting.

UNITED STATES INTERNATIONAL TRADE COMMISSION

Investigation Nos. 701-TA-793 and 731-TA-1789 (Preliminary)

Tris(hydroxymethyl)aminomethane and Tris(hydroxymethyl)aminomethane hydrochloride ("Tris and Tris HCl") from China

DETERMINATIONS

On the basis of the record[1] developed in the subject investigations, the United States International Trade Commission ("Commission") determines, pursuant to the Tariff Act of 1930 ("the Act"), that there is a reasonable indication that an industry in the United States is materially injured by reason of imports of Tris and Tris HCl from China, provided for in subheading 2922.19.96 of the Harmonized Tariff Schedule of the United States, that are alleged to be sold in the United States at less than fair value ("LTFV") and imports of the subject merchandise from China that are alleged to be subsidized by the government of China.[2]

COMMENCEMENT OF FINAL PHASE INVESTIGATIONS

Pursuant to section 207.18 of the Commission's rules, the Commission also gives notice of the commencement of the final phase of its investigations. The Commission will issue a final phase notice of scheduling, which will be published in the *Federal Register* as provided in § 207.21 of the Commission's rules, upon notice from the U.S. Department of Commerce ("Commerce") of affirmative preliminary determinations in the investigations under §§ 703(b) or 733(b) of the Act, or, if the preliminary determinations are negative, upon notice of affirmative final determinations in those investigations under §§ 705(a) or 735(a) of the Act. Parties that filed entries of appearance in the preliminary phase of the investigations need not enter a separate appearance for the final phase of the investigations. Any other party may file an entry of appearance for the final phase of the investigations after publication of the final phase notice of scheduling. Industrial users, and, if the merchandise under investigation is sold at the retail level, representative consumer organizations have the right to appear as parties in Commission antidumping and countervailing duty investigations. The Secretary will prepare a public service list containing the names and addresses of all persons, or their representatives, who are parties to the investigations. As provided in section 207.20 of the Commission's rules, the Director of the Office of Investigations will circulate draft questionnaires for the final phase

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

[2] 91 FR 28559 and 91 FR 28566 (May 18, 2026).

of the investigations to parties to the investigations, placing copies on the Commission's Electronic Document Information System (EDIS, https://edis.usitc.gov), for comment.

BACKGROUND

On April 21, 2026, Advancion Corporation ("Advancion"), Buffalo Grove, Illinois, filed petitions with the Commission and Commerce, alleging that an industry in the United States is materially injured or threatened with material injury by reason of subsidized imports of Tris and Tris HCl from China and LTFV imports of Tris and Tris HCl from China. Accordingly, effective April 21, 2026, the Commission instituted countervailing duty investigation No. 701-TA-793 and antidumping duty investigation No. 731-TA-1789 (Preliminary).

Notice of the institution of the Commission's investigations and of a public conference to be held in connection therewith was given by posting copies of the notice in the Office of the Secretary, U.S. International Trade Commission, Washington, DC, and by publishing the notice in the *Federal Register* of April 24, 2026 (91 FR 22166). The Commission conducted its conference on May 12, 2026. All persons who requested the opportunity were permitted to participate.

Views of the Commission

Based on the record in the preliminary phase of these investigations, we determine that there is a reasonable indication that an industry in the United States is materially injured by reason of imports of tris(hydroxymethyl)aminomethane ("Tris") and tris(hydroxymethyl)aminomethane hydrochloride ("Tris HCl") that are allegedly sold in the United States at less than fair value and imports of the subject merchandise from China that are allegedly subsidized by the Government of China.

I. The Legal Standard for Preliminary Determinations

The legal standard for preliminary antidumping and countervailing duty determinations requires the Commission to determine, based upon the information available at the time of the preliminary determinations, whether there is a reasonable indication that a domestic industry is materially injured or threatened with material injury, or that the establishment of an industry is materially retarded, by reason of the allegedly unfairly traded imports.[1] In applying this standard, the Commission weighs the evidence before it and determines whether "(1) the record as a whole contains clear and convincing evidence that there is no material injury or threat of such injury; and (2) no likelihood exists that contrary evidence will arise in a final investigation."[2]

II. Background

Advancion Corporation ("Advancion" or "Petitioner"), a U.S. producer of Tris and Tris HCl, filed the petitions in these investigations on April 21, 2026.[3] Petitioner appeared at the staff conference accompanied by counsel and submitted a postconference brief.[4]

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[1] 19 U.S.C. §§ 1671b(a), 1673b(a) (2000); *see also American Lamb Co. v. United States*, 785 F.2d 994, 1001-04 (Fed. Cir. 1986); *Aristech Chem. Corp. v. United States, 2*0 CIT 353, 354-55 (1996). No party argues that the establishment of an industry in the United States is materially retarded by the allegedly unfairly traded imports.

[2] *American Lamb Co*., 785 F.2d at 1001; *see also Texas Crushed Stone Co. v. United States*, 35 F.3d 1535, 1543 (Fed. Cir. 1994).

[3] *See* Petition, EDIS Doc. 879462; *see also* Confidential Staff Report ("CR"), INV-YY-081, EDIS Doc. 883677 (May 29, 2026) and *Tris(hydroxymethyl)aminomethane and Tris(hydroxymethyl)aminomethane Hydrochloride ("Tris and Tris HCl") from China*: *Inv.* Nos. TA-793 and 731-TA-1789 (Preliminary), USITC Pub. 5751 (June 2026) ("PR") at 1.1. Prior to September 1, 2023, Advancion was known as "Angus Chemical". *See* Table 3.3.

[4] *See generally* Transcript of Preliminary Staff Conference ("Conf. Tr."); *see also* Postconference Brief on Behalf of Advancion Corporation, EDIS Doc. 882380 (May 15, 2026) ("Petitioner Postconf. Br.").

No respondent entities participated as parties in the preliminary phase of these investigations.[5] One U.S. reprocessor and importer, BioSpectra, filed pre- and post-conference non-party statements.[6] U.S. industry data are based on the questionnaire response of one U.S. producer, Advancion, that accounted for all U.S. production of Tris and Tris HCl in 2025.[7] U.S. import data are based on questionnaire response data from 15 U.S. importers, accounting for *** percent of imports of Tris and Tris HCl from China and *** percent of total imports from nonsubject sources of Tris and Tris HCl in 2025 using shipment manifest data provided by Petitioner.[8]

The Commission received a response to its foreign producer questionnaire from one producer/exporter of subject merchandise, Yacoo, accounting for approximately *** percent of production of subject merchandise from China in 2025.[9]

III. Domestic Like Product

In determining whether there is a reasonable indication that an industry in the United States is materially injured or threatened with material injury by reason of imports of the subject merchandise, the Commission first defines the "domestic like product" and the "industry."[10] Section 771(4)(A) of the Tariff Act of 1930, as amended ("the Tariff Act"), defines the relevant domestic industry as the "producers as a whole of a domestic like product, or those producers whose collective output of a domestic like product constitutes a major proportion of the total domestic production of the product."[11] In turn, the Tariff Act defines "domestic like product" as "a product which is like, or in the absence of like, most similar in characteristics and uses with, the article subject to an investigation."[12]

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[5] Suzhou Yacoo Science Co. ("Yacoo"), a producer of subject merchandise in China, filed an appearance but did not participate in the conference or file a postconference brief. *See* Yacoo Notice of Appearance, EDIS Doc. 881097 (May 4, 2026).

[6] *See* BioSpectra Non-Party Response to Petitioner, EDIS Doc. 881182 (May 5, 2026) ("BioSpectra Response"); BioSpectra Postconference Non-Party Submission, EDIS Doc. 882468 (May. 18, 2026) ("BioSpectra Postconf. Submission"). BioSpectra also submitted U.S. producer and U.S. importer questionnaire responses.

[7] CR/PR at 1.4.

[8] CR/PR at 4.1. Given that HTS code 2922.19.9690 is a "basket" category that contains out-of-scope merchandise, the coverage percentages are based on Petitioner's estimates of U.S. imports of Tris and Tris HCl using shipment manifest data compiled by Panjiva. *See* CR/PR at 4.1 (citing Petition, Exhibit Gen-5).

[9] CR/PR at Table 7.1.

[10] 19 U.S.C. § 1677(4)(A).

[11] 19 U.S.C. § 1677(4)(A).

[12] 19 U.S.C. § 1677(10).

By statute, the Commission's "domestic like product" analysis begins with the "article subject to an investigation," *i.e.*, the subject merchandise as determined by Commerce.[13] Therefore, Commerce's determination as to the scope of the imported merchandise that is subsidized and/or sold at less than fair value is "necessarily the starting point of the Commission's like product analysis."[14] The Commission then defines the domestic like product in light of the imported articles Commerce has identified.[15] The decision regarding the appropriate domestic like product(s) in an investigation is a factual determination, and the Commission has applied the statutory standard of "like" or "most similar in characteristics and uses" on a case-by-case basis.[16] No single factor is dispositive, and the Commission may consider other factors it deems relevant based on the facts of a particular investigation.[17] The Commission looks for clear dividing lines among possible like products and disregards minor

[13] 19 U.S.C. § 1677(10). The Commission must accept Commerce's determination as to the scope of the imported merchandise that is subsidized and/or sold at less than fair value. *See*, *e.g.*, *USEC, Inc. v. United States*, 34 Fed. App'x 725, 730 (Fed. Cir. 2002) ("The ITC may not modify the class or kind of imported merchandise examined by Commerce."); *Algoma Steel Corp. v. United States,* 688 F. Supp. 639, 644 (Ct. Int'l Trade 1988), *aff'd*, 865 F.3d 240 (Fed. Cir.), *cert. denied*, 492 U.S. 919 (1989).

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

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

[16] *See*, *e.g.*, *Cleo Inc. v. United States*, 501 F.3d 1291, 1299 (Fed. Cir. 2007); *NEC Corp. v. Department of Commerce*, 36 F. Supp. 2d 380, 383 (Ct. Int'l Trade 1998); *Nippon Steel Corp. v. United States*, 19 CIT 450, 455 (1995); *Torrington Co. v. United States*, 747 F. Supp. 744, 749 n.3 (Ct. Int'l Trade 1990), *aff'd*, 938 F.2d 1278 (Fed. Cir. 1991) ("every like product determination 'must be made on the particular record at issue' and the 'unique facts of each case'"). The Commission generally considers a number of factors including the following: (1) physical characteristics and uses; (2) interchangeability; (3) channels of distribution; (4) customer and producer perceptions of the products; (5) common manufacturing facilities, production processes, and production employees; and, where appropriate, (6) price. *See Nippon*, 19 CIT at 455 n.4; *Timken Co. v. United States*, 913 F. Supp. 580, 584 (Ct. Int'l Trade 1996).

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

variations.[18] The Commission may, where appropriate, include domestic articles in the domestic like product in addition to those described in the scope.[19]

In its notice of initiation, Commerce defined the imported merchandise within the scope of these investigations as follows:

> The merchandise subject to this investigation is tris(hydroxymethyl)aminomethane (Tris), also commonly referred to as tromethamine or THAM, and its derivative, tris(hydroxymethyl)aminomethane hydrochloride (Tris HCl), also commonly referred to as Tris hydrochloride or tromethamine HCl. Tris and Tris HCl are organic compounds with molecular compositions of C4H11NO3 and C4H11NO3·ClH, respectively. The scope includes all grades, purities, and forms of Tris and Tris HCl, which vary based on the raw materials (nitromethane and formaldehyde) used in the production process and the end use application required. Tris and Tris HCl are packaged and sold in different forms and sizes; however, all Tris and Tris HCl are covered regardless of form or packaging. The Tris and Tris HCl covered by this investigation are chemical compounds with the Chemical Abstract Service (CAS) numbers 77–86–1 and 1185– 53–1, respectively. The country of origin of the subject merchandise in this investigation is based on the country where the Tris molecule is manufactured. As a result, Tris HCl manufactured in a third country using Tris produced in China is subject to the investigation. In addition, reprocessing Tris or Tris HCl in a third country by, for example, recrystallizing, retesting, or repackaging the merchandise does not remove the product from the scope of this investigation. Tris and Tris HCl covered by the scope of this investigation are currently classified under Harmonized Tariff Schedule of the United States (HTSUS) subheading 2922.19.9690. Although the HTSUS subheading and CAS numbers are provided for convenience and customs purposes, the written description of the scope is dispositive.[20]

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

[19] *See*, *e.g.*, *Pure Magnesium from China and Israel*, Inv. Nos. 701-TA-403 and 731-TA-895-96 (Final), USITC Pub. 3467 at 8 n.34 (Nov. 2001); *Torrington,* 747 F. Supp. at 748-49 (holding that the Commission is not legally required to limit the domestic like product to the product advocated by the petitioner, co-extensive with the scope).

[20] *See Tris(hydroxymethyl)aminomethane From the People's Republic of China: Initiation of Countervailing Duty Investigation*, 91 Fed. Reg. 28559, 28562 (Dep't of Comm. May 18, 2026).

A. Product Description

Tris, also known as "Tris base," and Tris HCl are both organic compounds that function as chemical buffers, surfactants, and emulsifiers in a wide range of applications. When dissolved in water, the primary difference is that Tris is basic, with a pH range of approximately 10.5 to 11.5, while Tris HCl is acidic, with a pH of approximately 3.5 to 5.[21] Tris buffers generally have a pH range of 7 to 9, which creates an ideal environment for a wide variety of living organisms.[22] For that reason, both Tris and Tris HCl are as used as buffers in biochemical research and cell biology applications.[23] Buffers used in biologics manufacturing are usually made by combining base (*i.e.*, Tris) and acid (*i.e.*, Tris HCl) forms. The two forms of compounds are commonly used in tandem because each chemical on its own does not have sufficient buffering capacity (*i.e.*, pH control). Consequently, Tris is first used to create a buffer system with a baseline pH, and then Tris HCl is added to help adjust the pH to the target value.[24]

Tris and Tris HCl also have a wide range of industrial uses, including as surface-active agents (surfactants), emulsifying agents, or stabilizing agents. Tris is often used in the pharmaceutical industry in monoclonal antibodies, COVID test kits, mRNA vaccines, and GLP-1 drugs.[25] Tris and Tris HCl are also used as buffering agents or pH adjusters in cosmetic products such as deodorants and are used as emulsifiers in beauty creams and lotions. Tris may also be used as an odor control agent in fabrics.[26]

Tris and Tris HCl are typically sold as white powders or crystals with purities ranging from 98 to 99.9 percent, based on their intended end use applications.[27] Tris and Tris HCl are packaged and sold in packages typically ranging from 1 to 5 kg to 25 to 50 kg, although non-standard packaging such as small pails and 600kg sacks is available. Tris and Tris HCl buffers are sold by grade, with the most common being the American Chemical Society ("ACS") grade, pharmacopeial/multi-compendial grade, reagent grade, and United States

[21] CR/PR at Table 1.9 n.27.
[22] CR/PR at 1.9.
[23] CR/PR at 1.10.
[24] CR/PR at 1.10.
[25] CR/PR at 1.11.
[26] CR/PR at 1.11.
[27] CR/PR at 1.12.

Pharmacopoeia grade, National Formulary ("USP-NF") grade.[28] The final Tris and Tris HCl products have a shelf life of two to five years, depending on the specific product line.[29]

The Tris production process begins with the mixing of formaldehyde and nitromethane[30] in a reactor to perform a condensation reaction that produces the intermediate compound tris(hydroxymethyl)nitromethane. This intermediate compound then enters a hydrogenation reactor where it reacts with hydrogen gas along with a metal catalyst such as platinum, nickel, or palladium, to produce Tris.[31] The resulting Tris solution undergoes purification, which removes the catalyst and other impurities.

Afterwards, the Tris is crystallized through a multi-step process of evaporation, cooling, or tweaking the solvent to create a solution of Tris crystals known as the "mother liquid". The producer then filters and centrifuges the mother liquid to isolate the Tris crystals, which are then dried, milled, and sorted according to size specifications. The process of reliquefying the Tris compound into a solution and recrystallizing it may be repeated several times to achieve higher grades of purity.[32]

The production of Tris HCl involves additional chemical reactions combining Tris with hydrochloric acid (HCl) in a reactor. The resulting Tris HCl then undergoes purification, crystallization, filtration, centrifuge, and drying processes similar to those described above.[33]

B. Petitioner's Arguments

Petitioner argues that the Commission should define a single domestic like product, coextensive with the scope of these investigations, because there are no clear dividing lines between Tris and Tris HCl. Petitioner contends that the Commission's semi-finished product

[28] CR/PR at Table 1.2. The ACS grade meets or surpasses ACS purity standards. The pharmacopeial/multi-compendial grade meets or surpasses select compendial testing standards. Reagent grade Tris buffers usually equal ACS grade and are suitable for laboratory use. USP-NF grade Tris buffers are suitable for food, drug, and medicinal uses. *Id*.

[29] CR/PR at 1.12.

[30] There are two main production processes for nitromethane: Method A, a continuous process using ammonia, propane, formaldehyde, and methane as raw materials, and Method B, a batch manufacturing process that is spread out across various different producers and uses sodium nitrate and dimethyl sulfate as the initial raw materials. CR/PR at 1.12-1.13. Petitioner uses Method A for its production operations in the United States. *Id*. Many foreign producers, including some producers in China, use Method B for their Tris manufacturing operations. CR/PR at 1.13.

[31] CR/PR at 1.15.

[32] CR/PR at 1.16.

[33] CR/PR at 1.16.

analysis is not applicable because Tris and Tris HCl are not at different stages of processing, as both are finished products that share similar end use applications.[34]

Applying the six traditional domestic like product factors, Petitioner contends that all grades of Tris and Tris HCl share common physical characteristics because all contain the Tris molecule, and that all in-scope Tris products are sold through the same channels of distribution to end users, reprocessors, and distributors.[35] Petitioner acknowledges that different grades of Tris and Tris HCl may not be fully interchangeable in all end-use applications, but contends that this is common for products that exist along a continuum. Similarly, Petitioner asserts that different grades of Tris and Tris HCl are priced along a continuum.[36]

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[34] *See* Petitioner Postconf. Br. at 7-8. In a semi-finished products analysis, the Commission examines the following: (1) the significance and extent of the processes used to transform the upstream into the downstream articles; (2) whether the upstream article is dedicated to the production of the downstream article or has independent uses; (3) differences in the physical characteristics and functions of the upstream and downstream articles; (4) whether there are perceived to be separate markets for the upstream and downstream articles; and (5) differences in the costs or value of the vertically differentiated articles. *See*, *e.g.*, *Glycine from India*, *Japan*, *and Korea*, Inv. Nos. 731-TA-1111-1113 (Preliminary), USITC Pub. No. 3921 at 7 (May 2007); *Artists' Canvas from China*, Inv. No. 731-TA-1091 (Final), USITC Pub. No. 3853 at 6 (May 2006); *Live Swine from Canada*, Inv. No. 731-TA-1076 (Final), US1TC Pub. 3766 at 8 n.40 (Apr. 2005); *Certain Frozen Fish Fillets from Vietnam*, Inv. No. 731-TA-1012 (Preliminary), USITC Pub. No. 3533 at 7 (Aug. 2002). Given the limited data on the record at the preliminary phase, and in the absence of arguments to the contrary, we apply the traditional six factor analysis in our analysis of the domestic like product. We intend to further investigate this issue in any final phase investigations.

[35] Petitioner Postconf. Br. at 5 (citing Conf. Tr. at 27 (Morey)).

[36] Petitioner Postconf. Br. at 5. In its non-party post-conference statement, BioSpectra appears to argue that Tris and Tris HCl are separate like products, and states that it has "never manufactured Tris and Tris HCl in the same manufacturing equipment as they require fully different operational systems and metallurgies to manage the highly corrosive nature of the Tris HCl." BioSpectra Postconf. Submission at 2. BioSpectra also argues that there is a clear dividing line between pharmaceutical-grade Tris and industrial grade Tris because the Food and Drug Administration ("FDA") classifies Tris as a "pharmaceutical ingredient" and Tris HCl as a "chemical of pharmaceutical necessity." BioSpectra Postconf. Submission at 2. Petitioner contends that Tris is a "pharmaceutical ingredient" only in rare cases when it is used as the active ingredient in a product. *See* Petition Postconf. Br. at 12; *see also* Conf. Tr. at 54 (Neuberger). Petitioner states that the only application for which any customer has requested FDA-certified Tris is as an active ingredient ***. *See* Petitioner Postconf. Br. at 4-5.; *see also* Petitioner Postconf. Br. Exhibit 6, Confidential Declaration of David Neuberger ("Neuberger Decl.") at ¶6. Advancion's CEO stated that if "the market for FDA-certified Tris were to grow beyond that level ***. Neuberger Decl. at ¶7. BioSpectra did not address any of the other like product factors in its non-party submissions and the record does not contain sufficient information to evaluate this argument. In any final phase of these investigations, parties wishing to raise domestic like product issues should identify those issues in their comments on the draft questionnaires so that the Commission can identify new information that may need to be collected.

C. Analysis and Conclusion

Based on the record, we define a single domestic like product, coextensive with the scope, consisting of Tris and Tris HCl.

Physical Characteristics and Uses. There are similarities among all in-scope forms of Tris, including Tris HCl, in terms of physical characteristics and uses. Although Tris and Tris HCl products may have varying purities and pH levels to meet intended end uses and certification requirements, all are typically sold as white powders or crystals.[37] Tris and Tris HCl overlap in several downstream uses, including in buffering solutions,[38] and in personal care, cosmetic, and industrial applications.[39] According to Advancion's CEO, Tris and Tris HCl are commonly used in tandem in downstream processing of monoclonal antibodies, certain GLP-1 drugs, insulin, certain vaccines, and diagnostic test kits.[40]

On the other hand, Tris and Tris HCl are distinct chemical compounds. Tris is a base, with a pH of 10.5 to 11, when dissolved by itself in water in a 1M solution, whereas Tris HCl is an acid with a pH of about 3.5 to 5.[41]

In responses to the Commission's questionnaires, producers, reprocessors, and importers compared Tris with Tris HCl. Two of five U.S. producers and reprocessors indicated that Tris and Tris HCl are mostly comparable in terms of physical characteristics, and two indicated that they are somewhat comparable in terms of physical characteristics.[42] Five of 11 importers indicated that Tris and Tris HCl are never comparable in terms of this factor, and four of 11 indicated that they are somewhat comparable.[43]

Manufacturing Facilities, Production Processes and Employees. Petitioner argues that it produces both Tris and Tris HCl at its facility in Sterlington, Louisiana,[44] where they undergo similar processes of purification, crystallization, filtration, centrifuging, and drying.[45] Petitioner acknowledges that Tris HCl requires a distinct additional chemical reaction to combine it with hydrochloric acid to produce the finished compound,[46] involving separate equipment and

[37] CR/PR at 1.12.
[38] CR/PR at 1.9.
[39] CR/PR at 1.10-11, 2.1.
[40] Neuberger Decl. at ¶ 10.
[41] CR/PR at 1.9 n.25.
[42] CR/PR at Table 1.3.
[43] CR/PR at Table 1.3.
[44] *See* Petitioner Postconf. Br. at 9.
[45] CR/PR at 1.16.
[46] CR/PR at 1.16.

production lines,[47] but contends that the same employees operate the equipment used to make Tris and Tris HCl.[48]

Channels of Distribution. All five U.S. producers and reprocessors, and five of nine importers, reported that Tris and Tris HCl are fully comparable regarding channels of distribution.[49] U.S. reprocessor *** reported that *** and reprocessor *** reported that the ***.[50] U.S. producer Advancion and subject importers sold *** from 2023 to 2025.[51]

Interchangeability. The record indicates that Tris and Tris HCl are generally not interchangeable. Four of five U.S. producers and reprocessors reported that Tris and Tris HCl are never interchangeable, and one reported that they are only somewhat interchangeable. Nine of 11 importers reported that Tris and Tris HCl are never interchangeable, and two reported that they are only somewhat interchangeable. *** reports that while ***.[52]

Producer and Customer Perceptions. Petitioner claims that producers and customers perceive all in-scope Tris products to be a continuum of products with different applications requiring different grades or purities.[53] However, a majority of responding U.S. producers and reprocessors (four of five) reported that Tris and Tris HCl are somewhat or never comparable in terms of producer and customer perceptions.[54] Similarly, a majority of responding U.S. importers (seven of nine) reported that Tris and Tris HCl are somewhat or never comparable to in terms of this factor.[55]

Nevertheless, regarding perceptions, one producer/reprocessor reported that ***, and another reported that both are ***.[56] *** reported that the ***. It added that

[47] Petitioner Postconf. Br. at 5. In its questionnaire response, Advancion stated that ***." CR/PR at Table F.3.

[48] Conf. Tr. at 28 (Morey). Two of five of U.S. producers and reprocessors indicated that Tris and Tris HCl are mostly comparable in terms of manufacturing processes, and two indicated that they are somewhat comparable in terms of manufacturing processes. CR/PR at Table 1.3. Three of 11 importers indicated that Tris and Tris HCl are fully or mostly comparable in terms of this factor, two indicated that they are somewhat comparable, and two indicated that they are never comparable. *Id*.

[49] CR/PR at Table 1.3. One importer also reported that Tris and Tris HCl are mostly comparable regarding channels of distribution. *Id*.

[50] CR/PR at Table D.1.

[51] *See* CR/PR at Table 2.1.

[52] CR/PR at Table D.1.

[53] *See* Petitioner Postconf. Br. at 5; *see also* Conf. Tr. at 70 (Neuberger).

[54] CR/PR at Table 1.3.

[55] CR/PR at Table 1.3.

[56] CR/PR at Table D.1.

***.[57]

One importer stated that ***, while others reported that ***.[58]

Price. Petitioner claims that prices for Tris and Tris HCl are consistent with a product continuum.[59] A majority of responding U.S. producers and reprocessors (four of five) and a majority of responding U.S. importers (eight of nine) responded that Tris and Tris HCl are only somewhat, or never, comparable in terms of price.[60] The quarterly pricing data gathered by the Commission indicate that Tris HCl is generally higher priced than Tris, but that there is a continuum of prices. The U.S. producer's quarterly U.S. pricing data show prices for Tris crystals with a minimum purity of 99.0 percent (pricing product 1) ranged from $*** to $*** per kg, prices for standard grade Tris buffer with minimum purity of 99.3 percent (pricing product 2) ranged from $*** to $*** per kg, prices for Tris Ultrapure with a minimum purity 99.9 (pricing product 3) ranged from $*** to $*** per kg; and prices for Tris HCl with a minimum purity of 99.0 percent (pricing product 3) ranged from $*** to $*** per kg.[61]

Conclusion. On balance, the record of the preliminary phase of these investigations demonstrates that Tris and Tris HCl belong in a single domestic like product. Although they are different chemical compounds, they share similar physical characteristics, overlap in end uses in biological research, pharmaceutical, cosmetic, and industrial applications, and are sold to similar customers through the same channels of distribution. The record indicates that customers and producers perceive Tris and Tris HCl to be different products, but there is evidence that some customers and producers perceive them to be related, complementary products that must be used together. The record also indicates that Tris and Tris HCl are not interchangeable because they are distinct chemical compounds with different properties, and the production of Tris HCl requires additional production steps. However, Petitioner produces Tris and Tris HCL in the same manufacturing facility using the same employees. As to price, the record indicates that Tris HCl is generally priced higher than Tris, but on the high end of an overlapping continuum of prices.

Accordingly, we define a single domestic like product encompassing all Tris, including Tris HCl, coextensive with Commerce's scope.

[57] CR/PR at Table D.1.
[58] CR/PR at Table D.2.
[59] Petitioner Postconf. Br. at 5.
[60] *See* CR/PR at Table 1.3 (1.18).
[61] CR/PR at Table 5.8; *see also* CR/PR at 5.5.

IV. Domestic Industry

The domestic industry is defined as the domestic "producers as a whole of a domestic like product, or those producers whose collective output of a domestic like product constitutes a major proportion of the total domestic production of the product."[62] 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. These investigations raise the issue whether appropriate circumstances exist to exclude any domestic producers from the domestic industry pursuant to Section 771(4)(B) of the Tariff Act.[63] 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.[64] Exclusion of such a producer is within the Commission's discretion based upon the facts presented in each investigation.[65]

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[62] 19 U.S.C. § 1677(4)(A).

[63] Certain U.S. firms, known as "reprocessors", do not produce the Tris molecule, but process domestically produced or imported Tris base into other forms of the domestic like product. While U.S. processors *** responded to questions about their production activities, these firms did not provide usable trade or financial data regarding their reprocessing operations. Therefore, aggregate domestic industry data for the preliminary phase do not include these firms' data, and there is accordingly no need for us to consider whether these firms are part of the domestic industry for purposes of these preliminary phase investigations. The remaining U.S. processor, ***, provided usable trade and financial data for its reprocessing activities, but as we find below, appropriate circumstances exist to exclude *** from the domestic industry as a related party under section 771(4)(B)(i) of the Tariff Act, 19 U.S.C. § 1677(4)(B)(i). Accordingly, for purposes of these preliminary phase investigations, we assume that *** engages in sufficient production-related activities. We intend to investigate the activities of these firms further in any final investigations.

[64] *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).

[65] 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

(Continued…)

Petitioner argues that if the Commission includes reprocessors in its definition of the domestic industry, it should exclude all reprocessors under the related parties provision because they import significant volumes of Tris for use in their reprocessing activities or are affiliated with subject importers, exporters, and producers.[66] Specifically, Petitioner alleges that BioSpectra recently acquired six global raw material suppliers for its life science products, including Anhui Peicheng Pharmatech Co. Ltd., a subject producer of Tris, and Changzhou Peicheng Import and Exporter Co., Ltd., an exporter of subject merchandise.[67]

A. Analysis and Conclusion

The record of this preliminary phase indicates that *** is potentially subject to exclusion as a related party under section 771(4)(B)(i) of the Tariff Act, 19 U.S.C. § 1677(4)(B)(i), because it imported subject merchandise during the January 1, 2023, to December 31, 2025 period of investigation ("POI"). It is also a related party for purposes of section 771(4)(B)(ii)(I) of the Tariff Act, 19 U.S.C. § 1677(4)(B)(ii)(I) because it owns importers and producers of subject merchandise in China.

***. *** is a related party for purposes of 19 U.S.C. § 1677(4)(B)(ii)(I) because it *** of ***, an exporter of Tris from China, and ***, a producer of Tris in China.[68] It *** the petitions. Data in ***'s producer questionnaire response indicates that it ***, accounting for *** percent of subject imports from China in 2025.[69] Its ratio of subject imports that it imported itself to domestic production was *** percent in 2023 and *** percent in 2025,[70] but it also purchased

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(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), *aff'd*, 879 F.3d 1377 (Fed. Cir. 2018); *see also Torrington Co. v. United States*, 790 F. Supp. at 1168.

[66] Petitioner Postconf. Br. at 9.

[67] Petitioner Postconf. Br. at 14. BioSpectra reported that "Changzhou Peicheng is the exporter of the Tris manufactured at Anhui Peicheng. {BioSpectra} is proud to be the 100 {percent} U.S. owner of both entities." BioSpectra Response at 28. BioSpectra acknowledges that "100% of all current orders at Anhui Peicheng, and through Changzhou Peicheng, for Tris products being exported to the US continue to be for the sole use of BioSpectra to manufacture into pharmaceutical compliance level Tris and Tris HCl." BioSpectra Postconf. Submission at 2. Petitioner also asserts Sigma-Aldrich and Avantor/VWR should be excluded as related parties because they accounted for significant quantities of imports of Tris from China during the POI. Petitioner Postconf. Br. at 14 n.8.

[68] *See* CR/PR at Table F.2.

[69] CR/PR at Table 4.1. ***. *** at 2.

[70] CR/PR at Table F.15. *** domestic production was *** metric tons in 2023 and *** short tons in 2025. Its imports from China were *** metric tons in 2023 and *** in 2025. *Id*. See *** U.S. Importer Questionnaire Response, EDIS Doc. *** at II-5a. The reason it gave for importing subject imports was:

(Continued…)

significant volumes of subject merchandise from U.S. importer *** in 2023, 2024, and 2025 for ***.[71] In total, its subject imports and purchases of subject imports totaled *** metric tons in 2023, *** metric tons in 2024 and *** metric tons in 2025.[72] The ratio of ***'s aggregate acquisitions of subject imports to its domestic production were *** percent in 2023, *** percent in 2024, and *** percent in 2025.[73] *** reported that it sourced its imported Tris entirely from ***, which is ***.[74] Indeed, *** of *** subject imports and purchases thereof in 2025 were sourced from its affiliated manufacturer producers/exporters in China, ***.[75]

According to the pricing and purchase-cost data collected by the Commission in this preliminary phase with respect to *** and *** specifically, subject imports *** were lower priced than the domestic like product.[76] Specifically, the purchase cost data for subject merchandise that *** imported itself were lower than the domestic like product by a significant margin (*** percent), while the imports that *** purchased from *** undersold the domestic like product by a significant average margin (*** percent) over the POI.[77]

Furthermore, *** corresponded with the notable shift away from purchasing domestically produced Tris to sourcing subject merchandise.[78] Indeed, *** reported that it ***.[79] *** even acknowledges that its financial position *** because it *** instead of the

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CR/PR at Table F.16.

In Section VI.E below, we consider for preliminary phase purposes whether *** reasons for increasing its sourcing of subject imports at the expense of Petitioner explains any negative effects to the domestic industry's performance during the POI.

[71] CR/PR at Table F.16. *** reported that it purchased from *** *** metric tons of subject imports in 2023, *** metric tons in 2024, and *** metric tons in 2025. These purchases accounted for *** percent of *** subject imports in 2023, 2024, and 2025. *** accounted for *** percent of subject imports from China in 2023, *** percent in 2024, and *** percent in 2025. *See* CR/PR at Table F.16 and Table 4.1. The ratio of *** purchases of subject imports to domestic production was *** percent in 2023, *** percent in 2024, and *** percent in 2025. CR/PR at Table F.16.

[72] *See* CR/PR at Tables F.15, F.16.

[73] *Calculated from* CR/PR at Tables F.15, F.16.

[74] *See* *** U.S. Importer Questionnaire Response, EDIS Doc. *** at II-5a.

[75] *See* *** U.S. Importer Questionnaire Response, EDIS Doc. *** at II-5a; ***.

[76] *See* CR/PR at Tables 5.13-14; Section VI.D; s*ee also* *** U.S. Importer Questionnaire Response, EDIS Doc. ***; *** U.S. Importer Questionnaire Response, EDIS Doc. ***.

[77] *Compare* Tables CR/PR at Tables 5.4 and 5.5 to *** U.S. Importer Questionnaire Responses at III.2b and III.3b. *** reported purchase cost data for one quarter, during which its subject imports were priced lower than the domestic like product. *** reported pricing data for eight quarters and its imports of subject merchandise universally undersold the domestic like product in each quarter.

[78] *** at 5-6; CR/PR at Tables F-15-16; ***.

[79] *See* *** U.S. Importer Response, EDIS Doc. *** to Commission Staff at p.4.

domestic like product during the POI.[80] As a result of these low-priced imports *** per unit cost for Tris, an important input for Tris HCL, declined from $*** per kilogram in 2023 to $*** in 2024 *** and $*** per kilogram in 2025.[81] Over the same period, ***'s operating income and ratio of operating income to net sales ***, while those same metrics *** for Advancion.[82]

*** subject imports and purchases of subject imports are primarily of Tris which it uses in its Tris reprocessing activities. The relative financial performance of *** compared to Advancion suggests that *** imported and purchased subject imports from its ***—which were universally priced lower than the domestic like product—allowed it to improve its financial performance and, accordingly, suggest that *** benefited from subject imports during the POI.

While available data indicate that competition between the domestic industry and subject imports was occurring at multiple levels, including Tris base and Tris HCl, *** was a substantial purchaser at the Tris base level. As discussed below, its decision to *** resulted in a significant market share shift from the domestic industry to subject imports.[83] Accordingly, the record in these preliminary phase investigations indicates that *** inclusion in the domestic industry would therefore mask a substantial market share shift from the domestic industry to subject imports at the Tris base level of the market during the POI.

In light of the above, we find that *** inclusion in the domestic industry would appear to skew the data so as to mask injury.

In sum, we find for preliminary phase purposes that appropriate circumstances exist to exclude *** from the domestic industry as a related party, and therefore define the domestic industry as Advancion.

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[80] CR/PR at Table 5.17.

[81] CR/PR at Table F.21.

[82] ***'s ratio of operating income to net sales was *** percent in 2023, *** percent in 2024, and *** percent in 2025. CR/PR at Table F.20. Petitioner's ratio of operating income to net sales was *** percent in 2023, *** percent in 2024, and *** percent in 2025. CR/PR at Table 6.1. ***'s operating income increased *** percent during the POI, CR/PR at Table F.21, while Petitioner's operating income decreased *** percent. CR/PR at Table 6.2.

[83] This market share shift is most observable in the data collected concerning the fully domestic value of apparent U.S. consumption during the POI, which declined from *** percent in 2023 to *** percent in 2024 and *** percent in 2025, for an overall decrease of *** percentage points. CR/PR at Table C.2. This data point represents Advancion's domestic production of all Tris and the value added by *** reprocessing only to Tris base or Tris HCl that was domestically produced. In contrast, the total domestic value, which adds *** value from reprocessing subject imports, shows that the domestic industry's share of apparent U.S. consumption by value decreased from *** percent in 2023 to *** percent in 2024 and then increased to *** percent in 2025, for an overall decrease of *** percentage points. CR/PR at Table C.2.

V. Negligible Imports

Pursuant to Section 771(24) of the Tariff Act, imports from a subject country of merchandise corresponding to a domestic like product that account for less than 3 percent of all such merchandise imported into the United States during the most recent 12 months for which data are available preceding the filing of the petition shall be deemed negligible.[84]

Based on questionnaire data, in the 12-month period preceding the filing of these petitions, April 2025 through March 2026, subject imports accounted for *** percent of total imports.[85] Because subject imports are above the pertinent statutory negligibility threshold, we find that these imports are not negligible.

VI. Reasonable Indication of Material Injury by Reason of Subject Imports

A. Legal Standard

In the preliminary phase of antidumping and countervailing duty investigations, the Commission determines whether there is a reasonable indication that an industry in the United States is materially injured or threatened with material injury by reason of the imports under investigation.[86] In making this determination, the Commission must consider the volume of subject imports, their effect on prices for the domestic like product, and their impact on domestic producers of the domestic like product, but only in the context of U.S. production operations.[87] The statute defines "material injury" as "harm which is not inconsequential, immaterial, or unimportant."[88] In assessing whether there is a reasonable indication that the domestic industry is materially injured by reason of subject imports, we consider all relevant economic factors that bear on the state of the industry in the United States.[89] No single factor is dispositive, and all relevant factors are considered "within the context of the business cycle and conditions of competition that are distinctive to the affected industry."[90]

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[84] 19 U.S.C. §§ 1671b(a), 1673b(a), 1677(24)(A)(i), 1677(24)(B); *see also* 15 C.F.R. § 2013.1 (developing countries for purposes of 19 U.S.C. § 1677(36)).

[85] CR/PR at Table 4.6.

[86] 19 U.S.C. §§ 1671b(a), 1673b(a).

[87] 19 U.S.C. § 1677(7)(B). The Commission "may consider such other economic factors as are relevant to the determination" but shall "identify each {such} factor ... and explain in full its relevance to the determination." 19 U.S.C. § 1677(7)(B).

[88] 19 U.S.C. § 1677(7)(A).

[89] 19 U.S.C. § 1677(7)(C)(iii).

[90] 19 U.S.C. § 1677(7)(C)(iii).

Although the statute requires the Commission to determine whether there is a reasonable indication that the domestic industry is "materially injured or threatened with material injury by reason of" unfairly traded imports,[91] it does not define the phrase "by reason of," indicating that this aspect of the injury analysis is left to the Commission's reasonable exercise of its discretion.[92] In identifying a causal link, if any, between subject imports and material injury to the domestic industry, the Commission examines the facts of record that relate to the significance of the volume and price effects of the subject imports and any impact of those imports on the condition of the domestic industry. This evaluation under the "by reason of" standard must ensure that subject imports are more than a minimal or tangential cause of injury and that there is a sufficient causal, not merely a temporal, nexus between subject imports and material injury.[93]

In many investigations, there are other economic factors at work, some or all of which may also be having adverse effects on the domestic industry. Such economic factors might include nonsubject imports; changes in technology, demand, or consumer tastes; competition among domestic producers; or management decisions by domestic producers. The legislative history explains that the Commission must examine factors other than subject imports to ensure that it is not attributing injury from other factors to the subject imports, thereby inflating an otherwise tangential cause of injury into one that satisfies the statutory material injury threshold.[94] In performing its examination, however, the Commission need not isolate

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[91] 19 U.S.C. §§ 1671b(a), 1673b(a).

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

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

[94] SAA at 851-52 ("{T}he Commission must examine other factors to ensure that it is not attributing injury from other sources to the subject imports."); S. Rep. 96-249 at 75 (1979) (the Commission "will consider information which indicates that harm is caused by factors other than less-than-fair-value imports."); H.R. Rep. 96-317 at 47 (1979) ("in examining the overall injury being experienced by a domestic industry, the ITC will take into account evidence presented to it which demonstrates that the harm attributed by the petitioner to the subsidized or dumped imports is (Continued…)

the injury caused by other factors from injury caused by unfairly traded imports.[95] Nor does the "by reason of" standard require that unfairly traded imports be the "principal" cause of injury or contemplate that injury from unfairly traded imports be weighed against other factors, such as nonsubject imports, which may be contributing to overall injury to an industry.[96] It is clear that the existence of injury caused by other factors does not compel a negative determination.[97]

Assessment of whether material injury to the domestic industry is "by reason of" subject imports "does not require the Commission to address the causation issue in any particular way" as long as "the injury to the domestic industry can reasonably be attributed to the subject imports."[98] The Commission ensures that it has "evidence in the record" to "show that the harm occurred 'by reason of' the LTFV imports," and that it is "not attributing injury from other

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attributable to such other factors;" those factors include "the volume and prices of nonsubsidized imports or imports sold at fair value, contraction in demand or changes in patterns of consumption, trade restrictive practices of and competition between the foreign and domestic producers, developments in technology and the export performance and productivity of the domestic industry"); *accord Mittal Steel*, 542 F.3d at 877.

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

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

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

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

sources to the subject imports."[99] The Federal Circuit has examined and affirmed various Commission methodologies and has disavowed "rigid adherence to a specific formula."[100]

The question of whether the material injury threshold for subject imports is satisfied notwithstanding any injury from other factors is factual, subject to review under the substantial evidence standard.[101] Congress has delegated this factual finding to the Commission because of the agency's institutional expertise in resolving injury issues.[102]

B. Conditions of Competition and the Business Cycle

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

1. Demand Conditions

Domestic demand for Tris and Tris HCl is tied to demand for downstream applications, including end uses in buffer solutions, pharmaceuticals, chemicals, and cleaners.[103] The downstream pharmaceutical applications include monoclonal antibodies, COVID-19 and other diagnostic kits, mRNA and novel vaccines, including the COVID-19 vaccines, and many GLP-1 drugs. Tris is also used in personal care and cosmetic applications, such as facial cleaner, skin care products, and deodorants, and in industrial applications such as paint and concrete.[104] U.S. producers made most of their U.S. shipments to end users and reprocessors during the POI.[105]

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

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

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

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

[103] CR/PR at 2.6.

[104] CR/PR at 2.6.

[105] CR/PR at Table 2.1. Shipments to end users accounted for *** percent of the domestic industry's U.S. shipments in 2023, *** percent in 2024, and *** percent in 2025.

Shipments to reprocessors accounted for *** percent of the domestic industry's U.S. shipments in 2023, *** percent in 2024, and *** percent in 2025. CR/PR at Table 2.1.

In response to questionnaires, most firms reported increasing or steady domestic demand since January 1, 2023.[106] *** reported that overall demand fluctuated downward during the POI. Of the 14 U.S. importers that provided a response regarding demand, one reported that overall demand steadily increased, five reported that demand fluctuated up, five reported no change, and three reported that demand fluctuated downward.[107] Some firms indicated that inventories increased during the COVID-19 pandemic, which led to inventory destocking and a resulting decline in demand in 2024.[108]

Apparent U.S. consumption of Tris and Tris HCl decreased *** percent, from *** metric tons in 2023 to *** metric tons in 2024 and to *** metric tons in 2025.[109]

2. Supply Conditions

The domestic industry was the largest supplier of the market in 2023 and 2024, but only the second largest by 2025. Its share of apparent U.S. consumption declined overall by *** percentage points from 2023 to 2025, decreasing from *** percent in 2023 to *** percent in 2024 and to *** percent in 2025.[110]

The record does not indicate that there were changes to the domestic industry during the POI, although Advancion ***.[111] The domestic industry's practical capacity remained essentially unchanged during the POI, at *** metric tons in 2023, *** metric tons in 2024, and *** metric tons in 2025.[112] The domestic industry's capacity utilization decreased by *** percentage points during the POI, from *** percent in 2023 to *** percent in 2024 and to *** percent in 2025.[113]

Subject imports became the largest source of supply by the end of the POI, as they increased their share of apparent U.S. consumption by quantity each year – from *** percent in 2023 to *** percent in 2024 and to *** percent in 2025.[114]

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[106] *See* CR/PR at 2.6.

[107] CR/PR at Table 2.4. U.S. importer *** reported that life sciences applications have driven an increase in demand for Tris and Tris HCl during the POI. CR/PR at 2.6. Importer *** reported that Tris and Tris HCl have been used more in vaccines over the past five years versus pre-COVID times. CR/PR at 2.1. Advancion's president and CEO testified that the biotechnology sector, which is a primary driver of demand for Tris and Tris HCl, experienced annual growth rates in the high single digits or low double digits during the POI. Conf. Tr. at 76 (Neuberger).

[108] *See* CR/PR at 2.6; *see also* Petitioner Postconf. Br. at 17-18.

[109] CR/PR at Tables 4.7, C.1.

[110] CR/PR at Table 4.7; Table C.1

[111] CR/PR at Table 3.4. In 2022, prior to the POI, the firm expanded its Sterlington, Louisiana, facility to add production of Tris HCl. CR/PR at Table 3.3.

[112] CR/PR at Table 3.5.

[113] CR/PR at Table 3.5.

[114] CR/PR at Tables 4.7, C.1.

Nonsubject imports were the smallest source of supply throughout the POI, and their share of apparent U.S. consumption by quantity decreased from *** percent in 2022 to *** percent in 2023 and to *** percent in 2024.[115] Sources of nonsubject imports during the POI were France, Germany, India, Israel, Spain, Switzerland, and Taiwan.[116]

U.S. producer Advancion and 12 of 14 responding importers reported that they had not experienced supply constraints since January 1, 2023.[117] U.S. importer *** reported that supply constraints occurred during 2023 due to a reduction in the quality of Petitioner's Tris sold to ***, which limited *** ability to manufacture FDA-registered Tris and Tris HCl.[118]

3. Substitutability and Other Conditions

Based on the record in the preliminary phase of these investigations, we find that there is a moderate degree of substitutability between the domestic like product and subject imports.[119] *** U.S. producer reported that domestically produced Tris and Tris HCl are always interchangeable with corresponding subject imports from China.[120] A majority of U.S. importers reported that domestically produced Tris and subject imports from China were always or frequently interchangeable with one another.[121]

Based on the record in the preliminary phase of these investigations, we find that price is an important factor in purchasing decisions for Tris and Tris HCl, among other important factors. The most often cited top three factors firms consider in their purchasing decisions for Tris and Tris HCl were availability/supply, quality, and price.[122] Advancion reported that differences other than price between domestic and imported product were *** significant in their sales.[123] However, a majority of U.S. importers reported that factors other than price

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[115] CR/PR at Tables 4.7, C.1.

[116] CR/PR at 2.5.

[117] CR/PR at 2.5.

[118] CR/PR at 2.5. As discussed above in our analysis of the domestic like product, Petitioner acknowledges that it is not registered with the FDA but asserts that end-use applications requiring FDA-approved Tris are a small fraction of the U.S. market. *See* section III.B, *supra*. We address the effects of the alleged supply constraints that Advancion experienced below in section VI.E.

The other U.S. importer that reported supply constraints, ***, stated that the constraints occurred during 2025 and 2026 due to a change in its Chinese suppliers' ownership that negatively impacted supply availability, required changes in suppliers, and resulted in delays due to product re-qualification requirements to ensure product quality. CR/PR at 2.5.

[119] CR/PR at 2.7. We intend to investigate further the substitutability of the domestic like product and subject imports in any final phase investigations.

[120] CR/PR at Table 2.6.

[121] CR/PR at Table 2.6.

[122] CR/PR at Table 2.5.

[123] CR/PR at Table 2.7.

were either always or frequently significant when comparing domestically produced Tris to imports from China.[124]

U.S. producer Advancion reported that *** its commercial shipments were sold from inventory, with lead times averaging *** days.[125] U.S. importers reported that *** percent of their commercial shipments were sold from U.S. inventory and *** percent were sold from foreign inventory, with lead times averaging *** and *** days, respectively.[126] The remaining *** percent of their commercial shipments were produced to order, with lead times averaging *** days.[127]

Advancion reported selling Tris through long-term contracts (*** percent) and spot sales (*** percent) in 2025.[128] Advancion stated that its ***.[129] It further reported that its contracts ***.

U.S. importers reported selling through annual contracts (***) percent and spot sales (***) percent.[130] Importers *** stated that their Tris and Tris HCl annual contracts fix price, allow for price renegotiation, and are indexed to raw material prices.[131] Importer *** reported that its annual contracts fix both price and quantity, do not allow for price renegotiation, and are not indexed to raw materials.[132] Firms reported setting prices using transaction-by-transaction negotiations, contracts, and set price lists.[133]

The main raw materials used in the production of Tris are nitromethane and formaldehyde.[134] Advancion reported that it is vertically integrated and produces its own nitromethane.[135] It further stated that methanol is a leading indicator of the price of formaldehyde.[136] Available data from the Methanex Methanol Price Sheet show that the price of methanol fluctuated from 2023 to 2025, and then increased significantly in early 2026.[137]

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[124] CR/PR at Table 2.7.
[125] CR/PR at 2.8.
[126] CR/PR at 2.8.
[127] CR/PR at 2.8.
[128] CR/PR at Table 5.3.
[129] CR/PR at 5.3.
[130] CR/PR at Table 5.3.
[131] CR/PR at 5.3.
[132] CR/PR at 5.3.
[133] CR/PR at Table 5.2. Specifically, Advancion ***, four importers reported setting prices transaction by transaction, three reported through contracts, four reported through set price lists, and one reported other means of setting prices. *Id*.
[134] CR/PR at 5.1.
[135] CR/PR at 5.1.
[136] CR/PR at 5.1.
[137] CR/PR at Figure 5.1 and Table 5.1.

Specifically, the price of methanol increased by 39.3 percent from January 2023 to December 2025, and then increased further by 84.6 percent through May 2026.[138] Advancion's cost of raw materials as a share of total cost of goods sold ("COGS") declined slightly overall by *** percentage points during the POI, decreasing from *** percent in 2023 to *** percent in 2024, and increasing to *** percent in 2025.[139]

Beginning in February 2025, imports of subject merchandise were subject to varying levels of additional tariffs under the International Emergency Economic Powers Act ("IEEPA").[140] Effective February 20, 2026, tariffs initiated under IEEPA and the associated duties imposed under IEEPA were terminated.[141]

C. Volume of Subject Imports

Section 771(7)(C)(i) of the Tariff Act provides that the "Commission shall consider whether the volume of imports of the merchandise, or any increase in that volume, either in absolute terms or relative to production or consumption in the United States, is significant."[142]

The volume of subject imports increased irregularly by *** percent from 2023 to 2025, decreasing from *** metric tons in 2023 to *** metric tons in 2024, and increasing to *** metric tons in 2025.[143] Subject imports' share of apparent U.S. consumption increased by *** percentage points from 2023 to 2025, increasing from *** percent in 2023 to *** percent in 2024 and to *** percent in 2025.[144]

Based on the record of the preliminary phase of these investigations, we find that the volume of subject imports, and the increase in that volume, are significant in absolute terms and relative to U.S. consumption.[145]

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[138] CR/PR at 5.1. The price of methanol was $1.73 per gallon in January 2023 and was $2.41 per gallon in December and $4.45 per gallon in May 2026. CR/PR at Table 5.1.

[139] CR/PR at Table 6.1.

[140] CR/PR at 1.7. Tris and Tris HCl are not subject to additional duties under section 301 of the Trade Act of 1974, and were included in a list of products not subject to tariffs under section 122 of the Trade Act of 1974. CR/PR at 1.7 n.14.

[141] CR/PR at 1.7.

[142] 19 U.S.C. § 1677(7)(C)(i).

[143] CR/PR at Table 4.2.

[144] CR/PR at Tables 4.7 and C.1.

[145] The ratio of subject imports to U.S. production was *** percent in 2023, *** percent in 2024, and *** percent in 2025. CR/PR at Table 4.2.

D. Price Effects of the Subject Imports

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

> (I) there has been significant price underselling by the imported merchandise as compared with the price of domestic like products of the United States, and
>
> (II) the effect of imports of such merchandise otherwise depresses prices to a significant degree or prevents price increases, which otherwise would have occurred, to a significant degree.[146]

As discussed in section VI.B.3 above, we find that there is a moderate degree of substitutability between subject imports and domestically produced Tris and Tris HCl, and that price is an important factor in purchasing decisions, among other factors.

The Commission collected quarterly quantity and f.o.b. pricing data from U.S. producers and importers of four pricing products shipped to unrelated customers during the POI.[147] One U.S. producer, Advancion, and six importers provided usable pricing data for sales of the requested products, although not all firms reported pricing for all products for all quarters.[148] Pricing data reported by these firms accounted for approximately *** percent of U.S. producers' U.S. shipments of Tris and Tris HCl, and 46.5 percent of imports from China in 2025.[149]

These pricing data show that subject imports undersold the domestic like product in 18 of 46 instances, at margins ranging up to *** percent and averaging *** percent, and oversold in the remaining 28 instances, at margins ranging from *** to *** percent and averaging *** percent.[150] There were *** metric tons of subject merchandise in quarters with underselling,

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[146] 19 U.S.C. § 1677(7)(C)(ii).

[147] The four pricing products were:

Product 1. Tris Crystals – solid crystals, white color, minimum 99.0 percent purity

Product 2. Standard Grade Tris Buffer – minimum 99.3 percent purity

Product 3. Tris Ultrapure – minimum 99.9 percent purity

Product 4. Standard Grade Tris HCl – minimum 99.0 percent purity

CR/PR at 5.5.

[148] CR/PR at 5.6.

[149] CR/PR at 5.6.

[150] CR/PR at Table 5.12. We note that the pricing products do not control for packaging sizes. Importers assert that price can differ significantly depending on packaging size. CR/PR at 5.6, n.5. Therefore, product mix issues in the price and purchase cost data may affect some of the pricing comparisons. *Id.* Given these data issues, we invite the parties to address packaging size for proposed pricing products during the comment period on final phase questionnaires.

or *** percent of total volume of pricing products among subject imports, compared to *** metric tons in quarters with overselling, or *** percent of the total.

Subject import underselling increased by instance and volume in each year of the POI.[151] In 2023, subject imports undersold the domestic like product in five of 15 comparisons.[152] The volume of subject import sales in quarters with underselling was *** metric tons, representing *** percent of subject import sales of the pricing products.[153] In 2024, subject imports undersold the domestic like product in six of 15 comparisons.[154] The volume of subject import sales in quarters with underselling was *** metric tons, representing *** percent of subject import sales of the pricing products.[155] In 2025, subject imports undersold the domestic like product in seven of 16 comparisons.[156] The volume of subject import sales in quarters with underselling was *** metric tons, representing *** percent of subject import sales of the pricing products.[157]

The Commission also requested firms that imported subject merchandise for their own use or repackaging to provide import purchase cost data. Eight importers, including reprocessors *** provided usable data for the four pricing products. Purchase cost data reported by these firms accounted for 41.6 percent of imports of the pricing products from China in 2025.[158]

The purchase cost data indicate that landed duty-paid costs for subject imports from China were below the sales prices of the domestic like product in 24 of 40 instances (60 percent), at price-cost differentials averaging *** percent, and were above the sales price of the domestic like product in the remaining 16 of 40 instances, at price-cost differentials averaging *** percent.[159] There were *** metric tons of subject merchandise in quarters where landed duty-paid costs for subject imports from China were below the sales prices of the domestic like product, or *** percent of total volume of pricing products among subject imports, compared to *** metric tons in quarters with overselling.[160]

We recognize that import purchase cost data may not reflect the total cost of importing, and therefore requested that importers provide additional information regarding the costs and

[151] *See* CR/PR at Table 5.13.
[152] CR/PR at Table 5.13.
[153] CR/PR at Table 5.13.
[154] CR/PR at Table 5.13.
[155] CR/PR at Table 5.13.
[156] CR/PR at Table 5.13.
[157] CR/PR at Table 5.13.
[158] CR/PR at 5.7.
[159] CR/PR at Table 5.14.
[160] CR/PR at Table 5.14.

benefits of importing Tris and Tris HCl themselves. Five of eight importers reported that they incurred additional costs beyond the landed duty-paid costs associated with importing Tris and Tris HCl. These five importers estimated that the total additional costs incurred ranged from 6.0 to 33.0 percent, and included costs for transportation (5.0 percent), fees for harbor maintenance (0.1 percent), demurrage (0.5 percent), customs and broker charges (2.0 percent), insurance (0.1 percent), and miscellaneous logistics (0.5 percent).[161] Given that the subject import purchase costs were, on average, *** percent below domestic sales prices, these additional costs amounted to less than the average price-cost differential of *** percent.[162]

Based on the moderate degree of substitutability between subject imports and the domestic like product, the importance of price in purchasing decisions, the pricing data showing majority underselling by volume that increased over the POI, and the purchase-cost data likewise showing that subject import costs were primarily lower than domestic prices, we find that subject imports undersold the domestic like product to a significant degree throughout the POI.[163] This underselling contributed to cumulated subject imports capturing market share from the domestic industry over the POI. During this period, subject imports gained *** percentage points of market share, which came mostly at the expense of the domestic industry, which lost *** percentage points of market share.[164]

We have also considered price trends to determine whether subject imports depressed domestic producer prices to a significant degree. From January 1, 2023 to December 31, 2025, the U.S. producer's sales prices for Tris and Tris HCl decreased by *** percent for product 1,

[161] CR/PR at 5.7. 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. CR/PR at 5.7, n.9.

[162] Four importers reported saving between *** percent compared to purchasing the product from a U.S. producer and one importer estimated that they saved *** percent of the purchase price by importing Tris and Tris HCl rather than purchasing from a U.S. importer. CR/PR at 5.8.

[163] We have also considered purchasers' responses to the Commission's lost sales/lost revenue survey. Commission staff contacted eleven purchasers and four responded – (***. CR/PR at Table 5.16. Of those purchasers, three (including ***) reported that they had purchased Tris and Tris HCl from China and all three reported that subject import prices were lower than U.S.-produced product. None of them indicated that price was a primary reason for the decision to purchase subject imports instead of domestically produced Tris and Tris HCl. CR/PR at 5.24. However, as noted above, ***.

[164] Advancion's share of apparent U.S. consumption decreased by *** percentage points from 2023 to 2025, decreasing from *** percent in 2023 to *** percent in 2024 and to *** percent in 2025. CR/PR at Table 4.7.

Subject imports' share of apparent U.S. consumption increased by *** percentage points from 2023 to 2025, increasing from *** percent in 2023 to *** percent in 2024 and to *** percent in 2025. CR/PR at Table 4.7.

*** percent for product ***, *** percent for product 3, and *** percent for product 4.[165] Over the same period, sales prices for subject imports of increased by *** percent for product 1 and decreased *** percent for product 2, *** percent for product 3, and *** percent for product 4.[166]

We have also considered whether subject imports prevented price increases which would have otherwise occurred. As the domestic industry's prices declined over the POI, its net sales average unit value ("AUV") decreased *** and its per-unit COGS increased. The domestic industry's net sales AUV was relatively flat over the POI, decreasing from $*** per kilogram in 2023 to $*** per kilogram in 2024 (a decline of *** percent) and then increasing to $*** per kilogram in 2025 (an increase of *** percent), for an overall decrease of *** percent.[167] The industry's per-unit COGS, however, steadily increased from $*** per kilogram in 2023 to $*** in 2024 and $*** in 2025, for an overall increase of *** percent.[168] While direct labor and other factory costs increased as shares of total COGS at the expense of raw material costs during the POI, the increase in the industry's per-unit COGS was driven by increases in per-unit raw material, direct labor, and other factory costs.[169] The domestic industry's COGS-to-net-sales ratio increased by *** percentage points from 2023 to 2025, but remained relatively *** throughout the POI.[170]

Although the domestic industry had declining prices, as indicated by the pricing data, and a worsening COGS-to-net-sales ratio over the POI, apparent U.S. consumption declined by *** percent over the period.[171] Additionally, the domestic industry's increasing unit COGS is at least partially explained by the industry's significant market share loss to subject imports during the POI, which resulted in fewer U.S shipments by the industry and therefore fewer sales over which to spread fixed costs.[172]

In sum, based on the record in the preliminary phase of these investigations, we find that subject imports significantly undersold the domestic like product during the POI, which contributed to subject imports taking *** percentage points of market share from the domestic

[165] CR/PR at Table 5.8.
[166] CR/PR at Table 5.8.
[166] *See* CR/PR at Table 5.8.
[167] CR/PR at Tables 6.1, C.1.
[168] CR/PR at Tables 6.1, C.1.
[169] CR/PR at Table 6.1.
[170] CR/PR at Tables 6.1, C.1. The domestic industry's COGS-to-net-sales ratio was *** percent in 2023, *** percent in 2024, *** percent in 2025. CR/PR at Table 6.1.
[171] CR/PR at Table C.1.
[172] CR/PR at Table C.1.

industry during that period. Accordingly, based on the record of the preliminary phase of these investigations, we conclude that subject imports had significant price effects during the POI.

E. Impact of the Subject Imports[173]

Section 771(7)(C)(iii) of the Tariff Act provides that the Commission, in examining the impact of the subject imports on the domestic industry, "shall evaluate all relevant economic factors which have a bearing on the state of the industry." These factors include output, sales, inventories, capacity utilization, market share, employment, wages, productivity, gross profits, net profits, operating profits, cash flow, return on investment, return on capital, ability to raise capital, ability to service debt, research and development, and factors affecting domestic prices. No single factor is dispositive and all relevant factors are considered "within the context of the business cycle and conditions of competition that are distinctive to the affected industry."[174]

The record in the preliminary phase of these investigations indicates that most of the domestic industry's output indicators declined, most of its employment indicators decreased, and its financial performance weakened from 2023 to 2025.

The domestic industry's practical capacity essentially remained flat from 2023 to 2025, increasing slightly by *** percent from *** metric tons in 2023 to *** metric tons in 2024, and *** metric tons in 2025.[175] The domestic industry's production by quantity decreased *** percent from 2023 to 2025, decreasing from *** metric tons in 2023 to *** metric tons in 2024 and to *** metric tons in 2025.[176] Its capacity utilization accordingly decreased by *** percentage points from 2023 to 2025, from *** percent in 2023 to *** percent in 2024 and to *** percent in 2025.[177]

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[173] Commerce initiated investigations based on estimated antidumping duty margins of 53.39 to 372.20 percent for imports from China. *See Tris(hydroxymethyl)aminomethane From the People's Republic of China: Initiation of Less-Than-Fair-Value Investigation*, 91 Fed. Reg. 28566, 28569 (Dep't of Comm. May 18, 2026). Because China is a non-market country, Commerce estimated its dumping margins for Tris and Tris HCl from China based on the normal value for factors of production as valued in Brazil, Malaysia, and the Republic of Türkiye. Commerce determined that Brazil, Malaysia, and Türkiye were appropriate subject countries for China with market economies at a comparable level of development to China based on information provided by the Petitioner. *Id*. at 28568. Specifically, Commerce found the following estimated dumping margins of Tris from China: (1) China (Brazil surrogate) —114.26 to 303.53 percent; (2) China (Malaysia surrogate)—155.99 to 372.20 percent; (3) China (Türkiye surrogate)—53.39 to 167.04 percent. *Id*. at 28659.

[174] 19 U.S.C. § 1677(7)(C)(iii). This provision was amended by the Trade Preferences Extension Act of 2015, Pub. L. 114-27.

[175] CR/PR at Tables 3.5, C.1.

[176] CR/PR at Tables 3.5, C.1.

[177] CR/PR at Tables 3.5, C.1.

Most of the domestic industry's employment-related indicia declined. Its employment decreased by *** percent from 2023 to 2025, decreasing from *** production-related workers ("PRWs") in 2023 to *** PRWs in 2024 and to *** PRWs in 2025.[178] The domestic industry's total hours worked decreased *** percent from 2023 to 2025, decreasing from *** in 2023 to *** in 2024 and to *** in 2025.[179] Wages paid decreased by *** percent from 2023 to 2025, decreasing from $*** in 2023 to $*** in 2024 and to $*** in 2025. The domestic industry's productivity, measured in kilograms per hour, decreased by *** percent from 2023 to 2025, decreasing from *** in 2023 to *** percent in 2024 and to *** kilograms/hour in 2025.[180] Hourly wages were the only metric running counter to these trends, increasing overall by *** percent from 2023 to 2025, with a decrease from $*** per hour in 2023 to $*** per hour in 2024, and an increase to $*** in 2025.[181]

The domestic industry's U.S. shipments decreased by *** percent from 2023 to 2025, decreasing from *** metric tons in 2023 to *** metric tons in 2024 and to *** metric tons in 2025.[182] Its share of apparent U.S. consumption decreased overall by *** percentage points, from *** percent in 2023 to *** percent in 2024 and to *** percent in 2025.[183] End of period inventories increased *** percent from 2023 to 2025, from *** metric tons in 2023 to *** metric tons in 2024 and to *** metric tons in 2025. The domestic industry's end-of-period inventories as a share of U.S. production, U.S. shipments, and total production all increased from 2023 to 2025.[184]

Most of the domestic industry's financial indicators decreased from 2023 to 2025. Its net sales value decreased by *** percent from 2023 to 2025, from $*** in 2023 to $*** in 2024 and to $*** in 2025.[185] The industry's gross profit decreased by *** percent from 2023 to 2025, from $*** in 2023 to $*** in 2024 and to $*** in 2025.[186] Operating income declined by

[178] CR/PR at Tables 3.12, C.1.
[179] CR/PR at Tables 3.12, C.1.
[180] CR/PR at Tables 3.12, C.1.
[181] CR/PR at Tables 3.12, C.1.
[182] CR/PR at Tables 4.7, C.1.
[183] CR/PR at Tables 4.7, C.1.
[184] CR/PR at Table 3.11. The domestic industry's ratio of end-of-period inventories to U.S. production increased from *** percent in 2023 to *** percent in 2024 and to *** percent in 2025. *Id*.
The domestic industry's ratio of end-of-period inventories to U.S. shipments increased from *** percent in 2023 to *** percent in 2024 and to *** percent in 2025. *Id*.
The domestic industry's ratio of end-of-period inventories to total shipments increased from *** percent in 2023 to *** percent in 2024 and to *** percent in 2025. *Id*.
[185] CR/PR at Tables 6.1, C.1.
[186] CR/PR at Tables 6.1, C.1.

*** percent from 2023 to 2025, from $*** in 2023 to $*** in 2024 and to $*** in 2025.[187] The industry's ratio of operating income to net sales declined by *** percentage points from 2023 to 2025, from *** percent in 2023 to *** percent in 2024 and to *** percent in 2025.[188] The industry's net income worsened overall from 2023 to 2025, improving from *** in 2023 to *** in 2024, and declining to *** in 2025.[189] The industry's net income margin decreased overall and *** from 2023 to 2025, improving from *** percent in 2023 to *** percent in 2024, and declining to *** percent in 2025.[190]

The domestic industry's capital expenditures decreased *** from 2023 to 2025, declining from $*** in 2023 to $*** in 2024 and to $*** in 2025.[191] The domestic industry's research and development ("R&D") expenses increased from $*** in 2023 to $*** in 2024 and to $*** in 2025.[192] Its total net assets decreased *** overall by *** percent from 2023 to 2025, rising from $*** in 2023 to $*** in 2024 and declining to $*** in 2025.[193] The industry's return on assets declined; it was *** percent in 2023, *** percent in 2024, and *** percent in 2025.[194] Advancion reported negative effects on investments that it attributed to subject imports.[195]

Based on the current record, we have found that subject import volume and the increase in that volume were significant. We have also found that the subject imports had significant price effects through significant and increasing underselling throughout the POI, which led to the domestic industry losing a significant market share to subject imports. As a consequence, the domestic industry's performance indicators, including its production, U.S. shipments, employment, net sales, and operating income, were lower than they otherwise would have been in the absence of allegedly unfairly traded subject imports. Accordingly, we conclude for purposes of these preliminary phase investigations that subject imports had a significant adverse impact on the domestic industry.

We have also considered whether there are other factors that may have had an impact on the domestic industry, to ensure that we are not attributing injury from such other factors to

[187] CR/PR at Tables 6.1, C.1.
[188] CR/PR at Tables 6.1, C.1.
[189] CR/PR at Tables 6.1, C.1.
[190] CR/PR at Tables 6.1, C.1.
[191] CR/PR at Tables 6.5, C.1.
[192] CR/PR at Tables 6.5, C.1.
[193] CR/PR at Tables 6.5, C.1.
[194] CR/PR at Table 6.5.
[195] CR/PR at Tables 6.7, 6.8.

subject imports.[196] Although apparent U.S. consumption declined overall by *** percent during the POI, it does not explain the injury we have attributed to subject imports, given that subject import volume increased by *** percent from 2023 to 2025 and subject imports captured *** percentage points of market share from the domestic industry.[197]

Similarly, the presence of nonsubject imports in the U.S. market does not explain the injury we have attributed to subject imports. Nonsubject import volume decreased by *** percent from 2023 to 2025,[198] and their market share declined from *** percent in 2023 to *** percent in 2024 and to *** percent in 2025.[199]

VII. Conclusion

For the reasons stated above, we determine that the record in these preliminary investigations does not contain clear and convincing evidence that there is no material injury, and cannot conclude that no likelihood exists that contrary evidence will arise in any final investigations. Therefore, we determine that there is a reasonable indication that an industry in the United States is materially injured by reason of subject imports of Tris and Tris HCl from

[196] BioSpectra contends that Advancion's alleged injury is attributable, among other things, to its lack of FDA registration and resulting inability to supply FDA-certified products, as well as quality issues and supply constraints that caused Advancion to lose sales. *See* BioSpectra Response at 17. However, as discussed in section III.B, while Advancion acknowledges that it does not have FDA certification, it attests that Tris and Tris HCl applications requiring FDA approval are a small fraction of the U.S. market ***. *See* Petition Postconf. Br. at 12; Conf. Tr. at 54 (Neuberger); *see also* Neuberger Decl. at ¶ 6. According to Advancion's CEO, the only application requiring FDA-certified Tris accounts for *** of consumption per year, which if accurate, would be equivalent to *** of apparent U.S. consumption in 2025. *Calculated from* Neuberger Decl. at ¶ 6 and Table 4.7. We intend to investigate these alleged issues further in any final phase investigations.

Regarding quality, Petitioner contends that it has outstanding quality and a "miniscule return rate" for customers reporting quality issues. *See* Petitioner Postconf. Br. at 17. Advancion's CEO stated that during the POI, BioSpectra returned only *** percent of the Tris that it purchased from Advancion, and its customers in total returned only *** percent of their purchases of Tris and Tris HCl. Neuberger Decl. ¶¶ 2- 4. Accordingly, the limited record in this preliminary phase does not contain clear and convincing evidence that the injury we have attributed to subject imports was instead caused by Advancion's lack of FDA registration or quality issues.

Regarding alleged supply constraints, Advancion reported that it did not experience any supply constraints during the POI. *See* CR/PR at 2.5; *see also* Conf. Tr. at 72 (Neuberger). Advancion's CEO testified that the company has invested $75 million since 2017 to double the capacity of its Sterlington plant, and that it has the "capacity to supply the entire U.S. market and to serve many customers around the globe." Conf. Tr. at 17-18 (Neuberger).

[197] *See* CR/PR at Tables 4.2, 4.3, C.1.

[198] CR/PR at Tables 4.2, 4.3, C.1.

[199] CR/PR at Table 4.7.

China that are allegedly sold in the United States at less than fair value and subsidized by the Government of China.

Part 1: Introduction

Background

These investigations result from petitions filed with the U.S. Department of Commerce ("Commerce") and the U.S. International Trade Commission ("USITC" or "Commission") by Advancion Corporation ("Advancion"), Buffalo Grove, Illinois, on April 21, 2026, alleging that an industry in the United States is materially injured and threatened with material injury by reason of subsidized and less-than-fair-value ("LTFV") imports of Tris(hydroxymethyl)aminomethane and its derivative, Tris(hydroxymethyl)aminomethane hydrochloride ("Tris and Tris HCl")[1] from China. Table 1.1 presents information relating to the background of these investigations.[2] [3]

Table 1.1 Tris and Tris HCl: Information relating to the background and schedule of this proceeding

Effective date	Action
April 21, 2026	Petitions filed with Commerce and the Commission; institution of the Commission investigations (91 FR 22166, April 24, 2026)
May 12, 2026	Commission's conference
May 11, 2026	Commerce's notice of initiation (91 FR 28566 and 28559, May 18, 2026)
June 4, 2026	Commission's vote
June 5, 2026	Commission's determinations
June 12, 2026	Commission's views

Statutory criteria

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

> shall consider (I) the volume of imports of the subject merchandise, (II) the effect of imports of that merchandise on prices in the United States for domestic like products, and (III) the impact of imports of such merchandise on domestic producers of domestic like products, but only in the context of production operations within the United States; and. . .

[1] See the section entitled "The subject merchandise" in Part 1 of this report for a complete description of the merchandise subject in this proceeding.

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

[3] A list of witnesses appearing at the conference is presented in appendix B of this report.

may consider such other economic factors as are relevant to the determination regarding whether there is material injury by reason of imports.

Section 771(7)(C) of the Act (19 U.S.C. § 1677(7)(C)) further provides that—[4]

> In evaluating the volume of imports of merchandise, the Commission shall consider whether the volume of imports of the merchandise, or any increase in that volume, either in absolute terms or relative to production or consumption in the United States is significant.. . .In evaluating the effect of imports of such merchandise on prices, the Commission shall consider whether. . .(I) there has been significant price underselling by the imported merchandise as compared with the price of domestic like products of the United States, and (II) the effect of imports of such merchandise otherwise depresses prices to a significant degree or prevents price increases, which otherwise would have occurred, to a significant degree.. . . In examining the impact required to be considered under subparagraph (B)(i)(III), the Commission shall evaluate (within the context of the business cycle and conditions of competition that are distinctive to the affected industry) all relevant economic factors which have a bearing on the state of the industry in the United States, including, but not limited to. . . (I) actual and potential decline in output, sales, market share, gross profits, operating profits, net profits, ability to service debt, productivity, return on investments, return on assets, and utilization of capacity, (II) factors affecting domestic prices, (III) actual and potential negative effects on cash flow, inventories, employment, wages, growth, ability to raise capital, and investment, (IV) actual and potential negative effects on the existing development and production efforts of the domestic industry, including efforts to develop a derivative or more advanced version of the domestic like product, and (V) in {an antidumping investigation}, the magnitude of the margin of dumping.
>
> In addition, Section 771(7)(J) of the Act (19 U.S.C. § 1677(7)(J)) provides that—[5]
>
> (J) EFFECT OF PROFITABILITY.—The Commission may not determine that there is no material injury or threat of material injury to an industry in the United States merely because that industry is profitable or because the performance of that industry has recently improved.

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

Organization of report

Part 1 of this report presents information on the subject merchandise, alleged subsidy rates/dumping margins, and domestic like product. Part 2 of this report presents information on conditions of competition and other relevant economic factors. Part 3 presents information on the condition of the U.S. industry, including data on capacity, production, shipments, inventories, and employment. Parts 4 and 5 present the volume of subject imports and pricing of domestic and imported products, respectively. Part 6 presents information on the financial experience of U.S. producers. Part 7 presents the statutory requirements and information obtained for use in the Commission's consideration of the question of threat of material injury as well as information regarding nonsubject countries.

Market summary

Tris and Tris HCI are pH buffering compounds used in biotechnology and pharmaceutical applications. The sole U.S. producer of Tris and Tris HCI is Advancion, while a leading producer of Tris and Tris HCI outside the United States is Suzhou Yacoo Science Co., Ltd. ("Yacoo") of China. The leading U.S. importers of Tris and Tris HCI from China are ***. Leading importers of Tris and Tris HCl from nonsubject countries (primarily Taiwan and Germany) include ***. U.S. purchasers of Tris and Tris HCI are firms that reprocess or repackage the product, as well as large pharmaceutical biotechnology and industrial customers that consume Tris and Tris HCl in manufacturing a range of products; leading responding purchasers include ***.[6]

Apparent U.S. consumption of Tris and Tris HCI totaled approximately *** metric tons ($***) in 2025. Currently, one firm is known to produce Tris and Tris HCI in the United States.[7] U.S. producer Advancion's U.S. shipments of Tris and Tris HCI totaled *** metric tons ($***) in 2025, and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value. U.S. imports from China totaled *** metric tons ($***) in 2025 and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value. U.S. imports from nonsubject sources totaled *** metric tons ($***) in 2025 and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value.

Summary data and data sources

A summary of data collected in these investigations is presented in appendix C, table C.1. The Commission's questionnaires collected data for the years 2023 to 2025. Except as noted, U.S. industry data are based on the questionnaire response of one firm, Advancion, that accounted for all U.S. production of Tris and Tris HCI during 2025.[8] Imports are based on questionnaire data representing an estimated *** percent of U.S. imports from China and *** percent of U.S. imports from nonsubject sources in 2025 under HTS statistical reporting number 2922.19.9690, a "basket" category.

[6] Conference transcript, pp. 13 to 14 (Neuberger).

[7] Four additional firms are known to reprocess Tris and Tris HCI in the United States.

[8] Four U.S. reprocessors also submitted U.S. producer questionnaires. Usable data reported by these U.S. reprocessors are presented in appendix F.

Previous and related investigations

Tris and Tris HCI have not been the subject of prior countervailing or antidumping duty investigations in the United States.

Nature and extent of alleged subsidies and sales at LTFV

Alleged subsidies

On May 18, 2026, Commerce published a notice in the Federal Register of the initiation of its countervailing duty investigation on Tris and Tris HCI from China.[9]

Alleged sales at LTFV

On May 18, 2026, Commerce published a notice in the Federal Register of the initiation of its antidumping duty investigation on Tris and Tris HCI from China.[10] Commerce has initiated the antidumping duty investigation based on estimated dumping margins of 114.26 to 303.53 percent for Tris and Tris HCI from China (Brazil surrogate); 155.99 to 372.20 percent for Tris and Tris HCI from China (Malaysia surrogate); and 53.39 to 167.04 percent for Tris and Tris HCI from China (Turkey surrogate).

[9] For further information on the alleged subsidy programs see Commerce's notice of initiation and related CVD Initiation Checklist. 91 FR 28559, May 18, 2026.

[10] 91 FR 28566, May 18, 2026.

The subject merchandise

Commerce's scope

In the current proceeding, Commerce has defined the scope as follows:[11]

> The merchandise subject to this investigation is tris(hydroxymethyl)aminomethane (Tris), also commonly referred to as tromethamine or THAM, and its derivative, tris(hydroxymethyl)aminomethane hydrochloride (Tris HCl), also commonly referred to as Tris hydrochloride or tromethamine HCl. Tris and Tris HCl are organic compounds with molecular compositions of C4H11NO3 and C4H11NO3·ClH, respectively. The scope includes all grades, purities, and forms of Tris and Tris HCl, which vary based on the raw materials (nitromethane and formaldehyde) used in the production process and the end use application required. Tris and Tris HCl are packaged and sold in different forms and sizes; however, all Tris and Tris HCl are covered regardless of form or packaging. The Tris and Tris HCl covered by this investigation are chemical compounds with the Chemical Abstract Service (CAS) numbers 77–86–1 and 1185– 53–1, respectively. The country of origin of the subject merchandise in this investigation is based on the country where the Tris molecule is manufactured. As a result, Tris HCl manufactured in a third country using Tris produced in China is subject to the investigation. In addition, reprocessing Tris or Tris HCl in a third country by, for example, recrystallizing, retesting, or repackaging the merchandise does not remove the product from the scope of this investigation. Tris and Tris HCl covered by the scope of this investigation are currently classified under Harmonized Tariff Schedule of the United States (HTSUS) subheading 2922.19.9690. Although the HTSUS subheading and CAS numbers are provided for convenience and customs purposes, the written description of the scope is dispositive.

[11] 91 FR 28559, May 18, 2026.

Tariff treatment

Tris and Tris HCl are currently imported under Harmonized Tariff Schedule of the United States ("HTS") statistical reporting number 2922.19.9690. The general rate of duty is 6.5 percent ad valorem for HTS subheading 2922.19.96.[12] Decisions on the tariff classification and treatment of imported goods are within the authority of U.S. Customs and Border Protection.

Below is a summary of certain additional tariffs that were in effect since January 2021. As of May 5, 2026, Tris and Tris HCl originating in China are not subject to additional tariffs.

Section 301 tariffs

Tris and Tris HCl originating in China are not subject to an additional duty under section 301 of the Trade Act of 1974.[13]

Section 122 tariffs

Tris and Tris HCl originating in China are not subject to tariffs initiated in February 2026 under section 122 of the Trade Act of 1974.[14]

Tariffs initiated under the International Emergency Economic Powers Act ("IEEPA")[15]

Effective February 20, 2026, all tariffs initiated under IEEPA were terminated. Below is a history of the IEEPA tariffs relevant to Tris and Tris HCl originating in China that were in effect until February 20, 2026.[16]

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[12] USITC, HTS (2026) Revision 7, Publication 5735, April 2026, pp. 29.83.

[13] See also U.S. notes 20 and 31 to subchapter 3 of chapter 99 and related tariff provisions for this duty treatment. USITC, HTS (2026) Revision 7, Publication 5735, April 2026, pp. 99.3.86 and 99.3.336.

[14] Tris and Tris HCl were included in a list of products not subject to section 122 tariffs. Section 122 authorizes the President to impose a temporary import surcharge for a period not exceeding 150 days unless such period is extended by an Act of the Congress. 91 FR 9339, February 25, 2026. See also HTS heading 9903.03.03 and U.S. note 2(aa)(ii) to subchapter 3 of chapter 99 and related tariff provisions for this duty treatment. USITC, HTS (2026) Revision 7, Publication 5735, April 2026, pp. 99.3.51 to 99.3.53, and 99.3.403.

[15] Multiple tariffs were enacted under the authority of the International Emergency Economic Powers Act ("IEEPA"), including tariffs that applied to countries that may not be subject in this proceeding. Tariffs specific to Canada, China, and Mexico were initiated in February 2025. Tariffs initiated in April 2025 under IEEPA were applied globally. Tariffs specific to Brazil were initiated in July 2025. Tariffs specific to India were initiated in August 2025 and terminated effective February 7, 2026. Tariffs under IEEPA were amended over time. All tariffs initiated under IEEPA were terminated effective February 20, 2026. 91 FR 9437, February 25, 2026.

[16] 91 FR 9437, February 25, 2026.

Country specific IEEPA tariffs

Effective February 4, 2025, Tris and Tris HCl originating in China were subject to an additional 10 percent ad valorem duty under IEEPA, and on March 4, 2025, that additional duty increased to 20 percent ad valorem. However, effective November 10, 2025, that additional duty was reduced back to 10 percent.[17] Effective February 20, 2026, tariffs initiated under IEEPA and the associated duties imposed under IEEPA were terminated.[18]

Tariffs initiated in April 2025 under IEEPA

Tris and Tris HCl originating in China were not subject to tariffs initiated in April 2025 under IEEPA.[19] Effective February 20, 2026, tariffs initiated under IEEPA and the associated duties imposed under IEEPA were terminated.[20]

[17] 90 FR 9121, February 7, 2025; 90 FR 11426, March 6, 2025; 90 FR 11463, March 7, 2025; 90 FR 50725, November 7, 2025. See also HTS heading 9903.01.20 and U.S. note 2(s) and HTS heading 9903.01.24 and U.S. note 2(u) to subchapter 3 of chapter 99 and related tariff provisions for this duty treatment. USITC, HTS (2026) Revision 7, Publication 5735, April 2026, pp. 99.3.3 to 99.3.4, 99.3.363 to 99.3.367.

[18] 91 FR 9437, February 25, 2026.

[19] Tris and Tris HCl were included in a list of products in HTS U.S. note 2(v)(iii)(a) to subchapter III of chapter 99 that are not subject to tariffs initiated in April 2025 under IEEPA. 90 FR 15041, April 7, 2025. See also HTS headings 9903.01.25 and 9903.01.32 and U.S. note 2(v)(iii)(a) to subchapter 3 of chapter 99 and related tariff provisions for this duty treatment. USITC, HTS (2026) Revision 7, Publication 5735, April 2026, pp. 99.3.4 to 99.3.8, and 99.3.368.

[20] 91 FR 9437, February 25, 2026.

The product

Description and applications

Tris, also known as Tris base,[21] and Tris HCl[22] are both organic compounds that function as chemical buffers[23], surfactants, and emulsifiers[24] in a wide range of applications. When dissolved in water, the primary difference is that Tris is basic and Tris HCl is acidic.[25] Tris[26], with a molecular weight of 121.14g/mol and a molecular formula of $C_4H_{11}NO_3$, is a primary amino compound that is hygroscopic (easily absorbs moisture), highly soluble in water, and mostly used in biological buffers in the pH range of 7 to 9.[27] Tris HCl, with a molecular weight of 157.6g/mol and a molecular formula of $C_4H_{11}NO_3 \cdot HCl$, is also hygroscopic, soluble in water, and

[21] Tris (Tris(hydroxymethyl)aminomethane) is identified by CAS no. 77-86-1. Tris is also called trometamol, tromethamine, or THAM. PubChem, "Tris(hydroxymethyl)aminomethane," accessed April 22, 2026, https://pubchem.ncbi.nlm.nih.gov/compound/6503.

[22] Tris HCl (Tris(hydroxymethyl)aminomethane hydrochloride) is identified by CAS no. 1185-53-1. Merck, "Trizma hydrochloride," accessed May 7, 2026, https://www.merckmillipore.com/MM/en/product/sigma/t5941.

[23] A buffer has the purpose of maintaining the pH of a solution. When there is no buffer, biomolecules such as proteins and DNA break down at a much faster rate. If the biomolecule is a therapeutic, it is important that the biomolecule or biomolecules have a stable, predictable shelf life so they can exhibit their intended efficacy. Tchiakam et al., "Stabilising Proteins in Solution Using Affordable and Readily Available Small Molecules," August 5, 2025, https://pmc.ncbi.nlm.nih.gov/articles/PMC12686257/.

[24] Surfactants are surface-active agents that help lower the surface tension found between 2 liquids (or between a liquid and a solid). Emulsifiers fall under the category of surfactants and help stabilize emulsions (mixture of two or more liquids). Cassiday, Laura, "Emulsions: Making Oil and Water Mix," April 2014, https://www.aocs.org/resource/emulsions-making-oil-and-water-mix/.

[25] For a 1M solution, Tris powder, when dissolved by itself in water, has a pH range of about 10.5 to 11.5 (basic), while Tris HCl by itself has a pH range of about 3.5 to 5 (acidic). The entire pH scale ranges from 0 to 14 with a pH of 7 being neutral. A pH less than 7 is acidic (0 being the most acidic), and a pH greater than 7 is basic (14 being the most basic). Depending on the application, end users target a specific pH value. To reach a desired pH value, Tris can be mixed with Tris HCl. Alternatively, one can begin solely with Tris and add an acid such as hydrochloric acid (HCl), or one can begin solely with Tris HCl and add a base such as sodium hydroxide (NaOH). Millipore Sigma, "Tris Base," accessed May 15, 2026, https://www.sigmaaldrich.com/US/en/product/mm/108387; Hopax, "Tris HCl," accessed May 15, 2026, https://www.hopaxfc.com/en/product/tris-hcl-buffer; Goldbio, "The Difference Between Tris (Tris Base) vs. Tris HCl," accessed May 15, 2026, https://www.goldbio.com/blogs/articles/difference-between-tris-vs-tris-hcl.

[26] PubChem, "Tris(hydroxymethyl)aminomethane," accessed April 22, 2026, https://pubchem.ncbi.nlm.nih.gov/compound/6503.

[27] PubChem, "Tris(hydroxymethyl)aminomethane," accessed April 22, 2026, https://pubchem.ncbi.nlm.nih.gov/compound/6503; Petition, vol I, p. 5.

used in biological buffers.[28] Unlike traditional hydrochloric acid (HCl), Tris HCl provides better stability when lowering the pH of a system and also reduces the likelihood of damaging the biomolecules.[29] Tris HCl is also used as an intermediate compound to produce pharmaceutical drugs and select surfactants.[30] Both Tris and Tris HCl are used in biochemical research and cell biology applications as buffers.[31]

In the biologics manufacturing industry, buffers play a crucial role in maintaining the necessary pH environment needed for a particular protein to grow properly—from benchtop conditions to large-scale manufacturing conditions.[32] For downstream applications, the Tris buffer helps stabilize a protein's structural state for column chromatography and also preserves the purification conditions.[33] Buffers that are used in biologics manufacturing are usually made by combining base (i.e., Tris) and acid (i.e., Tris HCl) forms. The two forms of compounds are commonly used in tandem because each chemical on its own does not have sufficient buffering capacity (i.e., pH control).[34] Consequently, Tris is first used to create a buffer system with a baseline pH, and then Tris HCl is added to help adjust the pH to the target value.[35] Tris buffers create an ideal environment for a wide variety of living organisms because of the Tris compound's pH range of 7 to 9.[36]

In addition to their use as biological buffers, Tris and Tris HCl have a wide range of uses in various industries. For instance, Tris can function as a surface-active agent (i.e., surfactant),

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[28] Suzhou Yacoo Science, "Application of Tris-HCl," accessed April 30, 2026, https://bio.yacoo.com.cn/exhibitioninfo/11260.

[29] Suzhou Yacoo Science, "TRIS-HCl and TRIS: The Golden Partners in Biomedicine," accessed May 4, 2026, https://www.yacoo.com.cn/en/information-center/technology-sharing/15.

[30] Suzhou Yacoo Science, "Application of Tris-HCl," accessed April 30, 2026, https://bio.yacoo.com.cn/exhibitioninfo/11260.

[31] Sigma Aldrich, "Trizma Base," accessed April 22, 2026, https://www.sigmaaldrich.com/US/en/product/sigma/t1503.

[32] Bratt et. al, "Buffers in Biologics Manufacturing," February 2017, https://www.advancionsciences.com/wp-content/uploads/2021/05/BPI-Buffers-Biologics-Manufacturing.pdf.

[33] Bratt et. al, "Buffers in Biologics Manufacturing," February 2017, https://www.advancionsciences.com/wp-content/uploads/2021/05/BPI-Buffers-Biologics-Manufacturing.pdf.

[34] Merck, "Trizma Hydrochloride," accessed April 30, 2026, https://www.merckmillipore.com/MM/en/product/sigma/t5941.

[35] Suzhou Yacoo Science, "TRIS-HCl and TRIS: The Golden Partners in Biomedicine," accessed May 4, 2026, https://www.yacoo.com.cn/en/information-center/technology-sharing/15.

[36] Sigma Aldrich, "Trizma Base," accessed April 22, 2026, https://www.sigmaaldrich.com/US/en/product/sigma/t1503.

emulsifying agent, or stabilizing agent.[37] In the pharmaceutical industry, Tris is often used in monoclonal antibodies (mAbs), COVID test kits, mRNA vaccines, and GLP-1 drugs.[38] In the cosmetics industry, Tris and Tris HCl can act as a buffering agent or pH adjuster in cosmetic products such as deodorants or body lotions or act as an emulsifying agent for beauty creams and lotions .[39] Other industrial uses for Tris include acting as an odor control agent in fabrics.[40]

The petitioner sells Tris and Tris HCl to end users (e.g., biopharmaceutical companies, contract manufacturing organizations (CMOs)[41]), distributors, and reprocessors.[42] With the Tris compound in-hand, reprocessors then repackage, rebrand, or process the Tris compound into various grades and derivatives as well as consume the compound in-house.[43] Reprocessors can also purchase Tris crystals, wash them, and then recrystallize Tris to create their own specific grades of Tris.[44] The most common grades of buffer chemicals are shown in Table 1.2.[45]

Table 1.2: Most common grades of buffer chemicals

Chemical Grade	Description
American Chemical Society (ACS) grade	Meets or surpasses the ACS purity standards
Pharmacopeial/multi-compendial grade	Meets or surpasses select compendial testing standards
Reagent grade	Purity is usually equal to ACS grade, suitable for laboratory use
United States Pharmacopoeia (USP) grade, National Formulary (NF) grade	Meets or surpasses USP-NF requirements, suitable for food, drug, and medicinal use

Source: Bratt et. al, "Buffers in Biologics Manufacturing," February 2017, https://www.advancionsciences.com/wp-content/uploads/2021/05/BPI-Buffers-Biologics-Manufacturing.pdf.

[37] PubChem, "Tris(hydroxymethyl)aminomethane," accessed April 22, 2026, https://pubchem.ncbi.nlm.nih.gov/compound/6503; Petition, vol I, p. 5.

[38] Petition, vol. 1, p. 5.

[39] Petition, vol. 1, p. 5.

[40] Petition, vol. 1, p. 5.

[41] CMOs are contract organizations that provide external capabilities that help speed up production, clinical testing, and drug discovery. Thermo Fisher Scientific (Pantheon), "CROs vs CMOs, and CDMOs: What's the difference between the three?," accessed May 7, 2026, https://www.patheon.com/us/en/insights-resources/blog/cdmo-vs-cmo-vs-cro.html.

[42] Scott, Cheryl, "Tris, a Critical Raw Material," January to February 2022, https://www.bioprocessintl.com/sponsored-content/tris-a-critical-raw-material-improving-the-quality-and-consistency-of-supply; conference transcript, pp. 13 to 14 (Neuberger).

[43] Scott, Cheryl, "Tris, a Critical Raw Material," January to February 2022, https://www.bioprocessintl.com/sponsored-content/tris-a-critical-raw-material-improving-the-quality-and-consistency-of-supply.

[44] Bratt et. al, "Buffers in Biologics Manufacturing," February 2017, https://www.advancionsciences.com/wp-content/uploads/2021/05/BPI-Buffers-Biologics-Manufacturing.pdf.

[45] Bratt et. al, "Buffers in Biologics Manufacturing," February 2017, https://www.advancionsciences.com/wp-content/uploads/2021/05/BPI-Buffers-Biologics-Manufacturing.pdf.

Tris and Tris HCl are typically sold as white powders or crystals with varying degrees of purity, based on its end use application.[46] The purity specifications range from 98 percent to 99.9 percent for Tris products.[47] Tris and Tris HCl are packaged and sold in various sizes ranging from 1 to 5 kg to 25 to 50 kg packages along with non-standard packaging such as small pails to 600kg super sacks.[48] Furthermore, the product may include a certification (e.g., cGMP) or monograph, based on its end use application.[49] The final Tris and Tris HCl products have a shelf life of 2 to 5 years, depending on the specific product line.[50]

Manufacturing processes

Producers usually produce Tris through one of two primary methods with the main difference being how nitromethane is produced (see figure 1.1).[51] The first method—synthesis method A—is a continuous manufacturing process and is the one primarily used by the petitioner and in the United States and Europe.[52] For method A, the manufacturer requires the raw material inputs of ammonia, propane, formaldehyde, and methane, which are all sourced from various suppliers.[53] Unlike many foreign producers, the petitioner makes pharmaceutical-grade nitromethane in-house using its proprietary nitration process, which uses propane and nitric acid as inputs.[54] The nitromethane production method was developed at Purdue University in 1934, and ammonia was used initially to produce nitric acid.[55]

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[46] Petition, vol. 1, p. 5.
[47] Conference transcript, p. 12 (Neuberger).
[48] Petition, vol. 1, p. 5; conference transcript, p. 93 (Green).
[49] Petition, vol. 1, p. 5.
[50] Conference transcript, p. 89 (Green).
[51] Bratt et. al, "Buffers in Biologics Manufacturing," February 2017, https://www.advancionsciences.com/wp-content/uploads/2021/05/BPI-Buffers-Biologics-Manufacturing.pdf.
[52] Bratt et. al, "Buffers in Biologics Manufacturing," February 2017, https://www.advancionsciences.com/wp-content/uploads/2021/05/BPI-Buffers-Biologics-Manufacturing.pdf.
[53] Bratt et. al, "Buffers in Biologics Manufacturing," February 2017, https://www.advancionsciences.com/wp-content/uploads/2021/05/BPI-Buffers-Biologics-Manufacturing.pdf.
[54] Scott, Cheryl, "Tris, a Critical Raw Material," January to February 2022, https://www.bioprocessintl.com/sponsored-content/tris-a-critical-raw-material-improving-the-quality-and-consistency-of-supply; Bratt et. al, "Buffers in Biologics Manufacturing," February 2017, https://www.advancionsciences.com/wp-content/uploads/2021/05/BPI-Buffers-Biologics-Manufacturing.pdf; Petition, vol. 1, p. 7.
[55] Conference transcript, pp. 94 to 95 (Green).

Alternatively, synthesis method B is a batch manufacturing process[56] that is spread out across various different producers and is typically used in other parts of the world.[57] For method B, the manufacturer relies on the initial raw materials of sodium nitrate and dimethyl sulfate.[58] Because dimethyl sulfate has been classified by the European Chemicals Agency (ECHA) as a carcinogen 1B, synthesis method A is the preferred method for Tris in the United States and the EU because the continuous process of synthesis method A does not result in the use of dimethyl sulfate.[59] [60]

Many foreign producers using synthesis method B such as the ones located in China depend on multiple sources for the inputs used in their Tris manufacturing process, which may include purchasing the aforementioned raw material inputs such as nitromethane on the open market.[61] According to the petitioner, several Chinese producers start the Tris production process by purchasing nitromethane.[62]

[56] Batch manufacturing results in the creation of "batches" of products that finish production before the next set of batches begin production. Continuous manufacturing occurs when raw materials are fed in one end and finished products come out at the other end in a continuous cycle (without interruption). MaintainX, "Batch Processing vs. Continuous Processing: How to Choose the Right Method for Your Manufacturing Operations," accessed May 7, 2026, https://www.getmaintainx.com/learning-center/batch-processing-vs-continuous-processing.

[57] Bratt et. al, "Buffers in Biologics Manufacturing," February 2017, https://www.advancionsciences.com/wp-content/uploads/2021/05/BPI-Buffers-Biologics-Manufacturing.pdf.

[58] Bratt et. al, "Buffers in Biologics Manufacturing," February 2017, https://www.advancionsciences.com/wp-content/uploads/2021/05/BPI-Buffers-Biologics-Manufacturing.pdf.

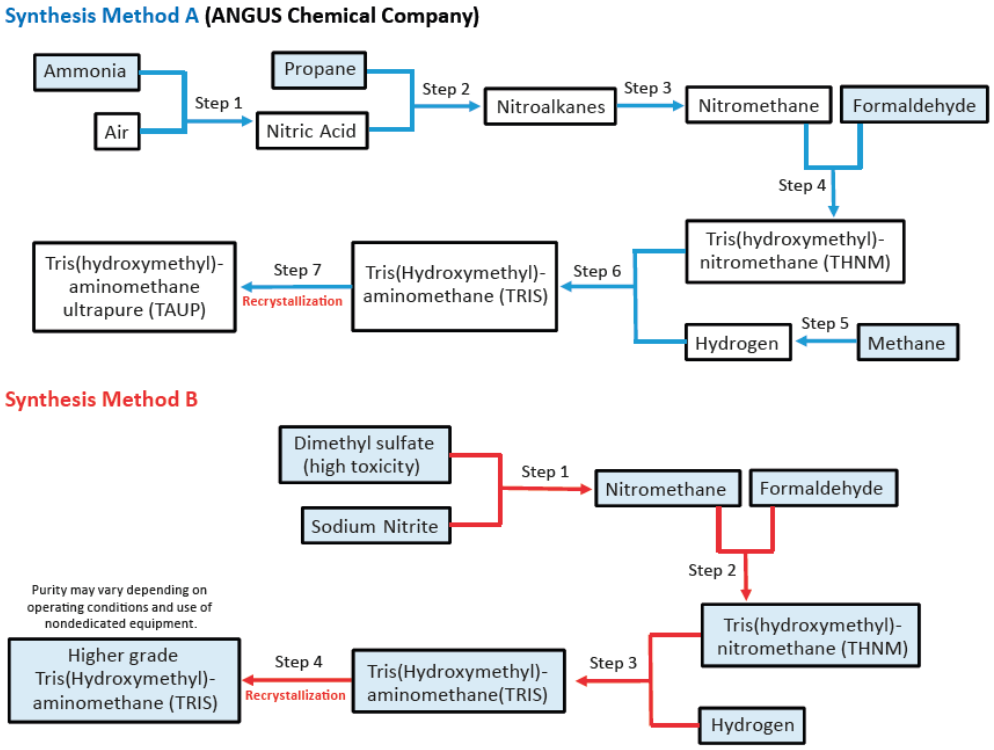
[59] Carcinogen 1B is a presumed human carcinogen and may cause cancer. European Chemicals Agency, "Substance Name: Dimethyl Sulphate," accessed April 30, 2026, https://echa.europa.eu/documents/10162/8fcaf1f0-ea6d-4ec8-a129-f0405def7c33.

[60] Bratt et. al, "Buffers in Biologics Manufacturing," February 2017, https://www.advancionsciences.com/wp-content/uploads/2021/05/BPI-Buffers-Biologics-Manufacturing.pdf.

[61] Scott, Cheryl, "Tris, a Critical Raw Material," January to February 2022, https://www.bioprocessintl.com/sponsored-content/tris-a-critical-raw-material-improving-the-quality-and-consistency-of-supply.

[62] Petition, vol. 1, p. 7; conference transcript, pp. 85 to 86 (Neuberger).

Figure 1.1: Two Primary Production Pathways of Tris



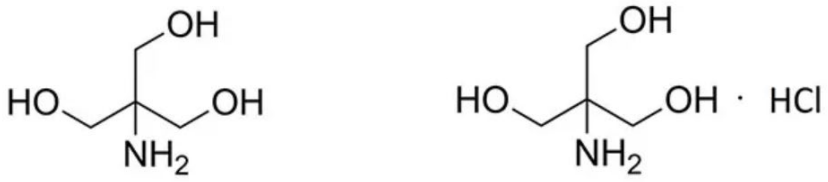
Source: Bratt et. al, "Buffers in Biologics Manufacturing," February 2017, https://www.advancionsciences.com/wp-content/uploads/2021/05/BPI-Buffers-Biologics-Manufacturing.pdf.

Tris is primarily made through the condensation reaction of formaldehyde and nitromethane.[63] Formaldehyde and nitromethane are mixed in a reactor, whereby they undergo multiple "Henry" (i.e., nitroaldol) reactions:[64]

1. Nitromethane→2-nitroethanol
2. 2-nitroethanol→2-nitro-1,3-propanediol
3. 2-nitro-1,3-propanediol→tris(hydroxymethyl)nitromethane

These repeated Henry reactions add a hydroxymethyl functional group to the molecule, resulting in three of these functional groups (see figure 1.2).[65] During this process, various parameters such as temperature, pH, and reactant addition rate are carefully monitored to ensure quality and yield of the product.[66]

Figure 1.2: Tris (left) and Tris HCl (right) Molecular Structures



Source: Zhi Shang Chemical, "Tris Base vs Tris HCl," accessed April 22, 2026, https://organicintermediate.com/tris-base-vs-tris-hcl/.

Afterwards, the tris(hydroxymethyl)nitromethane intermediate compound goes into a hydrogenation reactor (with the previously mentioned parameters being closely monitored) and undergoes subsequent chemical reactions.[67] The intermediate compound reacts with hydrogen gas (i.e., hydrogenation) along with a catalyst (platinum, nickel, or palladium).[68] The hydrogenation step converts the nitro ($-NO_2$) group of tris(hydroxymethyl)nitromethane into an amino ($-NH_2$) group, resulting in tris(hydroxymethyl)aminomethane ("Tris").[69]

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[63] Petition, vol. 1, p. 5.

[64] Henry reactions are widely used in the pharmaceutical industry to create intermediate compounds. Alfa Chemistry, "Henry Nitroaldol Reaction," accessed May 7, 2026, https://www.alfa-chemistry.com/resources/henry-nitroaldol-reaction.html; Petition, vol. 1, p. 6.

[65] Petition, vol. 1, p. 6.

[66] Petition, vol. 1, p. 6.

[67] Petition, vol. 1, pp. 6 to 7.

[68] The precious metal catalysts are subsequently filtered and reclaimed for use later on, as all of the petitioner's precious metal catalysts are reclaimed. Petition, vol. 1, pp. 6 to 7; conference transcript, p. 20 (Green), p. 83 (Green).

[69] Petition, vol. 1, pp. 6 to 7; conference transcript, p. 20 (Green).

The resulting Tris solution undergoes purification and then crystallization.[70] The purification steps help remove the catalyst along with other impurities, and further cleaning steps may occur to improve purity (e.g., ion exchange, distillation).[71] Afterwards, Tris is then recovered via crystallization, which is usually done through a multi-step process that involves evaporation, cooling, or tweaking the solvent.[72] The crystallization process results in the formation of the "mother liquid," which consists of Tris crystals in solvent form.[73] The corresponding mother liquid is then filtered and centrifuged to isolate the Tris crystals.[74] Afterwards, the Tris crystals are dried (to remove any remaining solvent) and then milled and sorted according to the size specifications.[75] This process of reconstituting the Tris compound back into solution and then recrystallizing can be repeated multiple times to achieve higher grades of purity.[76]

The production of Tris HCl involves subsequent chemical reactions, where Tris is combined with hydrochloric acid (HCl) in a reactor to undergo a neutralization reaction.[77] Tris HCl then proceeds to go through the aforementioned steps of purification, crystallization, filtration, centrifugation, and drying. Similar to Tris, the Tris HCl crystals may be milled and sorted to size specifications.[78]

Due to the compound's ability to absorb moisture, Tris can sometimes be subject to clumping and caking if the storage or shipping conditions are not ideal (e.g., high humidity).[79] Clumping of Tris can result in hard solid blocks of material. This can lead to higher operating costs, manufacturing safety concerns, and production delays, as it takes time for operators to break up the clumps.[80]

As a result, in addition to the Tris products mentioned previously, the petitioner also produces a proprietary, crystallized version of Tris called Tris Amino AC (Advanced Crystals) at

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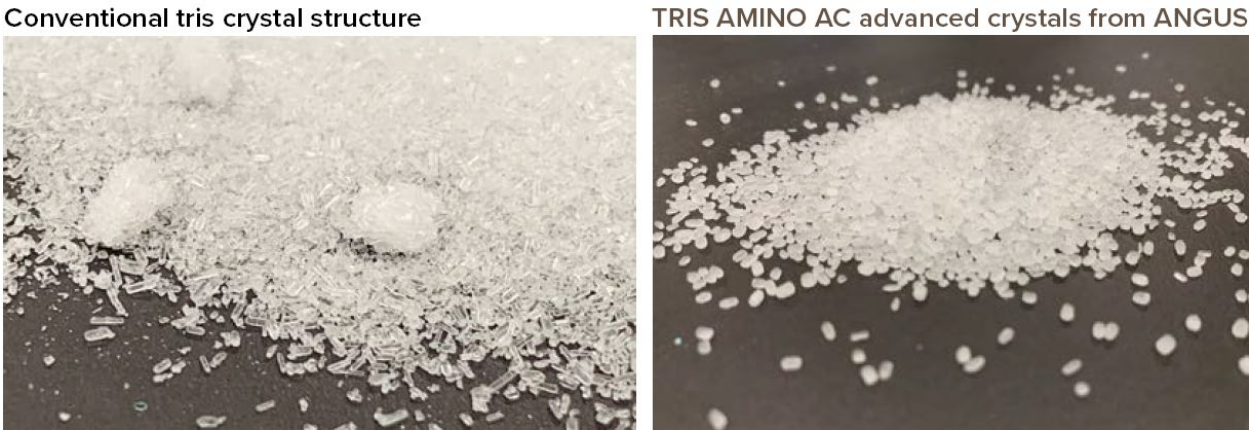
[70] Petition, vol. 1, pp. 6 to 7.
[71] Conference transcript, p. 21 (Green).
[72] Petition, vol. 1, pp. 6 to 7.
[73] Petition, vol. 1, pp. 6 to 7.
[74] Petition, vol. 1, pp. 6 to 7.
[75] Petition, vol. 1, pp. 6 to 7.
[76] Conference transcript, p. 101 (Green).
[77] Petition, vol. 1, pp. 6 to 7; conference transcript, p. 22 (Green).
[78] Petition, vol. 1, pp. 6 to 7.
[79] Scott, Cheryl, "Tris, a Critical Raw Material," January to February 2022, https://www.bioprocessintl.com/sponsored-content/tris-a-critical-raw-material-improving-the-quality-and-consistency-of-supply.
[80] Scott, Cheryl, "Tris, a Critical Raw Material," January to February 2022, https://www.bioprocessintl.com/sponsored-content/tris-a-critical-raw-material-improving-the-quality-and-consistency-of-supply.

their site in Ibbenbüren, Germany, and this version of Tris is less prone to clumping and hardness.[81] The unique structure of these crystals reduces the likelihood of clumping and caking (see figure 1.3). The Tris crystals are created using a proprietary method of growing and harvesting the Tris crystals to a specific size and dryness.[82] The Tris Amino AC crystals do not contain any special anticlumping agents or additives.[83]

Figure 1.3 Comparison of conventional Tris products versus Tris Amino AC crystals



Source: Scott, Cheryl, "Tris, a Critical Raw Material," January to February 2022, https://www.bioprocessintl.com/sponsored-content/tris-a-critical-raw-material-improving-the-quality-and-consistency-of-supply.

[81]AC stands for advanced crystal. Scott, Cheryl, "Tris, a Critical Raw Material," January to February 2022, https://www.bioprocessintl.com/sponsored-content/tris-a-critical-raw-material-improving-the-quality-and-consistency-of-supply; conference transcript, pp. 39 to 40 (Green, Neuberger).

[82] Scott, Cheryl, "Tris, a Critical Raw Material," January to February 2022, https://www.bioprocessintl.com/sponsored-content/tris-a-critical-raw-material-improving-the-quality-and-consistency-of-supply.

[83] Scott, Cheryl, "Tris, a Critical Raw Material," January to February 2022, https://www.bioprocessintl.com/sponsored-content/tris-a-critical-raw-material-improving-the-quality-and-consistency-of-supply.

Domestic like product issues

The petitioner proposes a single domestic like product coextensive with the scope of the investigations to include Tris and the derivative Tris HCl.[84] Table 1.3 contains counts on firms' responses regarding domestic like product factors comparing Tris and Tris HCl. Narrative responses provided by firms comparing Tris and Tris HCl are in appendix D.

Table 1.3 Tris and Tris HCl: Count of firms' responses regarding the domestic like product factors comparing Tris and Tris HCl, by factor and firm type

Count in number of firms reporting

Firm type	Factor	Fully	Mostly	Somewhat	Never
U.S. producer and reprocessors	Physical characteristics	0	2	2	1
U.S. producer and reprocessors	Interchangeability	0	0	1	4
U.S. producer and reprocessors	Manufacturing	0	2	2	1
U.S. producer and reprocessors	Channels	5	0	0	0
U.S. producer and reprocessors	Perceptions	0	1	3	1
U.S. producer and reprocessors	Price	0	1	3	1
Importers	Physical characteristics	0	2	4	5
Importers	Interchangeability	0	0	2	9
Importers	Manufacturing	1	2	2	2
Importers	Channels	5	1	1	2
Importers	Perceptions	0	2	3	4
Importers	Price	0	1	3	5

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

Note: Firm by firm narratives regarding domestic like products are available in appendix D.

[84] Conference transcript, p. 27 (Morey).

Intermediate products

The domestic like product proposed by petitioners includes the intermediate product (Tris) as well as downstream product (Tris HCl). Table 1.4 contains information provided by firms regarding the semi-finished product analysis comparing Tris and Tris HCl. Further information pertaining to the semi-finished product analysis is in appendix E.

Table 1.4 Tris and Tris HCl: Count of firms' responses regarding semi-finished product analysis comparing Tris and Tris HCl, by factor and firm type

Count in number of firms reporting

Firm type	Factor	No	Yes
U.S. producer and reprocessors	Other uses	0	5
U.S. producer and reprocessors	Separate market	3	2
U.S. producer and reprocessors	Differences in characteristics	0	5
U.S. producer and reprocessors	Differences in costs	2	3
U.S. producer and reprocessors	Transformation intensive	2	3
Importers	Other uses	1	10
Importers	Separate market	4	7
Importers	Differences in characteristics	1	10
Importers	Differences in costs	3	7
Importers	Transformation intensive	6	3

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

Part 2: Conditions of competition in the U.S. market

U.S. market characteristics

Tris and Tris HCl are organic compounds that are soluble in water and are used as a buffer, pH adjuster, and stabilizer in a wide range of applications. They are commonly sold in white crystal or powder forms with different purity levels and in different packaging sizes, such as 1-, 5-, 12-, 25-, and 50-kilogram packages. Tris is used in critical pharmaceutical applications including monoclonal antibodies, COVID-19 and other diagnostic kits, mRNA and novel vaccines developed to fight the COVID-19 virus, and many GLP-1s. Tris and Tri HCl are also used in personal care and cosmetic applications, and industrial applications.[1] Tris and Tris HCl are sold to reprocessors, end users, and to a lesser extent, distributors.

U.S. producer Advancion and 6 of 14 importers indicated that the market was subject to distinctive conditions of competition. U.S. producer Advancion reported that ***. Importer *** described an inefficient domestic market for Tris and Tris HCl, stating that there is only one domestic supplier with the economies of scale and sufficient production capacity to materially address domestic market demand; it added that the bulk of global production capacity is domiciled in China. Importer *** reported that Tris and Tris HCl have been used more in vaccines over the past five years versus pre-COVID times. U.S. producer Advancion and all but one importer reported that there was no impact of section 301 tariffs or new or modified tariffs on overall demand, supply, prices, or raw material costs. Importer *** reported that the section 301 tariffs did have an impact on the Tris and Tris HCl market, citing that the section 301 tariffs led to an increase in price from China. No firms reported a change in the product mix or marketing of Tris and Tris HCl since January 1, 2023.

Apparent U.S. consumption of Tris and Tris HCl decreased during January 2023 to December 2025, with larger declines from 2024 to 2025 than 2023 to 2024. Overall, apparent U.S. consumption in 2025 was lower than in 2023.

[1] Petition, p. 5.

Channels of distribution

U.S. producer Advancion sold mainly to ***. Subject importers sold mainly to reprocessors, as shown in table 2.1.[2]

Table 2.1 Tris and Tris HCl: Share of U.S. shipments by source, channel of distribution, and period

Shares in percent

Source	Channel	2023	2024	2025
United States	Distributors	***	***	***
United States	End users	***	***	***
United States	Reprocessors	***	***	***
China	Distributors	***	***	***
China	End users	***	***	***
China	Reprocessors	***	***	***
Nonsubject sources	Distributors	***	***	***
Nonsubject sources	End users	***	***	***
Nonsubject sources	Reprocessors	***	***	***
All import sources	Distributors	***	***	***
All import sources	End users	***	***	***
All import sources	Reprocessors	***	***	***

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

Geographic distribution

*** importers reported selling Tris and Tris HCl to all regions in the contiguous United States (table 2.2). For U.S. producer Advancion, *** percent of sales were within 100 miles of its production facility, *** percent were between 101 and 1,000 miles, and *** percent were over 1,000 miles. Importers sold *** percent within 100 miles of their U.S. point of shipment, *** percent between 101 and 1,000 miles, and *** percent over 1,000 miles.

[2] This also includes importers that are reprocessors that internally consume or are firms that transfer the Tris and Tris HCl they import to a related firm for reprocessing.

Table 2.2 Tris and Tris HCl: Count of U.S. producer's and U.S. importers' geographic markets

Region	U.S. producers	China
Northeast	***	6
Midwest	***	5
Southeast	***	4
Central Southwest	***	4
Mountain	***	3
Pacific Coast	***	3
Other	***	1
All regions (except Other)	***	3
Reporting firms	1	6

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 2.3 provides a summary of the supply factors regarding Tris and Tris HCl from U.S. producer Advancion and Chinese producer Yacoo.

Table 2.3 Tris and Tris HCl: Supply factors that affect the ability to increase shipments to the U.S. market, by country

Quantity in metric tons; ratio and share in percent

Factor	Measure	United States	China
Capacity 2023	Quantity	***	***
Capacity 2025	Quantity	***	***
Capacity utilization 2023	Ratio	***	***
Capacity utilization 2025	Ratio	***	***
Inventories to total shipments 2023	Ratio	***	***
Inventories to total shipments 2025	Ratio	***	***
Home market shipments 2025	Share	***	***
Non-US export market shipments 2025	Share	***	***
Ability to shift production (firms reporting "yes")	Count	***	***

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

Note: Responding U.S. producer Advancion accounted for all of U.S. production of Tris and Tris HCl in 2025. Responding foreign producer/exporter firm Yacoo accounted for the majority of reported U.S. imports of Tris and Tris HCl from China during 2025. 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 Parts 3 and 7.

Domestic production

Based on available information, U.S. producer Advancion has the ability to respond to changes in demand with large changes in the quantity of shipments of U.S.-produced Tris and Tris HCl to the U.S. market. The main contributing factors to this degree of responsiveness of supply are the availability of unused capacity, inventories, ability to shift shipments from alternate markets, and ability to shift production to or from alternate products.

U.S. producer Advancion's reported practical capacity increased slightly while production declined substantially, leading to a large decline in capacity utilization. Advancion reported very high inventories throughout the period of investigation and exports a substantial amount to ***. Other products that the producer reportedly can produce on the same equipment as Tris and Tris HCl are ***. Factors affecting U.S. producers' ability to shift production include time for cleaning between products.

Subject imports from China

Based on available information, the sole responding producer of Tris and Tris HCl from China, Yacoo, has the ability to respond to changes in demand with small-to-moderate changes in the quantity of shipments of Tris and Tris HCl to the U.S. market. The main contributing factors to this degree of responsiveness of supply are the ability to shift shipments from alternate markets and the ability to shift production to or from alternate products. Factors mitigating responsiveness of supply include limited availability of unused capacity and inventories.

Chinese producer Yacoo's practical capacity was stable while production increased, leading to increased capacity utilization. Yacoo's inventories were less than *** percent of total shipments during the period of investigation and it exported between *** percent of its shipments to ***. Chinese producer Yacoo reported that it *** the same production equipment it uses to produce Tris to produce other products, but other products that it reportedly can produce on the same equipment as Tris HCl are ***. Yacoo reported that market demand affects its ability to shift production.

Imports from nonsubject sources

Based on questionnaire data, nonsubject imports accounted for *** percent of total U.S. imports in 2025. Sources of nonsubject imports during January 2023 to December 2025 were France, Germany, India, Israel, Spain, Switzerland, and Taiwan.[3]

Supply constraints

U.S. producer Advancion and 12 of 14 responding importers reported that they had not experienced supply constraints since January 1, 2023. Of those that reported they had experienced supply constraints, importer/purchaser *** reported the constraints occurred during 2023 due to a reduction in quality attributes of ANGUS (Advancion)-produced Tris sold to ***, which limited *** ability to manufacture the USFDA Registered and Inspected versions, and during 2024 due to reworking ANGUS (Advancion)-produced material which reduced throughputs significantly. Importer/purchaser *** reported the constraints occurred during 2025 and 2026 due to a change in Chinese supplier ownership that negatively impacted supply availability, required changes in suppliers, and resulted in delays due to product re-qualification requirements to ensure product quality per PO specifications.

U.S. demand

Based on available information, the overall demand for Tris and Tris HCl is likely to experience small changes in response to changes in price. The main contributing factors are the lack of substitute products and the large range in cost share of Tris and Tris HCl in most of their end-use products.

[3] See Part 4 for more information on nonsubject sources.

End uses and cost share

U.S. demand for Tris and Tris HCl depends on the demand for U.S.-produced downstream products. Reported end uses include biologic pharmaceuticals, buffer solutions, chemicals, cleaners, R&D development/lab use, sheath fluid, Tris excipient, Tris HCl excipient, Tris-buffered saline, and wash buffer. Tris is used in critical pharmaceutical applications including monoclonal antibodies, COVID-19 and other diagnostic kits, mRNA and novel vaccines developed to fight the COVID-19 virus, and many GLP-1s. Tris and Tri HCl are also used in personal care and cosmetic applications, such as facial cleanser, skin care products, deodorants, and hand and body lotions as a buffering agent, and industrial applications such as paint and concrete.[4] Tris and Tris HCl account for a wide range of the cost of the end-use products in which they are used. Reported cost shares ranged from 0.1 percent for biologic pharmaceuticals; 30.0 to 35.0 percent for wash buffer, sheath fluid, and Tris-buffered saline; to 100.0 percent for Tris and Tris-based buffers.

Business cycles

U.S. producer Advancion and 6 of 14 importers indicated that the market was subject to business cycles. Specifically, firms cited end use demand in life sciences and fluctuations in the biopharma market.

Demand trends

Most firms reported increasing or steady U.S. demand for Tris and Tris HCl since January 1, 2023 (table 2.4). Specifically, importer *** reported that the development of life sciences drives an increase in the demand for Tris and Tris HCl and importer *** reported that demand declined slightly in 2024 but recovered in 2025. Firms also cited elevated inventories from the COVID-19 pandemic led to inventory destocking in 2024.

[4] Petition, p. 5.

Table 2.4 Tris and Tris HCl: Count of firms' responses regarding overall domestic and foreign demand, by firm type

Market	Firm type	Steadily Increase	Fluctuate upward	No change	Fluctuate downward	Steadily decrease
Domestic demand	U.S. producers	***	***	***	***	***
Domestic demand	Importers	1	5	5	3	0
Foreign demand	U.S. producers	***	***	***	***	***
Foreign demand	Importers	1	5	3	1	1

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

Substitute products

All U.S. producers and importers reported that there were no substitutes.

Substitutability issues

This section assesses the degree to which U.S.-produced Tris and Tris HCl and imports of Tris and Tris HCl from subject countries can be substituted for one another by examining the importance of certain purchasing factors and the comparability of Tris and Tris HCl from domestic and imported sources based on those factors. Based on available data, staff believes that there is a moderate degree of substitutability between domestically produced Tris and Tris HCl and Tris and Tris HCl imported from subject sources.[5] Factors contributing to this level of substitutability include reported interchangeability between domestic and subject sources. Factors reducing substitutability include reported quality differences or issues, limited availability from the domestic producer, different lead times from domestic and subject sources, and significant factors other than price that firms consider.

[5] The degree of substitution between domestic and imported Tris and Tris HCl depends upon the extent of product differentiation between the domestic and imported products and reflects how easily purchasers can switch from domestically produced Tris and Tris HCl to the Tris and Tris HCl imported from subject countries (or vice versa) when prices change. The degree of substitution may include such factors as 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.).

Factors affecting purchasing decisions

Most important purchase factors

Purchasers responding to lost sales lost revenue allegations[6] were asked to identify the main purchasing factors their firm considered in their purchasing decisions for Tris and Tris HCl. The most often cited top three factors firms consider in their purchasing decisions for Tris and Tris HCl were availability/supply, quality, and price as shown in table 2.5. Availability/supply was the most frequently cited first-most important factor; quality and price were the most frequently reported second-most important factor; and availability/supply, price, and approved supplier/supplier relationship were the most frequently reported third-most important factor.

Table 2.5 Tris and Tris HCl: Count of ranking of factors used in purchasing decisions as reported by purchasers, by factor

Factor	First	Second	Third	Total
Availability/Supply	2	0	1	3
Quality	1	1	0	2
Price	0	1	1	2
Approved supplier/supplier relationship	1	0	1	2
All other factors	0	1	1	NA

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

Note: Other factors include adequate supplier documentation and facility audit access, traceability, communication, supply chain transparency, delivery lead times, supply continuity, risk mitigation, and overall collaboration on payment terms and safety stock.

Lead times

Tris and Tris HCl are primarily sold from inventory. U.S. producer Advancion reported that *** of its commercial shipments were sold from inventory, with lead times averaging *** days. Importers reported that *** percent of their commercial shipments were sold from U.S. inventory and *** percent were sold from foreign inventory, with lead times averaging *** and *** days respectively. The remaining *** percent of their commercial shipments were produced-to-order, with lead times averaging *** days.

Purchaser *** reported the current lead time for domestically produced Tris and Tris HCl exceeds 14 weeks in most instances, which is an exceedingly long lead time that is not competitive with other sources for these products.

[6] This information is compiled from responses by purchasers identified by Petitioner to the lost sales lost revenue allegations. See Part 5 for additional information.

Comparison of U.S.-produced and imported Tris and Tris HCl

In order to determine whether U.S.-produced Tris and Tris HCl can generally be used in the same applications as imports from China and nonsubject countries, the U.S. producer and importers were asked whether the products can always, frequently, sometimes, or never be used interchangeably. As shown in table 2.6, most firms reported that domestically produced Tris and Tris HCl and Tris and Tris HCL imported from China are always or frequently interchangeable. Of the three importers that reported they are sometimes interchangeable, importer *** cited product specifications, customer suitability, product availability, supplier qualification process and importer *** stated that Tris and Tris HCl produced in China have advantages in quality, product variety, and technical support, which limits interchangeability to a certain extent. Importer *** reported that customers using material in bioprocessing will not use Chinese country of origin material interchangeably but that customers using material in diagnostics may use Chinese country of origin material interchangeably.

Table 2.6 Tris and Tris HCl: Count of U.S. producers and importers reporting the interchangeability between product produced in the United States and in other countries, by country pair

Country pair	Firm type	Always	Frequently	Sometimes	Never
United States vs. China	U.S. producer	***	***	***	***
United States vs. Other	U.S. producer	***	***	***	***
China vs. Other	U.S. producer	***	***	***	***
United States vs. China	Importers	5	2	3	0
United States vs. Other	Importers	1	0	4	0
China vs. Other	Importers	1	0	1	0

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

In addition, U.S. producers and importers were asked to assess how often differences other than price were significant in sales of Tris and Tris HCl from the United States, subject, or nonsubject countries. As seen in table 2.7, *** two importers reported that there are never significant factors other than price when comparing domestically produced Tris and Tris HCL with product imported from China. A majority of importers reported that there are always or frequently significant factors other than price when comparing domestically produced Tris and Tris HCL with product imported from China. Specifically, importers cited quality, suitability, approval status, compliance with FDA inspected criteria, business practices, product specifications, product availability, supplier qualification process, technical support, and business relationships. Importer *** reported that its business relationship for the Chinese origin material is much better, including customer service, quicker lead times, and innovation opportunities. Importer *** reported that it has a more advanced production process, employing different purification and recrystallization processes, which leads to products that are less prone to caking and have better quality compared to those produced in the United States. Additionally, it reported that it can carry out customized production according to customer specifications and can provide customers with more comprehensive solutions and technical support, whereas U.S. producers generally sell only standardized products and offer a lower level of service. Importer *** reported that imports from China are required for risk mitigation as there is only one U.S. producer and availability is an important factor. Importer *** reported that Tris and Tris HCl produced in the United States always convey advantages along the criteria of quality, availability, transportation network, product range, and technical support.

Table 2.7 Tris and Tris HCl: Count of U.S. producers and importers reporting the significance of differences other than price between product produced in the United States and in other countries, by country pair

Country pair	Firm type	Always	Frequently	Sometimes	Never
United States vs. China	U.S. producer	***	***	***	***
United States vs. Other	U.S. producer	***	***	***	***
China vs. Other	U.S. producer	***	***	***	***
United States vs. China	Importers	5	2	1	2
United States vs. Other	Importers	1	0	2	1
China vs. Other	Importers	0	0	1	1

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

Part 3: U.S. producers' production, shipments, and employment

The Commission analyzes a number of factors in making injury determinations (see 19 U.S.C. §§ 1677(7)(B) and 1677(7)(C)). Information on the subsidies and dumping margins was presented in Part 1 of this report and information on the volume and pricing of imports of the subject merchandise is presented in Part 4 and Part 5. Information on the other factors specified is presented in this section and/or Part 6 and (except as noted) is based on the questionnaire response of one firm, Advancion, that accounted for all known U.S. production of Tris and Tris HCl during 2025.

U.S. producers

The Commission issued a U.S. producer/U.S. reprocessor questionnaire to five firms based on information contained in the petitions. One U.S. producer (Advancion) and four reprocessors provided data on their operations.[1] Table 3.1 presents U.S. producer Advancion, its production location(s), position on the petitions, and share of total production.

Table 3.1 Tris and Tris HCl: U.S. producer Advancion, its position on the petitions, production location(s), and share of reported production, 2025

Firm	Position on petition	Production location(s)	Share of production
Advancion	Petitioner	Sterlington, LA	100.0

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

Table 3.2 presents information on Advancion's ownership and related and/or affiliated firms. As indicated in table 3.2, Advancion is related to a producer of Tris in Germany.[2]

Table 3.2 Tris and Tris HCl: U.S. producer Advancion's 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.

[1] Data reported by the four U.S. reprocessors are presented in appendix F. U.S. reprocessors *** did not submit usable trade and financial data, thus, only *** trade and financial data are presented in appendix F.

[2] Conference transcript, p. 7 (Hermann), p. 13 (Neuberger).

Table 3.3 presents events in the U.S. industry since January 1, 2023.

Table 3.3 Tris and Tris HCl: Important industry events since 2023

Item	Firm	Event
Acquisition	Angus Chemical (Ardian)	On October 26, 2020, private equity firm Ardian acquired a 50 percent stake in Angus Chemical with the other 50 percent belonging to Golden Gate Capital.
Expansion	Angus Chemical	In October 2021, Angus Chemical revealed its expansion plans to double the global production capacity of Tris through the addition of a fourth dedicated manufacturing line in Sterlington, LA.
Expansion	Angus Chemical	On February 15, 2022, Angus Chemical announced the expansion of its manufacturing site in Sterlington, LA to include the production of Tris HCl.
Rebrand	Advancion (formerly Angus Chemical)	Effective September 1, 2023, Angus Chemical finished changing its name to Advancion Corporation.
Acquisition	Ardian	On April 14, 2026, Ardian and Goldman Sachs successfully purchased a $1 billion stake in China Investment Corporation (CIC), China's largest sovereign fund with Ardian receiving a double-digit discount.

Source: Scott, Cheryl, "Tris, a Critical Raw Material," January to February 2022, https://www.bioprocessintl.com/sponsored-content/tris-a-critical-raw-material-improving-the-quality-and-consistency-of-supply; Specialty Chemicals Magazine, "Ardian Takes Angus Chemical Stake," October 26, 2020, https://www.specchemonline.com/ardian-takes-angus-chemical-stake; Private Equity Insights, "Goldman and Ardian Snap Up $1Bn CIC Portfolio at Discount in Secondary Market Deal," April 14, 2026, https://pe-insights.com/goldman-and-ardian-snap-up-1bn-cic-portfolio-at-discount-in-secondary-market-deal/; Advancion, "ANGUS Completes Expansion of Louisiana Site to Include TRIS AMINO™ Hydrochloride Production," February 15, 2022, https://www.advancionsciences.com/press-releases/angus-completes-expansion-of-louisiana-site-to-include-tris-amino-hydrochloride-production/; Biospace, "Angus Completes Corporate Rebrand, Changes Name to Advancion," September 1, 2023, https://www.biospace.com/angus-completes-corporate-rebrand-changes-name-to-advancion.

Table 3.4 presents U.S. producer Advancion's reported changes in the character of its operations or organization relating to the production of Tris and Tris HCl since 2023.

Table 3.4 Tris and Tris HCl: U.S. producer Advancion's reported changes in operations, since January 1, 2023

Item	Firm name and narrative response on changes in operations
Production curtailments	***

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

U.S. production, capacity, and capacity utilization

Table 3.5 and figure 3.1 present Advancion's installed and practical capacity and production on the same equipment. From 2023 to 2025 Advancion's installed overall, practical overall, and practical Tris and Tris HCl capacity remained at the same or similar levels. Meanwhile, all measures of production and capacity utilization decreased annually from 2023 to 2025.

Table 3.5 Tris and Tris HCl: U.S. producer Advancion's installed and practical capacity and production on the same equipment as in-scope production, by period

Capacity and production in metric tons; utilization in percent

Item	Measure	2023	2024	2025
Installed overall	Capacity	***	***	***
Installed overall	Production	***	***	***
Installed overall	Utilization	***	***	***
Practical overall	Capacity	***	***	***
Practical overall	Production	***	***	***
Practical overall	Utilization	***	***	***
Practical Tris and Tris HCl	Capacity	***	***	***
Practical Tris and Tris HCl	Production	***	***	***
Practical Tris and Tris HCl	Utilization	***	***	***

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

Figure 3.1 Tris and Tris HCl: U.S. producer Advancion's output, by period

* * * * * * *

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

Table 3.6 presents Advancion's reported narrative regarding practical capacity constraints.

Table 3.6 Tris and Tris HCl: U.S. producer Advancion's reported capacity constraints since January 1, 2023

Item	Firm name and narrative response on constraints to practical overall capacity
Other constraints	***

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

Alternative products

As shown in table 3.7, over *** percent of the products produced during 2023 to 2025 by Advancion were Tris and Tris HCl.

Table 3.7 Tris and Tris HCl: U.S. producer Advancion's overall production on the same equipment as in-scope production, by period

Quantity in metric tons; share in percent

Product type	Measure	2023	2024	2025
Tris and Tris HCl	Quantity	***	***	***
Other products	Quantity	***	***	***
All products	Quantity	***	***	***
Tris and Tris HCl	Share	***	***	***
Other products	Share	***	***	***
All products	Share	100.0	100.0	100.0

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

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

Table 3.8 presents Advancion's U.S. shipments, export shipments, and total shipments. From 2023 to 2025, Advancion's U.S. shipments decreased at a higher rate than its increase in export shipments. As a result, U.S. shipments as a share of total shipments decreased from 2023 to 2025 while the share held by exports increased. U.S. shipments held the majority share of total shipments in 2023, and exports held the majority share in 2024 and 2025.[3]

Table 3.8 Tris and Tris HCl: U.S. producer Advancion's shipments, by destination and period

Quantity in metric tons; value in 1,000 dollars; unit value in dollars per kilogram; shares in percent

Item	Measure	2023	2024	2025
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	100.0	100.0	100.0
U.S. shipments	Share of value	***	***	***
Export shipments	Share of value	***	***	***
Total shipments	Share of value	100.0	100.0	100.0

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

[3] Advancion reported exporting Tris and Tris HCl to ***.

Table 3.9 presents Advancion's U.S. shipments by type. During 2023 to 2025, Advancion did not report company transfers. From 2023 to 2025, Advancion's internal consumption fluctuated, was lowest in 2023, and reached its highest level in 2024. From 2023 to 2025, as commercial U.S. shipments decreased annually the share of total U.S. shipments held by internal consumption increased annually.

Table 3.9 Tris and Tris HCl: U.S. producer Advancion's U.S. shipments, by type and period

Quantity in metric tons; value in 1,000 dollars; unit value in dollars per kilogram; shares in percent

Item	Measure	2023	2024	2025
Commercial U.S. shipments	Quantity	***	***	***
Internal consumption	Quantity	***	***	***
U.S. shipments	Quantity	***	***	***
Commercial U.S. shipments	Value	***	***	***
Internal consumption	Value	***	***	***
U.S. shipments	Value	***	***	***
Commercial U.S. shipments	Unit value	***	***	***
Internal consumption	Unit value	***	***	***
U.S. shipments	Unit value	***	***	***
Commercial U.S. shipments	Share of quantity	***	***	***
Internal consumption	Share of quantity	***	***	***
U.S. shipments	Share of quantity	100.0	100.0	100.0
Commercial U.S. shipments	Share of value	***	***	***
Internal consumption	Share of value	***	***	***
U.S. shipments	Share of value	100.0	100.0	100.0

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

Note: Advancion's internal consumption represents ***. Email from ***, May 7, 2026.

Table 3.10 and figure 3.2 present Advancion's U.S. shipments by product type. Advancion's U.S. shipments of Tris decreased annually from 2023 to 2025 while its U.S. shipments of Tris HCI increased from 2023 to 2024, then returned to a similar level as 2023 in 2025. Tris accounted for over *** percent, by quantity, of U.S. shipments throughout the period for which data were collected.

Table 3.10 Tris and Tris HCl: U.S. producer Advancion's U.S. shipments, by product type and period

Quantity in metric tons; value in 1,000 dollars; unit value in dollars per kilogram; shares in percent

Product type	Measure	2023	2024	2025
Tris	Quantity	***	***	***
Tris HCl	Quantity	***	***	***
All product types	Quantity	***	***	***
Tris	Value	***	***	***
Tris HCl	Value	***	***	***
All product types	Value	***	***	***
Tris	Unit value	***	***	***
Tris HCl	Unit value	***	***	***
All product types	Unit value	***	***	***
Tris	Share of quantity	***	***	***
Tris HCl	Share of quantity	***	***	***
All product types	Share of quantity	100.0	100.0	100.0
Tris	Share of value	***	***	***
Tris HCl	Share of value	***	***	***
All product types	Share of value	100.0	100.0	100.0

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

Figure 3.2 Tris and Tris HCl: U.S. producer Advancion's U.S. shipments, by product type and period

* * * * * * *

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

U.S. producers' inventories

Table 3.11 presents Advancion's end-of-period inventories and the ratio of these inventories to its production, U.S. shipments, and total shipments. Advancion's inventories increased annually from 2023 to 2025 along with its inventory ratio to U.S. production, U.S. shipments, and total shipments.

Table 3.11 Tris and Tris HCl: U.S. producer Advancion's inventories and their ratio to select items, by period

Quantity in metric tons; ratio in percent

Item	2023	2024	2025
End-of-period inventory quantity	***	***	***
Inventory ratio to U.S. production	***	***	***
Inventory ratio to U.S. shipments	***	***	***
Inventory ratio to total shipments	***	***	***

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

U.S. producers' imports from subject sources

Advancion did not report subject imports of Tris and Tris HCl from China from 2023 to 2025.

U.S. producers' purchases of imports from subject sources

Advancion did not report purchases of Tris and Tris HCl from 2023 to 2025.

U.S. employment, wages, and productivity

Table 3.12 shows Advancion's employment-related data. Overall, from 2023 to 2025, the number of production and related workers ("PRWs"), total hours worked, wages paid, and productivity decreased. Hours worked per PRW remained somewhat stable and unit labor costs increased from 2023 to 2025.

Table 3.12 Tris and Tris HCl: U.S. producer Advancion's employment related information, by period

Item	2023	2024	2025
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 (kilograms per hour)	***	***	***
Unit labor costs (dollars per kilogram)	***	***	***

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

Part 4: U.S. imports, apparent U.S. consumption, and market shares

U.S. importers

The Commission issued importer questionnaires to 54 firms believed to be importers of subject Tris and Tris HCl, as well as to all U.S. producers of Tris and Tris HCl.[1] Usable questionnaire responses were received from 15 companies, representing *** percent of U.S. imports from China and *** percent of U.S. imports from nonsubject sources in 2025 under HTS subheading 2922.19.9690, a "basket" category.[2] [3] Table 4.1 lists all responding U.S. importers of Tris and Tris HCl from China and other sources, their locations, and their shares of U.S. imports, in 2025.

[1] The Commission issued questionnaires to those firms identified in the petition; staff research; and proprietary, Census-edited Customs' import records.

[2] Given that HTS code 2922.19.9690 is a "basket" category that contains out-of-scope merchandise, coverage estimates are based on the petitioner's estimates of U.S. imports of Tris and Tris HCl using bill of lading data. Petitions, exhibit Gen-5.

[3] Twenty-one firms certified that they have not imported Tris and Tris HCl into the United States since January 1, 2023.

Table 4.1 lists all responding U.S. importers of Tris and Tris HCl from China and other sources, their locations, and their shares of U.S. imports, in 2025.

Table 4.1 Tris and Tris HCl: U.S. importers, their headquarters, and share of imports within each source, 2025

Share in percent

Firm	Headquarters	China	Nonsubject sources	All import sources
Advancion	Buffalo Grove, IL	***	***	***
Avantor	Radnor, PA	***	***	***
Barker	Charlotte, NC	***	***	***
Beckman Coulter	Brea, CA	***	***	***
Bioland	Paramount, CA	***	***	***
BioSpectra	Wind Gap, PA	***	***	***
Chem-Impex	Wood Dale, IL	***	***	***
Genentech	South San Francisco, CA	***	***	***
Magnum	Crown Point, IN	***	***	***
MarinaBio	Cedar Park, TX	***	***	***
Shanco	Union, SC	***	***	***
Sigma-Aldrich	St. Louis, MO	***	***	***
Spectrum	New Brunswick, NJ	***	***	***
Troy	Newark, NJ	***	***	***
Yacoo	Suzhou, Jiangsu, China	***	***	***
All firms	Various	100.0	100.0	100.0

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

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

U.S. imports

Tables 4.2 and 4.3 and figure 4.1 present data for U.S. imports of Tris and Tris HCl from China and all other sources. Imports from China by quantity and value fluctuated from 2023 to 2025 ending *** percent higher and *** percent higher, respectively.[4] Imports from nonsubject sources by quantity and value fluctuated from 2023 to 2025 ending *** percent lower and *** percent lower, respectively.[5]

Imports from China had lower unit values than nonsubject imports for all time periods. Unit values from China decreased on a year-to-year basis ending *** percent lower in 2025 compared to 2023. Nonsubject sources unit values increased on a year-to-year basis ending *** percent higher in 2025.

Imports from China accounted for over *** percent of total imports by quantity throughout the data collection period and increased its share of total imports from 2023 to 2025 by *** percentage points in quantity and *** percentage points in value. The ratio of U.S. imports from China to U.S. production increased by *** percentage points from 2023 to 2025. The ratio of U.S. imports from nonsubject sources to U.S. production decreased from 2023 to 2025 ending *** percentage point lower in 2025.

[4] Eight U.S. importers' imports from China increased by quantity during the 2023 to 2025 period, while four U.S. importers' imports from China decreased from 2023 to 2025.

[5] Nonsubject sources identified by importers: France, Germany, India, Israel, Spain, Switzerland, and Taiwan. ***. Petitioner's post-conference brief, p. 6. Staff did not reclassify any imports reported as from Taiwan to China because staff followed up with ***.

Table 4.2 Tris and Tris HCl: U.S. imports by source and period

Quantity in metric tons; value in 1,000 dollars; unit value in dollars per kilogram.

Source	Measure	2023	2024	2025
China	Quantity	***	***	***
Nonsubject sources	Quantity	***	***	***
All import sources	Quantity	***	***	***
China	Value	***	***	***
Nonsubject sources	Value	***	***	***
All import sources	Value	***	***	***
China	Unit value	***	***	***
Nonsubject sources	Unit value	***	***	***
All import sources	Unit value	***	***	***
China	Share of quantity	***	***	***
Nonsubject sources	Share of quantity	***	***	***
All import sources	Share of quantity	100.0	100.0	100.0
China	Share of value	***	***	***
Nonsubject sources	Share of value	***	***	***
All import sources	Share of value	100.0	100.0	100.0
China	Ratio	***	***	***
Nonsubject sources	Ratio	***	***	***
All import sources	Ratio	***	***	***

Note: Share of quantity is the share of U.S. imports by quantity; share of value is the share of U.S. imports by value; ratio are U.S. imports to production.

Source: Compiled from data submitted in response to Commission questionnaires

Figure 4.1 Tris and Tris HCl: U.S. import quantities and average unit values, by source and period

* * * * * * *

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

Table 4.3 Tris and Tris HCl: Changes in U.S. imports, by source and period

Changes (Δ) in percent (%) or percentage point (ppt)

Source	Measure	2023 to 2025	2023 to 2024	2024 to 2025
China	%Δ Quantity	▲***	▼***	▲***
Nonsubject sources	%Δ Quantity	▼***	▼***	▲***
All import sources	%Δ Quantity	▲***	▼***	▲***
China	%Δ Value	▲***	▼***	▲***
Nonsubject sources	%Δ Value	▼***	▼***	▲***
All import sources	%Δ Value	▲***	▼***	▲***
China	%Δ Unit value	▼***	▼***	▼***
Nonsubject sources	%Δ Unit value	▲***	▲***	▲***
All import sources	%Δ Unit value	▼***	▼***	▲***
China	ppt Δ Quantity	▲***	▲***	▼***
Nonsubject sources	ppt Δ Quantity	▼***	▼***	▲***
All import sources	ppt Δ Quantity	***	***	***
China	ppt Δ Value	▲***	▲***	▼***
Nonsubject sources	ppt Δ Value	▼***	▼***	▲***
All import sources	ppt Δ Value	***	***	***
China	ppt Δ Ratio	▲***	▲***	▲***
Nonsubject sources	ppt Δ Ratio	▼***	▼***	▲***
All import sources	ppt Δ Ratio	▲***	▼***	▲***

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.

Tables 4.4 and 4.5 and figures 4.2 and 4.3 present U.S. importers' U.S. imports by product type of Tris and Tris HCl. Tris accounted for at least *** percent of Tris imported from China during the data collection period. Tris HCl accounted for less than *** percent of Tris HCl imported from China during the data collection period. Shares, by both volume and by value, varied little during the period of investigation.

The shares of Tris and Tris HCl from nonsubject sources fluctuated greatly during the data collection period. By quantity, Tris accounted for more than *** of Tris and Tris HCl in 2023 and 2025, while it accounted for approximately *** of Tris and Tris HCl in 2024.

Tris HCl from China had a higher average unit value than Tris from China throughout the data collection period. The average unit value of both Tris and Tris HCl from China decreased from 2023 to 2025.

The average unit value of Tris from nonsubject sources was lower than the average unit value of Tris HCl from nonsubject sources in 2023 and 2024, but was higher in 2025, as the average unit value of Tris from nonsubject sources increased from 2023 to 2025 while the average unit value of Tris HCl from nonsubject sources decreased from 2023 to 2025.

Table 4.4 Tris and Tris HCl: U.S. importers' U.S. imports from China, by product type and period

Quantity in metric tons; Value in 1,000 dollars; Unit values in dollars per kilogram; Shares in percent

Product type	Measure	2023	2024	2025
Tris	Quantity	***	***	***
Tris HCl	Quantity	***	***	***
All product types	Quantity	***	***	***
Tris	Value	***	***	***
Tris HCl	Value	***	***	***
All product types	Value	***	***	***
Tris	Unit value	***	***	***
Tris HCl	Unit value	***	***	***
All product types	Unit value	***	***	***
Tris	Share of quantity	***	***	***
Tris HCl	Share of quantity	***	***	***
All product types	Share of quantity	100.0	100.0	100.0
Tris	Share of value	***	***	***
Tris HCl	Share of value	***	***	***
All product types	Share of value	100.0	100.0	100.0

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

Figure 4.2 Tris and Tris HCl: U.S. importers' U.S. imports from China, by product type and period

* * * * * * *

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

Table 4.5 Tris and Tris HCl: U.S. importers' U.S. imports from nonsubject sources, by product type and period

Quantity in metric tons; Value in 1,000 dollars; Unit values in dollars per kilogram; Shares in percent

Product type	Measure	2023	2024	2025
Tris	Quantity	***	***	***
Tris HCl	Quantity	***	***	***
All product types	Quantity	***	***	***
Tris	Value	***	***	***
Tris HCl	Value	***	***	***
All product types	Value	***	***	***
Tris	Unit value	***	***	***
Tris HCl	Unit value	***	***	***
All product types	Unit value	***	***	***
Tris	Share of quantity	***	***	***
Tris HCl	Share of quantity	***	***	***
All product types	Share of quantity	100.0	100.0	100.0
Tris	Share of value	***	***	***
Tris HCl	Share of value	***	***	***
All product types	Share of value	100.0	100.0	100.0

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

Figure 4.3 Tris and Tris HCl: U.S. importers' U.S. imports from Nonsubject, by product type and period

* * * * * * *

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

Negligibility

The statute requires that an investigation be terminated without an injury determination if imports of the subject merchandise are found to be negligible.[6] Negligible imports are generally defined in the Act, as amended, as imports from a country of merchandise corresponding to a domestic like product where such imports account for less than 3 percent of the volume of all such merchandise imported into the United States in the most recent 12-month period for which data are available that precedes the filing of the petition or the initiation of the investigation. However, if there are imports of such merchandise from a number of countries subject to investigations initiated on the same day that individually account for less than 3 percent of the total volume of the subject merchandise, and if the imports from those countries collectively account for more than 7 percent of the volume of all such merchandise imported into the United States during the applicable 12-month period, then imports from such countries are deemed not to be negligible.[7] Imports from China accounted for *** percent of total imports of Tris and Tris HCl by quantity from April 2025 through March 2026.

Table 4.6 Tris and Tris HCl: U.S. imports in the twelve-month period preceding the filing of the petition, April 2025 through March 2026

Quantity in metric tons; share in percent

Source of imports	Quantity	Share of quantity
China	***	***
Nonsubject sources	***	***
All import sources	***	100.0

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

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

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

Apparent U.S. consumption and market shares

Quantity

Demand for Tris and Tris HCl has declined since the COVID-19 pandemic, however, demand is expected to rise in the upcoming years.[8] Table 4.7 and figure 4.4 present data on apparent U.S. consumption and U.S. market shares by quantity for Tris and Tris HCl. Apparent U.S. consumption decreased by *** percent during the period of investigation. While the U.S. producer's U.S. shipments declined by *** percent, shipments of subject imports increased by *** during the period of investigation.

The share of U.S. producer U.S. shipments decreased by *** percentage points during the period of investigation, while the share of U.S. shipments from China increased by *** percentage points during the period of investigation. U.S. shipments from nonsubject sources saw a decrease in market share of *** percentage points during the period of investigation.

Table 4.7 Tris and Tris HCl: Apparent U.S. consumption and market shares based on quantity, by source and period

Quantity in metric tons; shares in percent

Source	Measure	2023	2024	2025
U.S. producers	Quantity	***	***	***
China	Quantity	***	***	***
Nonsubject sources	Quantity	***	***	***
All import sources	Quantity	***	***	***
All sources	Quantity	***	***	***
U.S. producers	Share	***	***	***
China	Share	***	***	***
Nonsubject sources	Share	***	***	***
All import sources	Share	***	***	***
All sources	Share	100.0	100.0	100.0

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

[8] Conference transcript p. 7 and BioSpectra's post-conference comments pp. 5 to 7.

Figure 4.4 Tris and Tris HCl: Apparent U.S. consumption based on quantity, by source and period

* * * * * * *

Source: Compiled from data submitted in response to Commission questionnaires

Value

Table 4.8 presents data on apparent U.S. consumption and U.S. market shares by value for Tris and Tris HCl. The value of U.S. producers' U.S. shipments decreased by *** percent from 2023 to 2025. The value of shipments of subject imports increased by *** percent from 2023 to 2025. In terms of value, the U.S. producers lost *** percentage points of market share, while China gained *** percentage points of value from 2023 to 2025. U.S. shipments from nonsubject sources lost *** percentage points of market share in terms of value.

Table 4.8 Tris and Tris HCl: Apparent U.S. consumption and market shares based on value, by source and period

Value in 1,000 dollars; shares in percent

Source	Measure	2023	2024	2025
U.S. producers	Value	***	***	***
China	Value	***	***	***
Nonsubject sources	Value	***	***	***
All import sources	Value	***	***	***
All sources	Value	***	***	***
U.S. producers	Share	***	***	***
China	Share	***	***	***
Nonsubject sources	Share	***	***	***
All import sources	Share	***	***	***
All sources	Share	100.0	100.0	100.0

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

Figure 4.5 Tris and Tris HCl: Apparent U.S. consumption based on value, by source and period

* * * * * * *

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

U.S. producer's shipments and U.S. importers' imports by product type

Table 4.9 and 4.10 show U.S. producer Advancion's U.S. shipments and U.S. importers' imports of Tris and Tris HCl, respectively. U.S. producer Advancion's U.S. shipments of Tris decreased by *** percent during the period of investigation, while shipments of imports from China of Tris increased by *** percent during the period of investigation. All sources of Tris decreased by *** percent during the period of investigation. U.S. producers' share of U.S. shipments of Tris decreased by *** percentage points during the period of investigation while China's share of U.S. shipments of Tris increased by *** percentage points during the period.

U.S. producers' U.S. shipments of Tris HCl increased from 2023 to 2024 by *** percent and then returned to similar levels of 2023 in 2025. U.S. shipments of imports of Tris HCl from China increased by *** percent during the period of investigation. Shipments of Tris HCl from all sources decreased by *** percent during the period of investigation. U.S. producer Advancion's share of U.S. shipment quantity of Tris HCl increased by *** percentage points during the period of investigation, while the share of U.S. shipments by quantity of Tris HCl from China increased by *** percentage points during the period of investigation.

Table 4.9 Tris: U.S. producer Advancion's U.S. shipments and U.S. importers' U.S. imports of Tris, by source and period

Quantity in metric tons; Share and ratio in percent; Ratio is relative to overall apparent consumption quantity

Source	Measure	2023	2024	2025
U.S. producers	Quantity	***	***	***
China	Quantity	***	***	***
Nonsubject sources	Quantity	***	***	***
All import sources	Quantity	***	***	***
All sources	Quantity	***	***	***
U.S. producers	Share	***	***	***
China	Share	***	***	***
Nonsubject sources	Share	***	***	***
All import sources	Share	***	***	***
All sources	Share	100.0	100.0	100.0
U.S. producers	Ratio	***	***	***
China	Ratio	***	***	***
Nonsubject sources	Ratio	***	***	***
All import sources	Ratio	***	***	***
All sources	Ratio	***	***	***

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

Note: U.S. importers' data on Tris and Tris HCl were gathered based on U.S. imports, not U.S. shipments of imports. As a result, the ratio to overall apparent consumption presented in this table is impacted by differences in timing, inventories, and shipment destinations.

Table 4.10 Tris HCl: U.S. producer Advancion's U.S. shipments and U.S. importers' U.S. imports of Tris HCl, by source and period

Quantity in metric tons; Share and ratio in percent; Ratio is relative to overall apparent consumption quantity

Source	Measure	2023	2024	2025
U.S. producers	Quantity	***	***	***
China	Quantity	***	***	***
Nonsubject sources	Quantity	***	***	***
All import sources	Quantity	***	***	***
All sources	Quantity	***	***	***
U.S. producers	Share	***	***	***
China	Share	***	***	***
Nonsubject sources	Share	***	***	***
All import sources	Share	***	***	***
All sources	Share	100.0	100.0	100.0
U.S. producers	Ratio	***	***	***
China	Ratio	***	***	***
Nonsubject sources	Ratio	***	***	***
All import sources	Ratio	***	***	***
All sources	Ratio	***	***	***

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

Note: U.S. importers' data on Tris and Tris HCl were gathered based on U.S. imports, not U.S. shipments of imports. As a result, the ratio to overall apparent consumption presented in this table is impacted by differences in timing, inventories, and shipment destinations.

Part 5: Pricing data

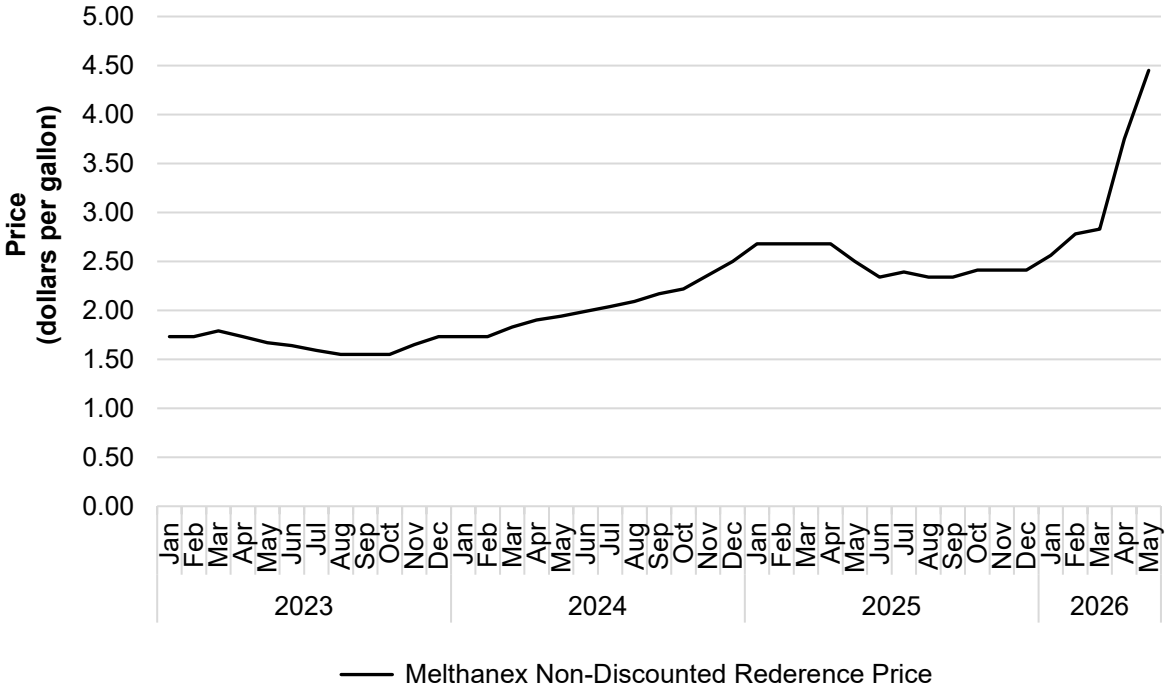
Factors affecting prices

Raw material costs

Tris is made from nitromethane and formaldehyde. Tris HCl is made by combining Tris with hydrochloric acid. Petitioner stated that its production process is fully integrated and that it produces the nitromethane itself. It also uses a metal catalyst, such as nickel, palladium, or platinum, in the hydrogenation step.[1] Raw materials were between *** of U.S. producer Advancion's cost of goods sold (COGS) and fluctuated from 2023 to 2025. Petitioner stated that methanol would be a leading indicator for the price of formaldehyde.[2] As shown in figure 5.1 and table 5.1, the price of methanol fluctuated from January 2023 to May 2026, with a sharp increase in the most recent months. Overall, the price of methanol increased by 39.3 percent from January 2023 to December 2025, then increased further by 84.6 percent by May 2026.

[1] Conference transcript, pp. 19 to 22 (Green).
[2] Conference transcript, p. 80 (Neuberger).

Figure 5.1 Raw materials: Methanol average regional posted contract prices, by month, January 2023 to May 2026



Source: Methanex Methanol Price Sheet, https://www.methanex.com/wp-content/uploads/MxAvgPrice-April-29-2026.xlsx, accessed May 18, 2026.

Table 5.1 Raw materials: Methanol average regional posted contract prices, by month, January 2023 to May 2026

Price in dollars per gallon

Month	2023	2024	2025	2026
January	1.73	1.73	2.68	2.56
February	1.73	1.73	2.68	2.78
March	1.79	1.83	2.68	2.83
April	1.73	1.90	2.68	3.75
May	1.67	1.94	2.50	4.45
June	1.64	1.99	2.34	NA
July	1.59	2.04	2.39	NA
August	1.55	2.09	2.34	NA
September	1.55	2.17	2.34	NA
October	1.55	2.22	2.41	NA
November	1.65	2.36	2.41	NA
December	1.73	2.50	2.41	NA

Source: Methanex Methanol Price Sheet, https://www.methanex.com/wp-content/uploads/MxAvgPrice-April-29-2026.xlsx, accessed May 18, 2026.

Transportation costs to the U.S. market

Transportation costs for Tris and Tris HCl shipped from China to the United States averaged 7.1 percent for China during 2025. These estimates were derived from official import data and represent the transportation and other charges on imports.[3]

U.S. inland transportation costs

U.S. producer Advancion and all responding importers reported that they typically arrange transportation to their customers. U.S. producer Advancion reported that its U.S. inland transportation costs were *** percent while responding importers reported costs of 1.0 to 9.0 percent.

Pricing practices

Pricing methods

Firms reported setting prices using transaction-by-transaction negotiations, contracts, and set price lists (table 5.2). Importer *** stated pricing may vary based on customer segment, product grade/specification, package size, volume, competitive conditions, supply availability, and applicable contractual commitments and that prices for non-contract sales may be based on prevailing list prices, applicable discounts, and market or transaction-specific considerations.

U.S. producer Advancion reported selling *** of its Tris and Tris HCl in the spot market, with the remaining sold through long-term contracts. Importers of Tris and Tris HCl imported from China reported selling about half of their Tris and Tris HCl under annual contracts, with the other half sold in the spot market (table 5.3). U.S. producer Advancion reported that its ***. Importers *** reported that their Tris and Tris HCl annual contracts fix price, allow for price renegotiation, and are indexed to raw material prices; *** reported that this is based on ***. Importer *** reported that its annual contracts fix both price and quantity, do not allow for price renegotiation, and are not indexed to raw materials.

[3] The estimated transportation costs were obtained by subtracting the customs value from the c.i.f. value of the imports for 2025 and then dividing by the customs value based on the HTS statistical reporting number 2922.19.9690.

Table 5.2 Tris and Tris HCl: Count of U.S. producer's and importers' reported price setting methods

Method	U.S. producer	U.S. importers
Transaction-by-transaction	***	4
Contract	***	3
Set price list	***	4
Other	***	1
Responding firms	1	7

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.

Table 5.3 Tris and Tris HCl: U.S. producer's and importers' shares of commercial U.S. shipments by type of sale, 2025

Share in percent

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

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

Note: Because of rounding, figures may not add to the totals shown. Importer *** reported *** percent of its sales under *** contracts, but reported that these contracts last 365 days. Staff classified its response as annual contracts based on this reporting.

Sales terms and discounts

*** two of six responding importers typically quote prices on a delivered basis while four responding importers typically quote prices on an f.o.b basis. *** three importers reported that they offer total volume discounts, four importers reported that they offer quantity discounts, three offer other types of discounts that are generally negotiated on a case-by-case basis. Importer *** reported that it applies a variety of discounting approaches depending on customer type, contractual status, product segment, and expected or actual purchase volume. It added that discounts may be based off of a list price, contractually negotiated, or based on volume or annual or program-level discounts.

Price and purchase cost data

The Commission requested U.S. producers and importers to provide quarterly data for the total quantity and f.o.b. value of the following Tris and Tris HCl products shipped to unrelated U.S. customers during January 2023 to December 2025. Firms that imported these products from China for internal consumption or repackaging were requested to provide import purchase cost data.

Product 1. Tris Crystals – solid crystals, white color, minimum 99.0 percent purity

Product 2. Standard Grade Tris Buffer – minimum 99.3 percent purity

Product 3. Tris Ultrapure – minimum 99.9 percent purity

Product 4. Standard Grade Tris HCl – minimum 99.0 percent purity

Price data

U.S. producer Advancion and six importers provided usable pricing data for sales of the requested products, although not all firms reported pricing for all products for all quarters.[4] [5] [6] Pricing data reported by these firms accounted for approximately *** percent of U.S. producers' U.S. shipments of Tris and Tris HCl, 46.5 percent of imports from China in 2025.[7] Price data for products 1 to 4 are presented in tables 5.4 to 5.7 and figures 5.2 to 5.5.

[4] 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.

[5] Petitioner's suggested pricing products in the petition did not define packaging size, therefore the price and purchase cost data have bulk Tris and Tris HCl commingled with smaller packaging sizes. Petitioner stated that Tris and Tris HCl are sold in different sized packages, most commonly in 1-, 5-, 12-, 25-, and 50-kilogram packages. Petition, p. 5. According to importers, the price can be quite different depending on the packaging size. For example, importer *** stated that the current price for product 4 in 500g is $40 (i.e. $80/kg), 25kg for $1350 (i.e. $54/kg). Staff email correspondence with ***, May 14, 2026. Importer *** confirmed the accuracy of its data, indicating that quarters with high unit values "appear to be very small quantities imported instead of bulk which has a big impact in the per KG overall pricing." Staff email correspondence with ***, May 14, 2026. Accordingly, there may be product mix issues in the price and purchase cost data that staff are unable to remedy given the time constraints for data collection in the preliminary phase of these investigations .

[6] Importer *** reported price data for products 2 and 4 and purchase cost data for product 1 for imports that it purchased from importer ***, which also provided price data for product 1. Staff has excluded the data reported by *** that overlaps with the price data reported by *** to avoid double counting. Importer *** reported both price data and purchase cost data for products 1 and 2, however the price data was the sales of the purchase cost data reported. Staff email correspondence with ***, May 15, 2026. Staff excluded *** reported price data to avoid double counting volumes that were imported and repackaged. Importer *** reported price data in the U.S. producers' that was also reported in its importers' questionnaire. Staff removed the price data from the U.S. producers' questionnaire as *** is a reprocessor.

[7] Pricing coverage is based on imports reported in questionnaires.

Import purchase cost data

Eight importers, including reprocessors ***, reported useable import purchase cost data for products 1 to 4. Purchase cost data reported by these firms accounted for 41.6 percent of imports from China in 2025. Landed duty-paid purchase cost data for imports from China are presented in tables 5.4 to 5.7 and figures 5.2 to 5.5, along with U.S. producers' and importers' commercial sales prices.[8]

Importers reporting import purchase cost data were asked to provide additional information regarding the costs and benefits of importing Tris and Tris HCl themselves.[9] Five of eight importers reported that they incurred additional costs beyond landed duty-paid costs by importing Tris and Tris HCl themselves rather than purchasing from a U.S. producer or U.S. importer. Of these, all five importers estimated the total additional cost incurred; estimates ranged from 6.0 to 33.0 percent compared to the landed duty-paid value. Firms were also asked to identify specific additional costs they incurred as a result of importing Tris and Tris HCl. Reported costs include transportation (5.0 percent); fees for harbor maintenance (0.1 percent), demurrage (0.5 percent), customs and broker (2.0 percent); insurance (0.1 percent), ocean freight (4.0 percent), and miscellaneous logistics (0.5 percent).

Firms were also asked to describe how these additional costs incurred by importing Tris and Tris HCl themselves compares with additional costs incurred when purchasing from a U.S. producer or U.S. importer. Firms generally reported that importing from China themselves is more expensive than purchasing Tris and Tris HCl domestically. In addition, importer *** reported that there are differences in the types of product (technical/lab/raw grade versus pharma grade) shipped from China versus those from its U.S. producers; therefore, it cannot provide a side-by-side comparison of the costs of China-sourced versus U.S.-sourced Tris and Tris HCl since they are "different products."

Five importers reported that they compare costs of importing to the cost of purchasing from both a U.S. producer and U.S. importer in determining whether to import Tris and Tris HCl, two importers compare costs to purchasing from a U.S. producer, and one importer does not compare costs of purchasing from either U.S. producers or importers.

[8] 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.

[9] Importer *** responded to these additional cost questions, however only reported imports and did not report any purchase cost data. Staff has excluded their responses to these questions.

Eight importers identified benefits from importing Tris and Tris HCl themselves instead of purchasing from U.S. producers or importers, including, minimum order quantity, quality, availability, transparency/trust, overall business relationship, risk mitigation, product specifications and grades, any specialized product requirements, producer capabilities, and lower cost. Importer *** reported that the primary benefits of importing itself is to supply product it is unable to procure directly from the primary domestic producer, Advancion. Importer *** reported that the domestic producer failed in every regulatory, quality, and business capacity possible and refused to resolve those issues, so it was forced to buy its own manufacturer of Tris raw material to avoid disrupting the supply of critical pharmaceutical ingredients to the U.S. and global Life Science markets.

Firms were also asked whether the import costs (both excluding and including additional costs) of Tris and Tris HCl they imported are lower than the price of purchasing Tris and Tris HCl from a U.S. producer or importer. Three of six importers reported that the Tris and Tris HCl they imported themselves are priced lower than when buying from a U.S. producer or importer when both including and excluding the additional costs they reported above.[10]

Four importers reported saving between *** percent compared to purchasing the product from a U.S. producer and one importer estimated that they saved *** percent of the purchase price by importing Tris and Tris HCl rather than purchasing from a U.S. importer.[11]

[10] Importers *** reported the price of imports was lower for both circumstances, importer *** reported the price of imports is lower not including the additional costs, and importer *** reported that the price is lower including the additional costs.

[11] Five firms reported that they based their estimates on previous company transactions, five reported basing their estimates on market research, and two reported other bases for their estimates, including previous and current costs between importers and the U.S. producer. One firm (***) reported that the U.S. producer is cheaper both before and after additional import costs, and one firm (***) reported that the decision whether to import or buy from a domestic producer is based on a wide variety of considerations, including product specifications and grades, any specialized product requirements, producer capabilities, and pricing.

Table 5.4 Tris and Tris HCl: Weighted-average f.o.b. prices, unit LDP value, and quantities of domestic and imported product 1 and margins of underselling/(overselling), by source and quarter

Price in dollars per kilogram, quantity in kilograms, margin and differential in percent.

Period	U.S. price	U.S. quantity	China price	China quantity	China margin	China LDP unit cost	China quantity	China Price-cost differential
2023 Q1	***	***	***	***	***	***	***	***
2023 Q2	***	***	***	***	***	***	***	***
2023 Q3	***	***	***	***	***	***	***	***
2023 Q4	***	***	***	***	***	***	***	***
2024 Q1	***	***	***	***	***	***	***	***
2024 Q2	***	***	***	***	***	***	***	***
2024 Q3	***	***	***	***	***	***	***	***
2024 Q4	***	***	***	***	***	***	***	***
2025 Q1	***	***	***	***	***	***	***	***
2025 Q2	***	***	***	***	***	***	***	***
2025 Q3	***	***	***	***	***	***	***	***
2025 Q4	***	***	***	***	***	***	***	***

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

Note: Product 1: Tris Crystals – solid crystals, white color, minimum 99.0 percent purity.

Figure 5.2 Tris and Tris HCl: Weighted-average f.o.b. prices, unit LDP value, and import purchase costs, and quantities, of domestic and imported product 1, by source and quarter

Price of product 1

* * * * * * *

Volume of product 1

* * * * * * *

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

Note: Product 1: Tris Crystals – solid crystals, white color, minimum 99.0 percent purity.

Table 5.5 Tris and Tris HCl: Weighted-average f.o.b. prices, unit LDP value, and quantities of domestic and imported product 2 and margins of underselling/(overselling), by source and quarter

Price in dollars per kilogram, quantity in kilograms, margin and differential in percent.

Period	U.S. price	U.S. quantity	China price	China quantity	China margin	China LDP unit cost	China quantity	China Price-cost differential
2023 Q1	***	***	***	***	***	***	***	***
2023 Q2	***	***	***	***	***	***	***	***
2023 Q3	***	***	***	***	***	***	***	***
2023 Q4	***	***	***	***	***	***	***	***
2024 Q1	***	***	***	***	***	***	***	***
2024 Q2	***	***	***	***	***	***	***	***
2024 Q3	***	***	***	***	***	***	***	***
2024 Q4	***	***	***	***	***	***	***	***
2025 Q1	***	***	***	***	***	***	***	***
2025 Q2	***	***	***	***	***	***	***	***
2025 Q3	***	***	***	***	***	***	***	***
2025 Q4	***	***	***	***	***	***	***	***

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

Note: Product 2: Standard Grade Tris Buffer – minimum 99.3 percent purity.

Figure 5.3 Tris and Tris HCl: Weighted-average f.o.b. prices, unit LDP value, and import purchase costs, and quantities, of domestic and imported product 2, by source and quarter

Price of product 2

* * * * * * *

Volume of product 2

* * * * * * *

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

Note: Product 2: Standard Grade Tris Buffer – minimum 99.3 percent purity.

Table 5.6 Tris and Tris HCl: Weighted-average f.o.b. prices, unit LDP value, and quantities of domestic and imported product 3 and margins of underselling/(overselling), by source and quarter

Price in dollars per kilogram, quantity in kilograms, margin and differential in percent.

Period	U.S. price	U.S. quantity	China price	China quantity	China margin	China LDP unit cost	China quantity	China Price-cost differential
2023 Q1	***	***	***	***	***	***	***	***
2023 Q2	***	***	***	***	***	***	***	***
2023 Q3	***	***	***	***	***	***	***	***
2023 Q4	***	***	***	***	***	***	***	***
2024 Q1	***	***	***	***	***	***	***	***
2024 Q2	***	***	***	***	***	***	***	***
2024 Q3	***	***	***	***	***	***	***	***
2024 Q4	***	***	***	***	***	***	***	***
2025 Q1	***	***	***	***	***	***	***	***
2025 Q2	***	***	***	***	***	***	***	***
2025 Q3	***	***	***	***	***	***	***	***
2025 Q4	***	***	***	***	***	***	***	***

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

Note: Product 3: Tris Ultrapure – minimum 99.9 percent purity.

Figure 5.4 Tris and Tris HCl: Weighted-average f.o.b. prices, unit LDP value, and import purchase costs, and quantities, of domestic and imported product 3, by source and quarter

Price of product 3

* * * * * * *

Volume of product 3

* * * * * * *

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

Note: Product 3: Tris Ultrapure – minimum 99.9 percent purity.

Table 5.7 Tris and Tris HCl: Weighted-average f.o.b. prices, unit LDP value, and quantities of domestic and imported product 4 and margins of underselling/(overselling), by source and quarter

Price in dollars per kilogram, quantity in kilograms, margin and differential in percent.

Period	U.S. price	U.S. quantity	China price	China quantity	China margin	China LDP unit cost	China quantity	China Price-cost differential
2023 Q1	***	***	***	***	***	***	***	***
2023 Q2	***	***	***	***	***	***	***	***
2023 Q3	***	***	***	***	***	***	***	***
2023 Q4	***	***	***	***	***	***	***	***
2024 Q1	***	***	***	***	***	***	***	***
2024 Q2	***	***	***	***	***	***	***	***
2024 Q3	***	***	***	***	***	***	***	***
2024 Q4	***	***	***	***	***	***	***	***
2025 Q1	***	***	***	***	***	***	***	***
2025 Q2	***	***	***	***	***	***	***	***
2025 Q3	***	***	***	***	***	***	***	***
2025 Q4	***	***	***	***	***	***	***	***

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

Note: Product 4: Standard Grade Tris HCl – minimum 99.0 percent purity.

Figure 5.5 Tris and Tris HCl: Weighted-average f.o.b. prices, unit LDP value, and import purchase costs, and quantities, of domestic and imported product 4, by source and quarter

Price of product 4

* * * * * * *

Volume of product 4

* * * * * * *

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

Note: Product 4: Standard Grade Tris HCl – minimum 99.0 percent purity.

Price and purchase cost trends

In general, prices decreased during January 2023 to December 2025. Table 5.8 summarizes the price trends, by country and by product. As shown in the table, domestic price decreases ranged from *** to *** percent during January 2023 to December 2025 while import prices ranged from a *** percent decline to a *** percent increase. Landed duty-paid cost ranged from a *** percent decline to a *** percent increase.

Table 5.8 Tris and Tris HCl: Summary of price and cost data, by product and source

Volume in kilograms, price and cost in dollars per kilogram

Product	Source	Number of quarters	Volume of shipments	Low price/ unit LDP value	High price/ unit LDP value	First quarter price/ unit LDP value	Last quarter price/ unit LDP value	Percent change in price/cost over period
Product 1	United States	12	***	***	***	***	***	***
Product 1	China price	10	***	***	***	***	***	***
Product 1	China cost	12	***	***	***	***	***	***
Product 2	United States	12	***	***	***	***	***	***
Product 2	China price	12	***	***	***	***	***	***
Product 2	China cost	12	***	***	***	***	***	***
Product 3	United States	12	***	***	***	***	***	***
Product 3	China price	12	***	***	***	***	***	***
Product 3	China cost	10	***	***	***	***	***	***
Product 4	United States	12	***	***	***	***	***	***
Product 4	China price	12	***	***	***	***	***	***
Product 4	China cost	6	***	***	***	***	***	***

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

Note: Percentage change from the first quarter in 2023 to the last quarter in 2025.

Table 5.9 Tris and Tris HCl: Indexed U.S. producer prices, by quarter

Index in percent, 2023 Q1=100.0 percent

Period	Product 1	Product 2	Product 3	Product 4
2023 Q1	100.0	100.0	100.0	100.0
2023 Q2	***	***	***	***
2023 Q3	***	***	***	***
2023 Q4	***	***	***	***
2024 Q1	***	***	***	***
2024 Q2	***	***	***	***
2024 Q3	***	***	***	***
2024 Q4	***	***	***	***
2025 Q1	***	***	***	***
2025 Q2	***	***	***	***
2025 Q3	***	***	***	***
2025 Q4	***	***	***	***

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

Figure 5.6 Tris and Tris HCl: Indexed U.S. producer prices, by quarter

* * * * * * *

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

Table 5.10 Tris and Tris HCl: Indexed U.S. importer prices, by quarter

Index in percent, 2023 Q1=100.0 percent

Period	Product 1	Product 2	Product 3	Product 4
2023 Q1	100.0	100.0	100.0	100.0
2023 Q2	***	***	***	***
2023 Q3	***	***	***	***
2023 Q4	***	***	***	***
2024 Q1	***	***	***	***
2024 Q2	***	***	***	***
2024 Q3	***	***	***	***
2024 Q4	***	***	***	***
2025 Q1	***	***	***	***
2025 Q2	***	***	***	***
2025 Q3	***	***	***	***
2025 Q4	***	***	***	***

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

Figure 5.7 Tris and Tris HCl: Indexed U.S. importer prices, by quarter

* * * * * * *

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

Table 5.11 Tris and Tris HCl: Indexed U.S. importer purchase costs, by quarter

Index in percent, 2023 Q1=100.0 percent

Period	Product 1	Product 2	Product 3	Product 4
2023 Q1	100.0	100.0	—	100.0
2023 Q2	***	***	***	***
2023 Q3	***	***	***	***
2023 Q4	***	***	***	***
2024 Q1	***	***	***	***
2024 Q2	***	***	***	***
2024 Q3	***	***	***	***
2024 Q4	***	***	***	***
2025 Q1	***	***	***	***
2025 Q2	***	***	***	***
2025 Q3	***	***	***	***
2025 Q4	***	***	***	***

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

Figure 5.8 Tris and Tris HCl: Indexed U.S. importer purchase costs, by quarter

* * * * * * *

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

Price and purchase cost comparisons

Price comparisons

As shown in tables 5.12 and 5.13, prices for product imported from China were below those for U.S.-produced product in 18 of 46 instances (*** kilograms); margins of underselling ranged from *** to *** percent. In the remaining 28 instances (*** kilograms), prices for product from China were between *** and *** percent above prices for the domestic product.

Table 5.12 Tris and Tris HCl: Instances of underselling and overselling and the range and average of margins, by product

Quantity in kilograms; margin in percent

Product	Type	Number of quarters	Quantity	Average margin	Min margin	Max margin
Product 1	Underselling	7	***	***	***	***
Product 2	Underselling	3	***	***	***	***
Product 3	Underselling	8	***	***	***	***
Product 4	Underselling	—	***	***	***	***
Total	Underselling	18	***	***	***	***
Product 1	Overselling	3	***	***	***	***
Product 2	Overselling	9	***	***	***	***
Product 3	Overselling	4	***	***	***	***
Product 4	Overselling	12	***	***	***	***
Total	Overselling	28	***	***	***	***

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 5.13 Tris and Tris HCl: Instances of underselling and overselling and the range and average of margins, by year

Quantity in kilograms; margin in percent

Year	Type	Number of quarters	Quantity	Average margin	Min margin	Max margin
2023	Underselling	5	***	***	***	***
2024	Underselling	6	***	***	***	***
2025	Underselling	7	***	***	***	***
Total, all years	Underselling	18	***	***	***	***
2023	Overselling	10	***	***	***	***
2024	Overselling	9	***	***	***	***
2025	Overselling	9	***	***	***	***
Total, all years	Overselling	28	***	***	***	***

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 tables 5.14 and 5.15, landed duty-paid costs for Tris and Tris HCl imported from China were below the sales price for U.S.-produced product in 24 of 40 instances (*** kilograms); price-cost differentials ranged from *** to *** percent. In the remaining 16 instances (*** kilograms), landed duty-paid costs for Tris and Tris HCl from China were between *** and *** percent above sales prices for the domestic product.

Table 5.14 Tris and Tris HCl: Instances of lower and higher import purchase costs and the range and average of price-cost differentials, by product

Quantity in kilograms; 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	9	***	***	***	***
Product 2	Lower than U.S. price	—	***	***	***	***
Product 3	Lower than U.S. price	9	***	***	***	***
Product 4	Lower than U.S. price	6	***	***	***	***
Total	Lower than U.S. price	24	***	***	***	***
Product 1	Higher than U.S. price	3	***	***	***	***
Product 2	Higher than U.S. price	12	***	***	***	***
Product 3	Higher than U.S. price	1	***	***	***	***
Product 4	Higher than U.S. price	—	***	***	***	***
Total	Higher than U.S. price	16	***	***	***	***

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 5.15 Tris and Tris HCl: Instances of lower and higher import purchase costs and the range and average of price-cost differentials, by year

Quantity in kilograms; margin in percent

Year	Type	Number of quarters	Quantity	Average margin	Min margin	Max margin
2023	Underselling	8	***	***	***	***
2024	Underselling	8	***	***	***	***
2025	Underselling	8	***	***	***	***
Total, all years	Underselling	24	***	***	***	***
2023	Overselling	5	***	***	***	***
2024	Overselling	7	***	***	***	***
2025	Overselling	4	***	***	***	***
Total, all years	Overselling	16	***	***	***	***

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.

Lost sales and lost revenue

The Commission requested that U.S. producers of Tris and Tris HCl report purchasers with which they experienced instances of lost sales or revenue due to competition from imports of Tris and Tris HCl from China during January 2023 to December 2025. U.S. producer Advancion reported that it had to reduce prices, roll back announced price increases, and that it had lost sales. U.S. producer Advancion submitted lost sales and lost revenue allegations, identifying 13 firms with which it lost sales or revenue (all 13 consisting of both types of allegations).

Staff contacted 11 purchasers and received responses from 3 purchasers.[12] Responding purchasers reported purchasing *** metric tons of Tris and Tris HCl during January 2023 to December 2025 (table 5.16).

During 2025, responding purchasers purchased *** percent from U.S. producers, *** percent from China, *** percent from nonsubject countries, and *** percent from unknown sources.[13] Purchasers were asked about changes in their purchasing patterns from different sources since 2023. Of the responding purchasers, two reported that their purchases fluctuated down from domestic producers, one reported their purchases fluctuated up, and one did not purchase any domestic product. Explanations for decreasing purchases of domestic product included significant and ongoing quality issues and decreased demand in 2024 that pushed orders out until 2025. Two purchasers reported that their purchases of Tris and Tris HCl imported from China steadily increased and one reported that their purchases fluctuated up. Explanations for increasing purchases of product imported from China included supply availability and consistent high quality, process traceability and service from Anhui Peicheng, however “major quality problems” were reported for imports of product from Yacoo.

Of the four responding purchasers, three reported that, since 2023, they had purchased imported Tris and Tris HCl from China instead of U.S.-produced product. All three of these purchasers reported that subject import prices were lower than U.S.-produced product, but none of these purchasers reported that price was a primary reason for the decision to purchase imported product rather than U.S.-produced product (table 5.17). Purchasers identified quality issues, availability and supply constraints, and “challenging collaboration” as non-price reasons for purchasing imported rather than U.S.-produced product.

[12] Staff attempted to contact two purchasers additional identified in the lost sales lost revenue allegations but were undeliverable.

[13] Purchaser *** reported that it purchased from *** and does not know the source of the product purchased from that firm.

Table 5.16 Tris and Tris HCl: Purchasers' reported purchases and imports, by firm and source

Quantity in metric tons, share in percent

Purchaser	Domestic quantity	Subject quantity	All other quantity	Change in domestic share	Change in subject country share
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
All firms	***	***	***	***	***

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

Note: All other includes all other sources and unknown sources. Change is the percentage point change in the share of the firm's total purchases of domestic and/or subject country imports between first and last years.

Note: Purchaser *** reported quantities in both purchases and imports leading to double counting. Staff utilized *** importer responses to ensure consistent reporting.

Table 5.17 Tris and Tris HCl: Purchasers' responses to purchasing subject imports instead of domestic product, by firm

Quantity in metric tons

Purchaser	Purchased subject imports instead of domestic	Imports priced lower	Choice based on price	Quantity	Explanation
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
All firms	Yes: 3; No: 1	Yes: 4; No: 0	Yes: 0; No: 3	***	NA

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

Of the four responding purchasers, none reported that U.S. producers had reduced prices in order to compete with lower-priced imports from China.

In responding to the lost sales lost revenue survey, some purchasers provided additional information on purchases and market dynamics. Purchaser/importer *** reported that it worked diligently to qualify and maintain ANGUS/Advancion as its primary raw material supplier, even tightening manufacturing process steps in efforts to manage the inconsistent quality of their raw material. It continued that it has been forced to continue to resolve the supply chain issues. Lastly, *** stated that its quality and regulatory systems, as well as its global customer base, require that it select raw material suppliers based on regulatory compliance, quality and ethical supply relationship. Purchaser *** reported that it purchased this product from two suppliers, Advancion and Sigma Aldrich, and that its suppliers do not always provide comprehensive information on country of origin of their product.

Part 6: Financial experience of U.S. producers

Background[1]

One U.S. producer, Advancion, provided usable financial results on its Tris and Tris HCl operations. Advancion's financial results were reported on a *** basis. The company is not publicly traded and uses *** for its accounting framework.

Figure 6.1 presents U.S. producer Advancion's net sales quantity by sales type and period.

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

Figure 6.1 Tris and Tris HCl: U.S. producer Advancion's net sales quantity, by sales type and period

* * * * * * *

Source: Compiled from domestic data submitted in response to Commission questionnaire

Operations on Tris and Tris HCl

Table 6.1 presents the U.S. producer's results of operations in relation to Tris and Tris HCl, while table 6.2 presents corresponding changes in AUVs.

Table 6.1 Tris and Tris HCl: U.S. producer's results of operations, by item and period

Quantity in metric tons; value in 1,000 dollars; ratios in percent

Item	Measure	2023	2024	2025
Total net sales	Quantity	***	***	***
Total net sales	Value	***	***	***
COGS: Raw materials	Value	***	***	***
COGS: Direct labor	Value	***	***	***
COGS: Other factory	Value	***	***	***
COGS: Total	Value	***	***	***
Gross profit or (loss)	Value	***	***	***
SG&A expenses	Value	***	***	***
Operating income or (loss)	Value	***	***	***
Other expense / (income), net	Value	***	***	***
Net income or (loss)	Value	***	***	***
Depreciation/amortization	Value	***	***	***
Cash flow	Value	***	***	***
COGS: Raw materials	Ratio to NS	***	***	***
COGS: Direct labor	Ratio to NS	***	***	***
COGS: Other factory	Ratio to NS	***	***	***
COGS: Total	Ratio to NS	***	***	***
Gross profit	Ratio to NS	***	***	***
SG&A expense	Ratio to NS	***	***	***
Operating income or (loss)	Ratio to NS	***	***	***
Net income or (loss)	Ratio to NS	***	***	***

Table continued.

Table 6.1 (Continued) Tris and Tris HCl: U.S. producer's results of operations, by item and period

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

Item	Measure	2023	2024	2025
COGS: Raw materials	Share	***	***	***
COGS: Direct labor	Share	***	***	***
COGS: Other factory	Share	***	***	***
COGS: Total	Share	100.0	100.0	100.0
Total net sales	Unit value	***	***	***
COGS: Raw materials	Unit value	***	***	***
COGS: Direct labor	Unit value	***	***	***
COGS: Other factory	Unit value	***	***	***
COGS: Total	Unit value	***	***	***
Gross profit or (loss)	Unit value	***	***	***
SG&A expenses	Unit value	***	***	***
Operating income or (loss)	Unit value	***	***	***
Net income or (loss)	Unit value	***	***	***
Operating losses	Count	***	***	***
Net losses	Count	***	***	***
Data	Count	1	1	1

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

Table 6.2 Tris and Tris HCl: Changes in AUVs between comparison periods

Changes in percent

Item	2023 to 2025	2023 to 2024	2024 to 2025
Total net sales	▼***	▼***	▲***
COGS: Raw materials	▲***	▼***	▲***
COGS: Direct labor	▲***	▲***	▲***
COGS: Other factory	▲***	▲***	▲***
COGS: Total	▲***	▲***	▲***
Gross profit or (loss)	▼***	▼***	▲***
SG&A expense	▲***	▼***	▲***
Operating income or (loss)	▼***	▼***	▼***
Net income or (loss)	***	***	***

Table continued.

Table 6.2 (Continued) Tris and Tris HCl: Changes in AUVs between comparison periods

Changes in dollars per kilogram

Item	2023 to 2025	2023 to 2024	2024 to 2025
Total net sales	▼***	▼***	▲***
COGS: Raw materials	▲***	▼***	▲***
COGS: Direct labor	▲***	▲***	▲***
COGS: Other factory	▲***	▲***	▲***
COGS: Total	▲***	▲***	▲***
Gross profit or (loss)	▼***	▼***	▲***
SG&A expense	▲***	▼***	▲***
Operating income or (loss)	▼***	▼***	▼***
Net income or (loss)	▼***	▲***	▼***

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

Note: Period changes preceded by a "▲" represent an increase, while period changes preceded by a "▼" represent a decrease. Zeroes, no changes, null values, and undefined calculations are suppressed and shown as "—".

Net sales

Revenue primarily reflects commercial domestic and export transactions accounting for *** percent of total sales quantity, respectively, in 2025.[2] As shown in table 6.1, net sales quantity and value decreased each year from 2023 to 2025 primarily driven by the decrease in domestic shipments during that period. While domestic shipments decreased from 2023 to 2025, export volumes increased during the same period (export shipments exceeded domestic shipments in 2025).[3] [4] The average unit value (dollars per kilogram) fluctuated within a narrow range from 2023 to 2025.[5]

Cost of goods sold and gross profit or loss

As shown in table 6.1, raw material costs, direct labor, and other factory costs accounted for *** percent of total COGS, respectively, in 2025.

Raw material costs, the second largest component of COGS in all years, decreased irregularly in value from 2023 to 2025, but increased irregularly on a per-unit basis and as a ratio to net sales during the same period.

[2] ***. U.S. producers questionnaire response, section 3.9a and email from ***, May 11, 2026.

[3] Advancion stated that it has seen its sales decline across a range of customers, but the losses have been particularly intense among reprocessors as "many have recently switched to low price imports from China". Conference transcript, pp. 8-9 (Herman).

[4] *** Petitioner's postconference brief, p. 32.

[5] Advancion stated *** Petitioner's postconference brief, p. 28.

Table 6.3 presents raw materials, by type. The table shows that formaldehyde accounted for the majority of raw material costs, followed by nitromethane (produced by Advancion) and other material inputs (***).[6]

Table 6.3 Tris and Tris HCl: U.S. producer's raw material costs in 2025

Value in 1,000 dollars; share of value in percent

Item	Value	Share of value
Nitromethane	***	***
Formaldehyde	***	***
Other material inputs	***	***
All raw materials	***	100.0

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

Direct labor costs, the smallest component of COGS in all years, increased each year in value, on a per-unit basis, and as a ratio to net sales from 2023 to 2025.

Other factory costs, the largest component of COGS in all years, increased irregularly in value and as a ratio to net sales, and increased each year on a per-unit basis from 2023 to 2025.

Total COGS decreased each year in value but increased on a per-unit basis and as a ratio to net sales from 2023 to 2025, primarily reflecting the trends of raw material costs (table 6.1).[7]

As shown in table 6.1, sales value was ***, however because sales declined at a greater rate than total COGS during that same period, gross profit also declined.

[6] Advancion indicated ***. Petitioner's postconference brief, p. 8.

[7] Advancion stated that the production of Tris and Tris HCl is an "extremely" capital intensive process with substantive overhead costs that requires continuous investments. The firm explained that its refineries contain "very large vessels, a lot of complex piping, electrical work going through the site. The largest capital investments are keeping that equipment operating in the manner that we would like." Conference transcript p. 25 (Littig) and p. 84 (Neuberger).

SG&A expenses and operating income or loss

As shown in table 6.1, SG&A expenses decreased each year in value but increased as a ratio to net sales from 2023 to 2025.[8] Operating income followed trends that were similar to gross profit with differences reflecting fluctuations in SG&A expenses, decreasing each year from 2023 to 2025.

All other expenses and net income or loss

Classified below operating income are interest expense and other expenses, net of other income. In table 6.1, these items are aggregated and only the net amount is shown as "other expense/(income)." Total other expense/(income), ***, decreased irregularly from 2023 to 2025.[9]

As shown in table 6.1, Advancion's total other expense/(income) *** resulting in *** in 2023 that improved in 2024, then worsened in 2025, and was overall worse in 2025 compared to 2023.

[8] ***. Email from ***, May 11, 2026.

[9] ***. Email from ***, May 11, 2026.

Variance analysis

A variance analysis for Advancion's Tris and Tris HCl operations is presented in table 6.4.[10] The information for this variance analysis is derived from table 6.1. The analysis shows that the decrease in operating income from 2023 to 2025 was primarily due to unfavorable cost and volume variances and, ***, unfavorable price variance.

Table 6.4 Tris and Tris HCl: Variance analysis on the operations of the U.S. producer between comparison periods

Value in 1,000 dollars

Item	2023 to 2025	2023 to 2024	2024 to 2025
Net sales price variance	***	***	***
Net sales volume variance	***	***	***
Net sales total variance	***	***	***
COGS cost variance	***	***	***
COGS volume variance	***	***	***
COGS total variance	***	***	***
Gross profit variance	***	***	***
SG&A cost variance	***	***	***
SG&A volume variance	***	***	***
SG&A total variance	***	***	***
Operating income price variance	***	***	***
Operating income cost variance	***	***	***
Operating income volume variance	***	***	***
Operating income total variance	***	***	***

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

Note: These data are derived from the data in table 6.1. Unfavorable variances (which are negative) are shown in parentheses, all others are favorable (positive).

[10] The Commission's variance analysis is calculated in three parts: Net sales variance, COGS variance, and SG&A expense variance. Each part consists of a price variance (in the case of the net sales variance) or a cost or expense variance (in the case of the COGS and SG&A expense variance), and a volume variance. The sales or cost/expense variances are calculated as the change in unit price or per-unit cost/expense, respectively, times the new volume, while the volume variance is calculated as the change in volume times the old unit price or per-unit cost/expense. Summarized at the bottom of the table, the operating income price variance is from sales; the operating income cost/expense variance is the sum of the cost components in the COGS and SG&A expense variances, and the operating income volume variance is the sum of the volume components of the net sales, COGS, and SG&A expense variances.

Capital expenditures and research and development expenses

Table 6.5 presents the U.S. producer's capital expenditures, R&D expenses, total assets, and operating return on assets. [11] Table 6.6 presents the firm's narrative explanations for these categories. As shown in table 6.5, total assets decreased irregularly from 2023 to 2025, while ROA decreased each year during the same period.

Table 6.5 Tris and Tris HCl: U.S. producer's capital expenditures, R&D expenses, total assets, and operating ROA, by period

Value in 1,000 dollars

Item	Measure	2023	2024	2025
Capital expenditures	Value	***	***	***
R&D expenses	Value	***	***	***
Total assets	Value	***	***	***
ROA	Ratio	***	***	***

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

Table 6.6 Tris and Tris HCl: U.S. producer's narrative descriptions of its capital expenditures, R&D expenditures, and total assets

Item	Narrative on item
Capital expenditures	***
R&D expenses	***
Total assets	***

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

[11] 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.

Capital and investment

The Commission requested the U.S. producer of Tris and Tris HCl to describe any actual or potential negative effects of imports of Tris and Tris HCl from China on the firm's growth, investment, ability to raise capital, development and production efforts, or the scale of capital investments. Table 6.7 presents the number of firms reporting an impact in each category and table 6.8 provides the U.S. producer's narrative responses.

Table 6.7 Tris and Tris HCl: The U.S. producer's actual and anticipated negative effects of imports from subject sources on investment, growth, and development since January 1, 2023, by effect

Number of firms reporting

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

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

Table 6.8 Tris and Tris HCl: U.S. producer's narratives relating to actual and anticipated negative effects of imports on investment, growth, and development, since January 1, 2023, by firm and effect

Item	Narrative on impact of imports
***	***
***	***
***	***
***	***
***	***

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

Part 7: Threat considerations and information on nonsubject countries

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

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

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

(VI) the potential for product-shifting if production facilities in the foreign country, which can be used to produce the subject merchandise, are currently being used to produce other products,

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

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

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

Information on the nature of the alleged subsidies was presented earlier in this report; information on the volume and pricing of imports of the subject merchandise is presented in Parts 4 and 5; and information on the effects of imports of the subject merchandise on U.S. producers' existing development and production efforts is presented in Part 6. Information on inventories of the subject merchandise; foreign producers' operations, including the potential for "product-shifting;" any other threat indicators, if applicable; and any dumping in third-country markets, follows. Also presented in this section of the report is information obtained for consideration by the Commission on nonsubject countries.

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

The industry in China

The Commission issued foreign producers' or exporters' questionnaires to 37 firms believed to produce and/or export Tris and Tris HCl from China.[3] A usable response to the Commission's questionnaire was received from one firm: Suzhou Yacoo Science Co., Ltd ("Yacoo").

Table 7.1 presents the number of producers/exporters in China that responded to the Commission's questionnaire, their exports to the United States as a share of U.S. imports by China in 2025, and their estimated share of total production of Tris and Tris HCl in China during 2025.

Table 7.1 Tris and Tris HCl: Number of responding producers/exporters, approximate share of production, and exports to the United States as a share of U.S. imports from China, 2025

Country	Number of responding firms	Approximate share of production (percent)	Exports as a share of U.S. imports from subject country (percent)
China	1	***	***

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

Note: "Approximate share of production" reflects the responding firms' estimates of their production as a share of total China production of Tris and Tris HCl in 2025. Approximate shares are rounded to the nearest whole number.

Note: "Exports as a share of U.S. imports" is calculated as the quantity of exports reported in the Commission's foreign producer/exporter questionnaire divided by the quantity of imports from China reported in the Commission's U.S. importer questionnaires

Table 7.2 presents information on the Tris and Tris HCl operations of the responding producer and exporter Yacoo.

[3] These firms were identified through a review of information submitted in the petition and presented in third-party sources.

Table 7.2 Tris and Tris HCl: Summary data for producer in China in 2025

Quantity in metric tons; share in percent

Producer name	Production (metric tons)	Share of reported production (percent)	Exports to the United States (metric tons)	Share of reported exports to the United States (percent)	Total shipments (metric tons)	Share of firm's total shipments exported to the United States (percent)
Yacoo	***	***	***	***	***	***
All individual producers	***	100.0	***	100.0	***	***

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

Table 7.3 presents events in the industry in China since January 1, 2023.

Table 7.3 Tris and Tris HCl: Important industry events in China since 2023

Item	Event
Expansions	Suzhou Yacoo Science Co., Ltd. (Yacoo): In 2021, Yacoo Science finished its construction of a Tris production facility, which added 2 million kg of production capacity.
Other	Yacoo Science: On May 20, 2025, Yacoo Science successfully registered Tris HCl in the Center for Drug Evaluation of the National Medical Products Administration (China's equivalent of FDA). In January 2025, Yacoo Science also finished its registration of tris (tromethamine) with the FDA (Drug Master File no. 040518).

Source: Research and Markets, "Trometamol Global Market Insights 2025," July 2025, https://www.researchandmarkets.com/report/trometamol#:~:text=Suzhou%20Yacoo%20Science:%20A%20Chinese,to%20meet%20growing%20market%20demand; Yacoo, "Good News! Yacoo Science's Biological Buffer Product Portfolio Expands Further, Demonstrating Strength in Global Registration System," accessed May 4, 2026, https://www.yacoo.com.cn/en/information-center/technology-sharing/13.

Changes in operations

Subject producers were asked to report any change in the character of their operations or organization relating to the production of Tris and Tris HCL since 2023. Yacoo reported no such changes.

Installed and practical overall capacity

Table 7.4 presents data on producer Yacoo's installed capacity, practical overall capacity, and practical Tris and Tris HCl capacity and production on the same equipment in China. The responding producer's installed and practical capacity remained the same from 2023 to 2025. Installed and practical overall capacity utilization increased by *** percentage points and *** percentage points, respectively, from 2023 to 2025.

Table 7.4 Tris and Tris HCl: Chinese producer Yacoo's installed and practical capacity and production on the same equipment as in-scope production in China, by period

Quantity in metric tons

Item	Measure	2023	2024	2025
Installed overall	Capacity	***	***	***
Installed overall	Production	***	***	***
Installed overall	Utilization	***	***	***
Practical overall	Capacity	***	***	***
Practical overall	Production	***	***	***
Practical overall	Utilization	***	***	***
Practical Tris and Tris HCl	Capacity	***	***	***
Practical Tris and Tris HCl	Production	***	***	***
Practical Tris and Tris HCl	Utilization	***	***	***

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

Constraints on capacity

Table 7.5 presents producer Yacoo's reported capacity constraints in China since January 1, 2023.

Table 7.5 Tris and Tris HCl: Chinese producer Yacoo's reported constraints to practical overall capacity in China since January 1, 2023, by constraint and firm

Item	Firm: narrative response regarding reported capacity constraints
Suzhou Yacoo Science Co., Ltd	***

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

Operations on Tris and Tris HCl

Table 7.6 presents information on the Tris and Tris HCl operations of the responding producer and exporter in China. Capacity remained the same for the firm that reported data from 2023 to 2025 and is projected to remain the same in 2026 and 2027.

Home market shipments increased yearly during 2023 to 2025, ending *** percent higher in 2025 than in 2023. Home market shipments accounted for *** percent of total shipments in 2025, a decreasing share over the 2023 to 2025 time period. The projected home market shipments are expected to decrease *** percent in 2026 and remain constant in 2027.

Exports to the United States rose by *** percent from 2023 to 2025. Total export shipments increased by *** percent from 2023 to 2025. Export shipments are expected to rise in 2026 and 2027.

Table 7.6 Tris and Tris HCl: Data on industry in China, by period

Quantity in metric tons; ratio and share in percent

Item	2023	2024	2025	Projection 2026	Projection 2027
Capacity	***	***	***	***	***
Production	***	***	***	***	***
End-of-period inventories	***	***	***	***	***
Internal consumption	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***
Home market shipments	***	***	***	***	***
Exports to the United States	***	***	***	***	***
Exports to all other markets	***	***	***	***	***
Export shipments	***	***	***	***	***
Total shipments	***	***	***	***	***
Capacity utilization ratio	***	***	***	***	***
Inventory ratio to production	***	***	***	***	***
Inventory ratio to total shipments	***	***	***	***	***
Internal consumption share	***	***	***	***	***
Commercial home market shipments share	***	***	***	***	***
Home market shipments share	***	***	***	***	***
Exports to the United States share	***	***	***	***	***
Exports to all other markets share	***	***	***	***	***
Export shipments share	***	***	***	***	***
Total shipments share	100.0	100.0	100.0	100.0	100.0

Alternative products

As shown in table 7.7 the responding firm in China produced other products on the same equipment and machinery used to produce Tris and Tris HCl. It reported that ***.[4] Other products accounted for *** or less percent of all production on the same equipment machinery used to produce Tris and Tris HCl during the data collection period.

Table 7.7 Tris and Tris HCl: Chinese producer Yacoo's overall production on the same equipment as in-scope production in China, by period

Quantity in metric tons; ratio and share in percent

Product type	Measure	2020	2021	2022
Tris and Tris HCl	Quantity	***	***	***
Other products	Quantity	***	***	***
All products	Quantity	***	***	***
Tris and Tris HCl	Share	***	***	***
Other products	Share	***	***	***
All products	Share	100.0	100.0	100.0

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

[4] Out-of-scope products include ***. Foreign producer questionnaire response, section II-3a.

Exports

According to GTA, the leading export markets for amino-alcohols, their ethers and esters, not containing more than one oxygen function, and salts thereof, nesoi, a category that includes out-of-scope merchandise from China are Turkey, Vietnam, United States, and India (table 7.8). During 2025, Turkey was the top export market for amino-alcohols, their ethers and esters, not containing more than one oxygen function, and salts thereof, nesoi from China, accounting for 16.8 percent, followed by Vietnam, accounting for 9.7 percent. The U.S. accounted for 6.6 percent.

Table 7.8 Amino-alcohols, their ethers and esters, not containing more than one oxygen function, and salts thereof, nesoi: Exports from China, by destination market and by period

Quantity in metric tons; Value in 1,000 dollars

Destination market	Measure	2023	2024	2025
United States	Quantity	10,327	13,529	13,120
Turkey	Quantity	18,128	23,355	33,257
Vietnam	Quantity	11,715	14,148	19,099
India	Quantity	7,020	8,851	10,747
South Korea	Quantity	6,959	8,116	8,554
Indonesia	Quantity	6,065	7,574	7,939
Italy	Quantity	4,909	5,450	7,844
United Arab Emirates	Quantity	6,982	4,459	7,501
Netherlands	Quantity	3,340	4,214	7,061
All other destination markets	Quantity	57,327	74,791	82,792
Non-U.S. destination markets	Quantity	122,445	150,958	184,793
All destination markets	Quantity	132,772	164,486	197,913
United States	Value	41,129	51,836	44,731
Turkey	Value	24,159	27,253	32,307
Vietnam	Value	14,969	16,181	19,357
India	Value	68,025	55,781	67,966
South Korea	Value	44,082	40,519	38,059
Indonesia	Value	8,004	8,301	7,857
Italy	Value	22,368	18,395	12,583
United Arab Emirates	Value	17,601	6,237	19,710
Netherlands	Value	19,936	16,450	33,719
All other destination markets	Value	230,851	235,179	242,013
Non-U.S. destination markets	Value	449,995	424,296	473,572
All destination markets	Value	491,124	476,131	518,303

Table 7.8 Continued: Amino-alcohols, their ethers and esters, not containing more than one oxygen function, and salts thereof, nesoi: Exports from China, by destination market and by period

Unit values in dollars per metric ton; Shares in percent

Destination market	Measure	2023	2024	2025
United States	Unit value	3.98	3.83	3.41
Turkey	Unit value	1.33	1.17	0.97
Vietnam	Unit value	1.28	1.14	1.01
India	Unit value	9.69	6.30	6.32
South Korea	Unit value	6.33	4.99	4.45
Indonesia	Unit value	1.32	1.10	0.99
Italy	Unit value	4.56	3.37	1.60
United Arab Emirates	Unit value	2.52	1.40	2.63
Netherlands	Unit value	5.97	3.90	4.78
All other destination markets	Unit value	4.03	3.14	2.92
Non-U.S. destination markets	Unit value	3.68	2.81	2.56
All destination markets	Unit value	3.70	2.89	2.62
United States	Share of quantity	7.8	8.2	6.6
Turkey	Share of quantity	13.7	14.2	16.8
Vietnam	Share of quantity	8.8	8.6	9.7
India	Share of quantity	5.3	5.4	5.4
South Korea	Share of quantity	5.2	4.9	4.3
Indonesia	Share of quantity	4.6	4.6	4.0
Italy	Share of quantity	3.7	3.3	4.0
United Arab Emirates	Share of quantity	5.3	2.7	3.8
Netherlands	Share of quantity	2.5	2.6	3.6
All other destination markets	Share of quantity	43.2	45.5	41.8
Non-U.S. destination markets	Share of quantity	92.2	91.8	93.4
All destination markets	Share of quantity	100.0	100.0	100.0

Source: Official export statistics under HS subheading 2922.19, as reported by China Customs in the Global Trade Atlas database, accessed May 8, 2026.

Note: United States is shown at the top. All remaining top export destinations are shown in descending order of 2025 data.

U.S. inventories of imported merchandise

Table 7.9 presents data on U.S. importers' reported inventories of Tris and Tris HCl. End-of-period inventories of U.S. imports from China decreased by *** percent during the period of investigation.[5] The ratio of end-of-period inventories to U.S. shipments of imports decreased by *** percentage points from 2023 to 2025.

End-of-period inventories of U.S. imports from nonsubject imports decreased by *** percent from 2023 to 2025.[6] The ratio of end-of-period inventories of U.S. imports from nonsubject sources to U.S. shipments of imports increased by *** percentage points from 2023 to 2025.[7]

End-of-period inventories of U.S. imports from all sources decreased by *** percent during the period of investigation. The ratio of importers' inventories to U.S. shipments decreased by *** percentage points during the period of investigation.

Table 7.9 Tris and Tris HCl: U.S. importers' inventories and their ratio to select items, by source and period

Quantity in metric tons; ratio in percent

Measure	Source	2023	2024	2025
Inventories quantity	China	***	***	***
Ratio to imports	China	***	***	***
Ratio to U.S. shipments of imports	China	***	***	***
Ratio to total shipments of imports	China	***	***	***
Inventories quantity	Nonsubject sources	***	***	***
Ratio to imports	Nonsubject sources	***	***	***
Ratio to U.S. shipments of imports	Nonsubject sources	***	***	***
Ratio to total shipments of imports	Nonsubject sources	***	***	***
Inventories quantity	All import sources	***	***	***
Ratio to imports	All import sources	***	***	***
Ratio to U.S. shipments of imports	All import sources	***	***	***
Ratio to total shipments of imports	All import sources	***	***	***

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

Note: End-of-period inventories of imports from nonsubject sources are understated because ***. Email from ***, May 15, 2026.

[5] The decrease in inventories was largely driven by one firm *** which decreased its inventories by *** percent during the period of investigation. In 2025, *** accounted for *** percent of ending inventories from China in 2025.

[6] In 2025, *** accounted for *** percent of end-of-period inventories for nonsubject imports.

[7] This increase was largely driven by *** which increased its end-of-period inventories in 2024.

U.S. importers' outstanding orders

The Commission requested importers to indicate whether they imported or arranged for the importation of Tris and Tris HCl from China after December 31, 2025. Their reported data are presented in table 7.10. Arranged imports from China in the first quarter of 2026 accounted for a large proportion of all arranged imports in 2026. Arranged imports for nonsubject sources are largely driven by ***.

Table 7.10 Tris and Tris HCl: U.S. importers' arranged imports, by source and period

Quantity in metric tons

Source	Q1 2026	Q2 2026	Q3 2026	Q4 2026	Total
China	***	***	***	***	***
Nonsubect sources	***	***	***	***	***
All import sources	***	***	***	***	***

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

Third-country trade actions

Based on available information, Tris and Tris HCl from China has not been subject to other antidumping or countervailing duty investigations outside the United States.[8]

[8] Conference transcript, p. 89 (Herrmann).

Information on nonsubject countries

Table 7.11 presents the global export data for the largest nonsubject countries. From 2023 to 2025, the largest global exporter of amino-alcohols their ethers and esters, not containing more than one oxygen function, and salts thereof, nesoi, a category that includes out-of-scope products, was China. In 2025, China's share of global exports by quantity nearly reached 40 percent.

Table 7.11 Amino-alcohols, their ethers and esters, not containing more than one oxygen function, and salts thereof, nesoi: Global exports, by reporting country and by period

Unit values in dollars per kilogram; Shares in percent

Exporting country	Measure	2023	2024	2025
United States	Quantity	56,158	55,444	60,363
China	Quantity	132,772	164,486	197,913
Germany	Quantity	70,621	74,829	70,164
Belgium	Quantity	63,158	58,706	62,438
Netherlands	Quantity	10,107	31,374	57,739
Thailand	Quantity	8,159	10,465	11,148
United Kingdom	Quantity	8,069	7,825	8,999
Sweden	Quantity	6,435	7,705	5,959
Japan	Quantity	4,609	3,703	4,642
India	Quantity	4,696	3,719	3,241
France	Quantity	3,714	3,299	3,191
Norway	Quantity	2,787	2,858	2,879
All other exporters	Quantity	27,245	13,837	13,948
All reporting exporters	Quantity	398,529	438,251	502,625
United States	Value	354,671	341,650	361,139
China	Value	491,124	476,131	518,303
Germany	Value	386,232	393,043	406,845
Belgium	Value	199,735	188,849	182,582
Netherlands	Value	77,632	109,689	147,535
Thailand	Value	11,369	12,662	12,213
United Kingdom	Value	37,846	37,789	37,545
Sweden	Value	53,844	44,495	36,942
Japan	Value	26,586	39,483	44,882
India	Value	80,267	85,343	82,067
France	Value	56,520	48,298	57,914
Norway	Value	30,949	31,679	33,560
All other exporters	Value	377,780	616,966	359,981
All reporting exporters	Value	2,184,555	2,426,078	2,281,508

Table 7.11 Continued Amino-alcohols, their ethers and esters, not containing more than one oxygen function, and salts thereof, nesoi: Global exports, by reporting country and by period

Unit values in dollars per kilogram; Shares in percent

Exporting country	Measure	2023	2024	2025
United States	Unit value	6.32	6.16	5.98
China	Unit value	3.70	2.89	2.62
Germany	Unit value	5.47	5.25	5.80
Belgium	Unit value	3.16	3.22	2.92
Netherlands	Unit value	7.68	3.50	2.56
Thailand	Unit value	1.39	1.21	1.10
United Kingdom	Unit value	4.69	4.83	4.17
Sweden	Unit value	8.37	5.77	6.20
Japan	Unit value	5.77	10.66	9.67
India	Unit value	17.09	22.95	25.32
France	Unit value	15.22	14.64	18.15
Norway	Unit value	11.11	11.09	11.66
All other exporters	Unit value	13.87	44.59	25.81
All reporting exporters	Unit value	5.48	5.54	4.54
United States	Share of quantity	14.1	12.7	12.0
China	Share of quantity	33.3	37.5	39.4
Germany	Share of quantity	17.7	17.1	14.0
Belgium	Share of quantity	15.8	13.4	12.4
Netherlands	Share of quantity	2.5	7.2	11.5
Thailand	Share of quantity	2.0	2.4	2.2
United Kingdom	Share of quantity	2.0	1.8	1.8
Sweden	Share of quantity	1.6	1.8	1.2
Japan	Share of quantity	1.2	0.8	0.9
India	Share of quantity	1.2	0.8	0.6
France	Share of quantity	0.9	0.8	0.6
Norway	Share of quantity	0.7	0.7	0.6
All other exporters	Share of quantity	6.8	3.2	2.8
All reporting exporters	Share of quantity	100.0	100.0	100.0

Source: Official exports statistics under HS subheading 2922.19 as reported by various national statistical authorities in the Global Trade Atlas Suite database, accessed May 8, 2026.

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 “—“. United States is shown at the top followed by the countries under investigation, all remaining top exporting countries in descending order of 2025 data.

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
91 FR 22166, April 21, 2026	Tris (Hydroxymethyl) Aminomethane and Tris (Hydroxymethyl) Aminomethane Hydrochloride (''Tris and Tris HCl'') From China; Institution of Antidumping and Countervailing Duty Investigations and Scheduling of Preliminary Phase Investigations	https://www.govinfo.gov/content/pkg/FR-2026-04-24/pdf/2026-07998.pdf
91 FR 28559, May 18, 2026	Tris(hydroxymethyl)aminomethane From the People's Republic of China: Initiation of Countervailing Duty Investigation	https://www.govinfo.gov/content/pkg/FR-2026-05-18/pdf/2026-09831.pdf
91 FR 28566, May 18, 2026	Tris(hydroxymethyl)aminomethane From the People's Republic of China: Initiation of Less-Than-Fair-Value Investigation	https://www.govinfo.gov/content/pkg/FR-2026-05-18/pdf/2026-09830.pdf

APPENDIX B

LIST OF STAFF CONFERENCE WITNESSES

CALENDAR OF PUBLIC PRELIMINARY CONFERENCE

Those listed below appeared as witnesses at the United States International Trade Commission's preliminary conference:

Subject: Tris (Hydroxymethyl) Aminomethane and Tris (Hydroxymethyl) Aminomethane hydrochloride ("Tris and Tris HCl") from China

Inv. Nos.: 701-TA-793 and 731-TA-1789 (Preliminary)

Date and Time: May 12, 2026 – 9:30 a.m.

A session was held in connection with these preliminary phase investigations in the Main Hearing Room (Room 101), 500 E Street, SW., Washington, D.C.

OPENING REMARKS:

In Support of Imposition (**John M. Herrmann**, Kelley Drye & Warren LLP)

In Support of the Imposition of the Antidumping and Countervailing Duty Orders:

Kelley Drye & Warren LLP
Washington, D.C.
on behalf of

Advancion Corporation

David Neuberger, President and Chief Executive Officer, Advancion Corporation

Ernest Green, Senior Vice President, Manufacturing and Engineering, Advancion Corporation

Don Littig, Vice President of Finance and Accounting, Advancion Corporation

William B. Hudgens, Senior Trade Analys, Georgetown Economic Services, LLC

Nereus A. Joubert, Senior Trade Analyst, Georgetown Economic Services, LLC

Jacob T. Jones, Trade Analyst, Georgetown Economic Services, LLC

John M. Herrmann)
) – OF COUNSEL
Joshua R. Morey)

CLOSING REMARKS:

In Support of Imposition (**John M. Herrmann**, Kelley Drye & Warren LLP)

APPENDIX C

SUMMARY DATA

U.S. producers

Table C.1
Tris and Tris HCl: Summary data concerning the U.S. market defining the domestic industry as U.S. producers, by item and period
Quantity=metric tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per kilogram; Period changes=percent--exceptions noted

Item	Reported data			Period change comparisons		
	Calendar year			Calendar year		
	2023	2024	2025	2023–25	2023–24	2024–25
U.S. consumption quantity:						
Amount	***	***	***	▼***	▼***	▼***
Producers' share (fn1)	***	***	***	▼***	▼***	▼***
Importers' share (fn1):						
China	***	***	***	▲***	▲***	▲***
Nonsubject sources	***	***	***	▼***	▼***	▼***
All import sources	***	***	***	▲***	▲***	▲***
U.S. consumption value:						
Amount	***	***	***	▼***	▼***	▼***
Producers' share (fn1)	***	***	***	▼***	▼***	▲***
Importers' share (fn1):						
China	***	***	***	▲***	▲***	▲***
Nonsubject sources	***	***	***	▼***	▼***	▼***
All import sources	***	***	***	▲***	▲***	▼***
U.S. importers' U.S. shipments of imports from:						
China:						
Quantity	***	***	***	▲***	▲***	▼***
Value	***	***	***	▲***	▲***	▼***
Unit value	***	***	***	▼***	▼***	▼***
Ending inventory quantity	***	***	***	▼***	▼***	▲***
Nonsubject sources:						
Quantity	***	***	***	▼***	▼***	▼***
Value	***	***	***	▼***	▼***	▼***
Unit value	***	***	***	▲***	▲***	▼***
Ending inventory quantity	***	***	***	▼***	▼***	▼***
All import sources:						
Quantity	***	***	***	▲***	▲***	▼***
Value	***	***	***	▼***	▼***	▼***
Unit value	***	***	***	▼***	▼***	▼***
Ending inventory quantity	***	***	***	▼***	▼***	▲***
U.S. producer's:						
Practical capacity quantity	***	***	***	▲***	▲***	▲***
Production quantity	***	***	***	▼***	▼***	▼***
Capacity utilization (fn1)	***	***	***	▼***	▼***	▼***
U.S. shipments:						
Quantity	***	***	***	▼***	▼***	▼***
Value	***	***	***	▼***	▼***	▼***
Unit value	***	***	***	▲***	▼***	▲***
Export shipments:						
Quantity	***	***	***	▲***	▲***	▲***
Value	***	***	***	▲***	▲***	▲***
Unit value	***	***	***	▼***	▼***	▼***
Ending inventory quantity	***	***	***	▲***	▲***	▲***
Inventories/total shipments (fn1)	***	***	***	▲***	▲***	▲***

Table continued.

Table C.1 Continued
Tris and Tris HCl: Summary data concerning the U.S. market defining the domestic industry as U.S. producers, by item and period
Quantity=metric tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per kilogram; Period changes=percent--exceptions noted

Item	Reported data			Period change comparisons		
	Calendar year				Calendar year	
	2023	2024	2025	2023–25	2023–24	2024–25
U.S. producer's: Continued						
Production workers	***	***	***	▼***	▼***	▼***
Hours worked (1,000s)	***	***	***	▼***	▼***	▼***
Wages paid ($1,000)	***	***	***	▼***	▼***	▼***
Hourly wages (dollars per hour)	***	***	***	▲***	▼***	▲***
Productivity (kilograms per hour)	***	***	***	▼***	▼***	▼***
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)	***	***	***	▼***	▲***	▼***
Capital expenditures	***	***	***	▼***	▼***	▼***
Research and development expenses	***	***	***	▲***	▲***	▲***
Total assets	***	***	***	▼***	▲***	▼***

Source: Compiled from data submitted in response to Commission questionnaires. 508-compliant tables for these data are contained in parts 3, 4, 6, and 7 of this report.

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.

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.

U.S. producers and reprocessors

Table C.2
Tris and Tris HCl: Summary data concerning the U.S. market defining the domestic industry as U.S. producers and U.S. reprocessors, by item and period

Quantity=metric tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per kilogram; Productivity=kilograms per hour; Period changes=percent--exceptions noted

Item	Reported data: Calendar year 2023	2024	2025	Calendar year: 2023–25	2023–24	2024–25
U.S. consumption quantity:						
Amount	***	***	***	▼***	▼***	▼***
Producers' share (fn1)	***	***	***	▼***	▼***	▼***
Importers' share (fn1):						
China	***	***	***	▲***	▲***	▲***
Nonsubject sources	***	***	***	▼***	▼***	▼***
All import sources	***	***	***	▲***	▲***	▲***
U.S. consumption value:						
Amount	***	***	***	▼***	▼***	▼***
Producers' share (fn1):						
Fully domestic value:	***	***	***	▼***	▼***	▼***
Incremental value added to imports	***	***	***	▲***	▲***	▲***
Total value	***	***	***	▼***	▼***	▲***
Importers' share (fn1):						
China	***	***	***	▲***	▲***	▼***
Nonsubject sources	***	***	***	▼***	▼***	▼***
All import sources	***	***	***	▲***	▲***	▼***
U.S. importers' U.S. shipments of imports from:						
China:						
Quantity	***	***	***	▲***	▲***	▼***
Value	***	***	***	▲***	▲***	▼***
Unit value	***	***	***	▼***	▼***	▼***
Ending inventory quantity	***	***	***	▼***	▼***	▲***
Nonsubject sources:						
Quantity	***	***	***	▼***	▼***	▼***
Value	***	***	***	▼***	▼***	▼***
Unit value	***	***	***	▲***	▲***	▼***
Ending inventory quantity	***	***	***	▼***	▼***	▼***
All import sources:						
Quantity	***	***	***	▲***	▲***	▼***
Value	***	***	***	▼***	▼***	▼***
Unit value	***	***	***	▼***	▼***	▼***
Ending inventory quantity	***	***	***	▼***	▼***	▲***
U.S. producers' and reprocessors':						
Producers: Practical capacity quantity	***	***	***	▲***	▲***	▲***
Producers: Production quantity	***	***	***	▼***	▼***	▼***
Producers: Capacity utilization (fn1)	***	***	***	▼***	▼***	▼***
Reprocessors: Practical capacity quantity	***	***	***	***	***	***
Reprocessors: Production quantity	***	***	***	▼***	▼***	▲***
Reprocessors: Capacity utilization (fn1)	***	***	***	▼***	▼***	▲***
U.S. shipments (fn2):						
Quantity	***	***	***	▼***	▼***	▼***
Value:						
Fully domestic value:	***	***	***	▼***	▼***	▼***
Incremental value added to imports	***	***	***	▲***	▲***	▲***
Total value	***	***	***	▼***	▼***	▼***
Unit value	***	***	***	▼***	▼***	▼***

Table continued.

Table C.2 Continued
Tris and Tris HCl: Summary data concerning the U.S. market defining the domestic industry as U.S. producers and U.S. reprocessors, by item and period

Quantity=metric tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per kilogram; Productivity=kilograms per hour; Period changes=percent--exceptions noted

Item	Reported data			Period change comparisons		
	Calendar year			Calendar year		
	2023	2024	2025	2023–25	2023–24	2024–25
U.S. producers' and reprocessors': Continued						
Export shipments:						
Quantity	***	***	***	▲***	▲***	▲***
Value	***	***	***	▲***	▼***	▲***
Unit value	***	***	***	▼***	▼***	▲***
Producers: Ending inventory quantity	***	***	***	▲***	▲***	▲***
Producers: Inv./total shipments (fn1)	***	***	***	▲***	▲***	▲***
Reprocessors: Ending inventory quantity	***	***	***	▼***	▼***	▼***
Reprocessors: Inv./total shipments (fn1)	***	***	***	▼***	▼***	▼***
Production workers	***	***	***	▼***	▼***	▲***
Hours worked (1,000s)	***	***	***	▼***	▼***	▼***
Wages paid ($1,000)	***	***	***	▼***	▼***	▼***
Hourly wages (dollars per hour)	***	***	***	▲***	▼***	▲***
Producers: Productivity	***	***	***	▼***	▼***	▼***
Producers: Unit labor costs	***	***	***	▲***	▲***	▲***
Reprocessors: Productivity	***	***	***	▲***	▼***	▲***
Reprocessors: Unit labor costs	***	***	***	▲***	▲***	▼***
U.S. producers':						
Net sales:						
Quantity	***	***	***	▼***	▼***	▼***
Value	***	***	***	▼***	▼***	▼***
Unit value	***	***	***	▼***	▼***	▲***
Cost of goods sold (COGS)	***	***	***	▼***	▼***	▼***
Gross profit or (loss) (fn3)	***	***	***	▼***	▼***	▼***
SG&A expenses	***	***	***	▼***	▼***	▼***
Operating income or (loss) (fn3)	***	***	***	▼***	▼***	▼***
Net income or (loss) (fn3)	***	***	***	▼***	▲***	▼***
Unit COGS	***	***	***	▲***	▲***	▲***
Unit SG&A expenses	***	***	***	▲***	▼***	▲***
Unit operating income or (loss) (fn3)	***	***	***	▼***	▼***	▼***
Unit net income or (loss) (fn3)	***	***	***	▼***	▲***	▼***
COGS/sales (fn1)	***	***	***	▲***	▲***	▲***
Operating income or (loss)/sales (fn1)	***	***	***	▼***	▼***	▼***
Net income or (loss)/sales (fn1)	***	***	***	▼***	▲***	▼***
Capital expenditures	***	***	***	▼***	▼***	▼***
Research and development expenses	***	***	***	▲***	▲***	▲***
Total assets	***	***	***	▼***	▲***	▼***

Table continued.

Table C.2 Continued
Tris and Tris HCl: Summary data concerning the U.S. market defining the domestic industry as U.S. producers and U.S. reprocessors, by item and period

Quantity=metric tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per kilogram; Productivity=kilograms per hour; Period changes=percent--exceptions noted

Item	Reported data			Period change comparisons		
	Calendar year			Calendar year		
	2023	2024	2025	2023–25	2023–24	2024–25
U.S. reprocessors':						
Net sales:						
Quantity	***	***	***	▼***	▼***	▲***
Value	***	***	***	▼***	▼***	▲***
Unit value	***	***	***	▼***	▼***	▼***
Cost of goods sold (COGS)	***	***	***	▼***	▼***	▼***
Gross profit or (loss) (fn3)	***	***	***	▼***	▼***	▲***
SG&A expenses	***	***	***	▼***	▼***	▲***
Operating income or (loss) (fn3)	***	***	***	▼***	▼***	▲***
Net income or (loss) (fn3)	***	***	***	▲***	▼***	▲***
Unit COGS	***	***	***	▼***	▼***	▼***
Unit SG&A expenses	***	***	***	▼***	▼***	▼***
Unit operating income or (loss) (fn3)	***	***	***	▲***	▼***	▲***
Unit net income or (loss) (fn3)	***	***	***	▲***	▼***	▲***
COGS/sales (fn1)	***	***	***	▼***	▲***	▼***
Operating income or (loss)/sales (fn1)	***	***	***	▲***	▼***	▲***
Net income or (loss)/sales (fn1)	***	***	***	▲***	▼***	▲***
Capital expenditures	***	***	***	▲***	▲***	▲***
Research and development expenses	***	***	***	▲***	▲***	▲***
Total assets	***	***	***	▲***	▼***	▲***
U.S. producers' and reprocessors':						
Net sales:						
Quantity	***	***	***	▼***	▼***	▼***
Value	***	***	***	▼***	▼***	▼***
Unit value	***	***	***	▼***	▼***	▲***
Cost of goods sold (COGS)	***	***	***	▼***	▼***	▼***
Gross profit or (loss) (fn3)	***	***	***	▼***	▼***	▲***
SG&A expenses	***	***	***	▼***	▼***	▼***
Operating income or (loss) (fn3)	***	***	***	▼***	▼***	▲***
Net income or (loss) (fn3)	***	***	***	▼***	▲***	▼***
Unit COGS	***	***	***	▼***	▲***	▼***
Unit SG&A expenses	***	***	***	▼***	▼***	▲***
Unit operating income or (loss) (fn3)	***	***	***	▼***	▼***	▲***
Unit net income or (loss) (fn3)	***	***	***	▼***	▲***	▼***
COGS/sales (fn1)	***	***	***	▲***	▲***	▼***
Operating income or (loss)/sales (fn1)	***	***	***	▼***	▼***	▲***
Net income or (loss)/sales (fn1)	***	***	***	▼***	▲***	▼***
Capital expenditures	***	***	***	▼***	▼***	▼***
Research and development expenses	***	***	***	▲***	▲***	▲***
Total assets	***	***	***	▼***	▼***	▲***

Source: Compiled from data submitted in response to Commission questionnaires. 508-compliant tables for these data are contained in parts 3, 4, 6, and 7 of this report. Reprocessor data are presented in Appendix F.

fn1.--Reported data are in percent and period changes are in percentage points.
fn 2.-- 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 "—". Quantity for U.S. producers reflects only U.S. producers' U.S. shipment quantities and does not add in U.S. reprocessors' U.S. shipments. In measuring consumption and market share this methodology avoids reclassifying and/or double counting merchandise already reported by U.S. producers in their U.S. shipment data or reported in U.S. imports.
fn3.--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.

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.

APPENDIX D

DOMESTIC LIKE PRODUCT NARRATIVES

Table D.1 Tris and Tris HCl: U.S. producer's and reprocessors' narratives comparing Tris and Tris HCl, by domestic like product factors

Factor	Producer name and narrative response on comparability
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Manufacturing	***
Manufacturing	***

Factor	Producer name and narrative response on comparability
Manufacturing	***
Manufacturing	***
Manufacturing	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Perceptions	***
Perceptions	***
Perceptions	***

Factor	Producer name and narrative response on comparability
Perceptions	***
Price	***
Price	***
Price	***
Price	***
Price	***

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

Table D.2 Tris and Tris HCl: U.S. importers' narratives comparing Tris and Tris HCl, by domestic like product factors

Factor	Importer name and narrative response on comparability
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***

Factor	Importer name and narrative response on comparability
Physical characteristics	***
Physical characteristics	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Manufacturing	***

Factor	Importer name and narrative response on comparability
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Channels	***

Factor	Importer name and narrative response on comparability
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***

Factor	Importer name and narrative response on comparability
Perceptions	***
Perceptions	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***

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

APPENDIX E

SUMMARY OF SEMI-FINISHED PRODUCT ANALYSIS

Table E.1 Tris and Tris HCl: U.S. producer's and reprocessors' narrative responses regarding the semi-finished product analysis comparing Tris to Tris HCl

Factor	Producer/reprocessor name and narrative regarding semi-finished product analysis
Other uses	***
Other uses	***
Other uses	***
Separate market	***
Separate market	***
Separate market	***
Separate market	***
Differences in characteristics	***

Factor	Producer/reprocessor name and narrative regarding semi-finished product analysis
Differences in characteristics	***
Differences in characteristics	***
Differences in cost	***
Differences in cost	***
Transformation intensive	***
Transformation intensive	***

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

Note: Narrative responses for U.S. producers includes both U.S. producers and U.S. reprocessors.

Table E.2 Tris and Tris HCl: U.S. importers' narrative responses regarding the semi-finished product analysis comparing Tris to Tris HCl

Factor	Importer name and narrative regarding semi-finished product analysis
Other uses	***
Other uses	***
Other uses	***
Other uses	***
Other uses	***
Other uses	***
Other uses	***
Other uses	***
Other uses	***
Other uses	***
Other uses	***
Other uses	***
Separate market	***
Separate market	***

Factor	Importer name and narrative regarding semi-finished product analysis
Separate market	***
Separate market	***
Separate market	***
Separate market	***
Separate market	***
Separate market	***
Separate market	***
Differences in characteristics	***
Differences in characteristics	***
Differences in characteristics	***
Differences in characteristics	***
Differences in characteristics	***
Differences in characteristics	***
Differences in characteristics	***

Factor	Importer name and narrative regarding semi-finished product analysis
Differences in characteristics	***
Differences in characteristics	***
Differences in cost	***
Differences in cost	***
Differences in cost	***
Differences in cost	***
Differences in cost	***
Differences in cost	***
Differences in cost	***
Differences in cost	***
Differences in cost	***
Differences in cost	***
Differences in cost	***
Transformation intensive	***
Transformation intensive	***
Transformation intensive	***
Transformation intensive	***
Transformation intensive	***

Factor	Importer name and narrative regarding semi-finished product analysis
Transformation intensive	***
Transformation intensive	***
Transformation intensive	***
Transformation intensive	***

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

APPENDIX F

SUFFICIENT PRODUCTION RELATED ACTIVITIES AND U.S. REPROCESSOR DATA

Table F.1 Tris and Tris HCl: U.S. reprocessors, their positions on the petitions, locations of reprocessing, and share of reported reprocessing, 2025

Shares in percent

Firm	Position on petitions	Location(s)	Share of reprocessing
Avantor	***	—	***
Barker	***	Charlotte, NC	***
BioSpectra	***	Bangor, PA Stroudsburg, PA	***
Sigma-Aldrich Corporation	***	St. Louis, MO Cleveland, OH	***

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

Note: ***.

Table F.2 Tris and Tris HCl: U.S. reprocessors' 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.

Table F.3 Tris and Tris HCl: U.S. reprocessors' reported changes in operations, since January 1, 2023

Item	Firm name and narrative response on changes in operations
Production curtailments	***
Acquisitions	***

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

Table F.4 Tris and Tris HCl: U.S. producers and reprocessors' narratives on their domestic activities

Firm name	Narrative response on domestic activities
Advancion	***
Avantor	***
Barker	***

Firm name	Narrative response on domestic activities
BioSpectra	***

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

Table F.5 Tris and Tris HCl: U.S. producer and reprocessors' reported complexity and importance of operations

Firm	Rating	Narrative response on complexity and importance rating
Advancion	***	***
Avantor	***	***
Barker	***	***
BioSpectra	***	***
Sigma-Aldrich Corporation	***	***

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

Table F.6 Tris and Tris HCl: U.S. producer and reprocessors' reported domestic operations, by factor

Value as noted in the table; Value added in percent; Employment in average number of PRWs

Factor	Advancion	BioSpectra
Greenfield capital investment costs	***	***
Capital investments: Assets	***	***
Capital investments: Capital expenditures	***	***
Technical expertise: R & D expenses	***	***
Value added (conversion costs)	*** percent	*** percent
Employment	*** PRWs	*** PRWs
Quantity, type, and source of parts	Domestic: *** percent; Imported: *** percent	Domestic Tris: *** percent; Subject Tris: *** percent; Nonsubject Tris: *** percent; Other raw materials: *** percent

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

Note: ***. Value added is calculated as the share conversion costs (direct labor, other factory costs for U.S. producers and raw materials other than Tris, direct labor and other factory costs for U.S. reprocessors) out of cost of goods sold (COGS). Ranges cover full calendar years. “Quantity, type, and source of parts” reflects 2025 data collected on raw materials by source. Zeroes, null values, and undefined calculations are suppressed and shown as “— “.

Table F.7 Tris and Tris HCl: U.S. producer and reprocessors' narratives on their domestic activities, by item

Item	Firm name and narrative response
Capital investments	***
Capital investments	***
Capital investments	***
Capital investments	***
Technical expertise	***
Technical expertise	***
Technical expertise	***
Technical expertise	***
Value added	***

Item	Firm name and narrative response
Value added	***
Value added	***
Value added	***
Employment	***
Employment	***
Employment	***
Quantity, type, and source of parts	***
Quantity, type, and source of parts	***
Costs and activities	***
Costs and activities	***
Costs and activities	***

Item	Firm name and narrative response
Employment	***
Employment	***
Employment	***
Employment	***
Employment	***
Quantity, type, and source of parts	***
Quantity, type, and source of parts	***
Costs and activities	***
Costs and activities	***
Costs and activities	***

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

Table F.8 Tris and Tris HCl: U.S. reprocessor Biospectra's output: Practical capacity, production, and capacity utilization, by period

Capacity and production in metric tons, capacity utilization in percent

Item	2023	2024	2025
Capacity	***	***	***
Production	***	***	***
Capacity utilization	***	***	***

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

Note: ***.

Figure F.1 Tris and Tris HCl: U.S. reprocessor Biospectra's capacity, production, and capacity utilization, by period

* * * * * * *

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

Note: ***.

Table F.9 Tris and Tris HCl: U.S. reprocessor Biospectra's production, by Tris and Tris HCl source and period

Quantity in metric tons; Share in percent

Tris and Tris HCl input source	Measure	2023	2024	2025
Domestic	Quantity	***	***	***
Subject	Quantity	***	***	***
Nonsubject	Quantity	***	***	***
All imported	Quantity	***	***	***
All sources	Quantity	***	***	***
Domestic	Share	***	***	***
Subject	Share	***	***	***
Nonsubject	Share	***	***	***
All imported	Share	***	***	***
All sources	Share	100.0	100.0	100.0

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

Note: Zeroes, null values, and undefined calculations are suppressed and shown as "—". ***.

Table F.10 Tris and Tris HCl: Share of U.S. reprocessors' U.S. shipments by channel of distribution, and period

Share in percent

Channel	2023	2024	2025
Distributors	***	***	***
End users	***	***	***
Reprocessors	***	***	***

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

Note: ***.

Table F.11 Tris and Tris HCl: U.S. reprocessor Biospectra's total shipments, by destination and period

Quantity in metric tons; Value in 1,000 dollars; Unit values in dollars per kilogram; Shares in percent

Item	Measure	2023	2024	2025
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	100.0	100.0	100.0
U.S. shipments	Share of value	***	***	***
Export shipments	Share of value	***	***	***
Total shipments	Share of value	100.0	100.0	100.0

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

Note: ***.

Table F.12 Tris and Tris HCl: U.S. reprocessor Biospectra's total shipments, by destination and period

Quantity in metric tons; Value in 1,000 dollars

Item	Measure	2023	2024	2025
U.S. producers	Quantity	***	***	***
U.S. producers	Value	***	***	***
U.S. reprocessors: Value added to domestic	Value	***	***	***
U.S. producers and reprocessors: Fully domestic	Value	***	***	***
U.S. reprocessors: Valued added to imports	Value	***	***	***
U.S. producers and reprocessors: Total	Value	***	***	***

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

Note: ***.

Note: Quantity for U.S. shipments reflects only producer Advancion's U.S. shipment quantities. Value for U.S. shipments reflects Tris and Tris HCl sold in the United States from domestically manufactured Tris and Tris HCl (including the value added by U.S. reprocessors to domestic Tris and Tris HCl), as well as the incremental value added by U.S. reprocessors to imported Tris and Tris HCl. In measuring consumption and market share this methodology avoids reclassifying and/or double counting merchandise already reported as an import.

Table F.13 Tris and Tris HCl: U.S. reprocessor Biospectra's U.S. shipments of Tris and Tris HCl, by product type and period

Quantity in metric tons; value in 1,000 dollars; unit values in dollars per kilogram; shares in percent

Product type	Measure	2023	2024	2025
Tris	Quantity	***	***	***
Tris HCl	Quantity	***	***	***
All product types	Quantity	***	***	***
Tris	Value	***	***	***
Tris HCl	Value	***	***	***
All product types	Value	***	***	***
Tris	Unit value	***	***	***
Tris HCl	Unit value	***	***	***
All product types	Unit value	***	***	***
Tris	Share of quantity	***	***	***
Tris HCl	Share of quantity	***	***	***
All product types	Share of quantity	100.0	100.0	100.0
Tris	Share of value	***	***	***
Tris HCl	Share of value	***	***	***
All product types	Share of value	100.0	100.0	100.0

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

Note: ***.

Figure F.2 Tris and Tris HCl: U.S. reprocessor Biospectra's U.S. shipments, by product type and period, 2025

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

Note: ***.

Table F.14 Tris and Tris HCl: U.S. reprocessor Biospectra's inventories and its ratio to select items, by period

Quantity in metric tons; Ratios in percent

Item	2023	2024	2025
End-of-period inventory quantity	***	***	***
Inventory ratio to U.S. production	***	***	***
Inventory ratio to U.S. shipments	***	***	***
Inventory ratio to total shipments	***	***	***

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

Note: ***.

Table F.15 Tris and Tris HCl: U.S. reprocessor *'s U.S. production, U.S. imports from subject sources, and ratio of subject imports to production, by period**

Quantity in metric tons; Ratios in percent

Item	Measure	2023	2024	2025
U.S. production	Quantity	***	***	***
Imports from China	Quantity	***	***	***
Imports from China to U.S. production	Ratio	***	***	***

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

Table F.16 Tris and Tris HCl: U.S. reprocessor * purchases of imports from subject sources and select ratios, by period**

Quantity in metric tons; ratio in percent

Item	Measure	2023	2024	2025
***'s U.S. production	Quantity	***	***	***
***'s purchases of imports from China imported by ***.	Quantity	***	***	***
***'s U.S. imports from China	Quantity	***	***	***
Ratio 1: The producer's purchases relative to the importers' imports	Ratio	***	***	***
Overall U.S. imports from subject sources	Quantity	***	***	***
Ratio 2: The importers' imports relative to overall U.S. imports	Ratio	***	***	***
Ratio 3: The importers' U.S. imports relative to the producer's production	Ratio	***	***	***

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

Note: ***

Table F.17 Tris and Tris HCl: U.S. reprocessor Biospectra's employment related information, by item and period

Item	2023	2024	2025
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 (kilograms per hour)	***	***	***
Unit labor costs (dollars per kilogram)	***	***	***

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

Table F.18 Tris and Tris HCl: U.S. producer's and U.S. reprocessor's combined employment related information, by item and period

Item	2023	2024	2025
Production and related workers (PRWs) (number)	***	***	***
Total hours worked	***	***	***
Hours worked per PRW (hours)	***	***	***
Wages paid ($1,000)	***	***	***
Hourly wages (dollars per hour)	***	***	***

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

Table F.19 Tris and Tris HCl: Apparent U.S. consumption and market shares based on quantity data, by source and period

Quantity in metric tons; Shares in percent

Source	Measure	2023	2024	2025
U.S. producers	Quantity	***	***	***
China	Quantity	***	***	***
Nonsubject sources	Quantity	***	***	***
All import sources	Quantity	***	***	***
All sources	Quantity	***	***	***
U.S. producers	Share	***	***	***
China	Share	***	***	***
Nonsubject sources	Share	***	***	***
All import sources	Share	***	***	***
All sources	Share	100.0	100.0	100.0

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

Figure F.3 Tris and Tris HCl: Apparent U.S. consumption based on quantity data, by source and period

* * * * * * *

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

Table F.20 Tris and Tris HCl: Apparent U.S. consumption and market shares based on value data including reprocessor Biospectra, by source and period

Value in 1,000 dollars; Shares in percent

Source	Measure	2023	2024	2025
U.S. producers and reprocessors: Fully domestic	Value	***	***	***
U.S. reprocessors: Valued added to imports	Value	***	***	***
U.S. producers and reprocessors: Total	Value	***	***	***
China	Value	***	***	***
Nonsubject sources	Value	***	***	***
All import sources	Value	***	***	***
All sources	Value	***	***	***
U.S. producers and processors: Fully domestic	Share	***	***	***
U.S. processors: Valued added to imports	Share	***	***	***
U.S. producers and processors: Total	Share	***	***	***
China	Share	***	***	***
Nonsubject sources	Share	***	***	***
All import sources	Share	***	***	***
All sources	Share	100.0	100.0	100.0

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

Figure F.4 Tris and Tris HCl: Apparent U.S. consumption based on value data including reprocessor Biospectra, by source and period

* * * * * * *

Source: Compiled from data submitted in response to Commission questionnaires

Table F.21 Tris and Tris HCl: U.S. reprocessor's results of operations, by item and period

Quantity in metric tons; value in 1,000 dollars; ratio in percent

Item	Measure	2023	2024	2025
Total net sales	Quantity	***	***	***
Total net sales	Value	***	***	***
COGS: Domestically sourced Tris and Tris HCl	Value	***	***	***
COGS: Subject sources Tris and Tris HCl	Value	***	***	***
COGS: Nonsubject sources Tris and Tris HCl	Value	***	***	***
COGS: Total cost of Tris and Tris HCL	Value	***	***	***
COGS: Other raw materials	Value	***	***	***
COGS: Total raw materials	Value	***	***	***
COGS: Direct labor cost	Value	***	***	***
COGS: Other factory costs	Value	***	***	***
COGS: Total	Value	***	***	***
Gross profit or (loss)	Value	***	***	***
SG&A expenses	Value	***	***	***
Operating income or (loss)	Value	***	***	***
Other expense / (income), net	Value	***	***	***
Net income or (loss)	Value	***	***	***
Depreciation/amortization	Value	***	***	***
Cash flow	Value	***	***	***
COGS: Domestically sourced Tris and Tris HCl	Ratio to NS	***	***	***
COGS: Subject sources Tris and Tris HCl	Ratio to NS	***	***	***
COGS: Nonsubject sources Tris and Tris HCl	Ratio to NS	***	***	***
COGS: Total cost of Tris and Tris HCL	Ratio to NS	***	***	***
COGS: Other raw materials	Ratio to NS	***	***	***
COGS: Total raw materials	Ratio to NS	***	***	***
COGS: Direct labor	Ratio to NS	***	***	***
COGS: Other factory	Ratio to NS	***	***	***
COGS: Total	Ratio to NS	***	***	***
Gross profit	Ratio to NS	***	***	***
SG&A expense	Ratio to NS	***	***	***
Operating income or (loss)	Ratio to NS	***	***	***
Net income or (loss)	Ratio to NS	***	***	***

Table continued.

Table F.21 Tris and Tris HCl: U.S. reprocessor's results of operations, by item and period

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

Item	Measure	2023	2024	2025
COGS: Domestically sourced Tris and Tris HCl	Share	***	***	***
COGS: Subject sources Tris and Tris HCl	Share	***	***	***
COGS: Nonsubject sources Tris and Tris HCl	Share	***	***	***
COGS: Total cost of Tris and Tris HCL	Share	***	***	***
COGS: Other raw materials	Share	***	***	***
COGS: Total raw materials	Share	***	***	***
COGS: Direct labor	Share	***	***	***
COGS: Other factory	Share	***	***	***
COGS: Total	Share	100.0	100.0	100.0
Total net sales	Unit value	***	***	***
COGS: Domestically sourced Tris and Tris HCl	Unit value	***	***	***
COGS: Subject sources Tris and Tris HCl	Unit value	***	***	***
COGS: Nonsubject sources Tris and Tris HCl	Unit value	***	***	***
COGS: Total cost of Tris and Tris HCL	Unit value	***	***	***
COGS: Other raw materials	Unit value	***	***	***
COGS: Total raw materials	Unit value	***	***	***
COGS: Direct labor	Unit value	***	***	***
COGS: Other factory	Unit value	***	***	***
COGS: Total	Unit value	***	***	***
Gross profit or (loss)	Unit value	***	***	***
SG&A expenses	Unit value	***	***	***
Operating income or (loss)	Unit value	***	***	***
Net income or (loss)	Unit value	***	***	***
Operating losses	Count	***	***	***
Net losses	Count	***	***	***
Data	Count	1	1	1

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

Note: ***

Table F.22 Tris and Tris HCl: Changes in AUVs between comparison periods

Changes in percent

Item	2023 to 2025	2023 to 2024	2024 to 2025
Total net sales	▼***	▼***	▼***
COGS: Domestically sourced Tris and Tris HCl	▼***	▼***	▼***
COGS: Subject sources Tris and Tris HCl	▲***	▲***	▲***
COGS: Nonsubject sources Tris and Tris HCl	***	***	***
COGS: Total cost of Tris and Tris HCL	▼***	▼***	▼***
COGS: Other raw materials	▲***	▲***	▼***
COGS: Total raw materials	▼***	▼***	▼***
COGS: Direct labor	▼***	▼***	▲***
COGS: Other factory	▼***	▲***	▼***
COGS: Total	▼***	▼***	▼***
Gross profit or (loss)	▼***	▼***	▲***
SG&A expense	▼***	▼***	▼***
Operating income or (loss)	▲***	▼***	▲***
Net income or (loss)	▲***	▼***	▲***

Table continued.

Table F.22 (Continued) Tris and Tris HCl: Changes in AUVs between comparison periods

Changes in dollars per kilogram

Item	2023 to 2025	2023 to 2024	2024 to 2025
Total net sales	▼***	▼***	▼***
COGS: Domestically sourced Tris and Tris HCl	▼***	▼***	▼***
COGS: Subject sources Tris and Tris HCl	▲***	▲***	▲***
COGS: Nonsubject sources Tris and Tris HCl	***	***	***
COGS: Total cost of Tris and Tris HCL	▼***	▼***	▼***
COGS: Other raw materials	▲***	▲***	▼***
COGS: Total raw materials	▼***	▼***	▼***
COGS: Direct labor	▼***	▼***	▲***
COGS: Other factory	▼***	▲***	▼***
COGS: Total	▼***	▼***	▼***
Gross profit or (loss)	▼***	▼***	▲***
SG&A expense	▼***	▼***	▼***
Operating income or (loss)	▲***	▼***	▲***
Net income or (loss)	▲***	▼***	▲***

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

Note: Zeroes, no changes, 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.

Table F.23 Tris and Tris HCl: U.S. reprocessor's capital expenditures, R&D expenses, total assets, and operating ROA, by period

Value in 1,000 dollars

Item	Measure	2023	2024	2025
Capital expenditures	Value	***	***	***
R&D expenses	Value	***	***	***
Total assets	Value	***	***	***
ROA	Ratio	***	***	***

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

Table F.24 Tris and Tris HCl: U.S. reprocessor's narrative descriptions of its capital expenditures, R&D expenses, total assets, and operating ROA, by period

Item	Narrative on item
Capital expenditures	***
R&D expenses	***
Total assets	***

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

Table F.25 Tris and Tris HCl: U.S. producer's and reprocessor's combined results of operations, by item and period

Quantity in metric tons; value in 1,000 dollars; ratio in percent

Item	Measure	2023	2024	2025
Total net sales Q	Quantity	***	***	***
Total net sales V	Value	***	***	***
COGS: Raw materials	Value	***	***	***
COGS: Direct labor cost	Value	***	***	***
COGS: Other factory costs	Value	***	***	***
COGS: Total	Value	***	***	***
Gross profit or (loss)	Value	***	***	***
Total SG&A expenses	Value	***	***	***
Operating income or (loss)	Value	***	***	***
Other expense/(income), net	Value	***	***	***
Net income or (loss)	Value	***	***	***
Depreciation/amortization	Value	***	***	***
Cash flow	Value	***	***	***
COGS: Raw materials	Ratio to NS	***	***	***
COGS: Direct labor	Ratio to NS	***	***	***
COGS: Other factory	Ratio to NS	***	***	***
COGS: Total	Ratio to NS	***	***	***
Gross profit	Ratio to NS	***	***	***
SG&A expense	Ratio to NS	***	***	***
Operating income or (loss)	Ratio to NS	***	***	***
Net income or (loss)	Ratio to NS	***	***	***

Table continued.

Table F.25 (Continued) Tris and Tris HCl: U.S. producer's and reprocessor's combined results of operations, by item and period

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

Item	Measure	2023	2024	2025
COGS: Raw materials	Share	***	***	***
COGS: Direct labor	Share	***	***	***
COGS: Other factory	Share	***	***	***
COGS: Total	Share	100.0	100.0	100.0
Total net sales	Unit value	***	***	***
COGS: Raw materials	Unit value	***	***	***
COGS: Direct labor	Unit value	***	***	***
COGS: Other factory	Unit value	***	***	***
COGS: Total	Unit value	***	***	***
Gross profit or (loss)	Unit value	***	***	***
SG&A expenses	Unit value	***	***	***
Operating income or (loss)	Unit value	***	***	***
Net income or (loss)	Unit value	***	***	***
Operating losses	Count	***	***	***
Net losses	Count	***	***	***
Data	Count	***	***	***

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

Note: Zeroes, null values, and undefined calculations are suppressed and shown and as "—".

Table F.26 Tris and Tris HCl: Changes in AUVs between comparison periods for combined U.S. producer and reporessor

Changes in percent

Item	2023 to 2025	2023 to 2024	2024 to 2025
Total net sales	▼***	▼***	▲***
COGS: Raw materials	▼***	▼***	▼***
COGS: Direct labor	▲***	▼***	▲***
COGS: Other factory	▲***	▲***	▲***
COGS: Total	▼***	▲***	▼***
Gross profit or (loss)	▼***	▼***	▲***
SG&A expense	▼***	▼***	▲***
Operating income or (loss)	▼***	▼***	▲***
Net income or (loss)	***	***	***

Table continued.

Table F.26 (Continued) Tris and Tris HCl: Changes in AUVs between comparison periods for combined U.S. producer and reprocessor

Changes in dollars per kilogram

Item	2023 to 2025	2023 to 2024	2024 to 2025
Total net sales	▼***	▼***	▲***
COGS: Raw materials	▼***	▼***	▼***
COGS: Direct labor	▲***	▼***	▲***
COGS: Other factory	▲***	▲***	▲***
COGS: Total	▼***	▲***	▼***
Gross profit or (loss)	▼***	▼***	▲***
SG&A expense	▼***	▼***	▲***
Operating income or (loss)	▼***	▼***	▲***
Net income or (loss)	▼***	▲***	▼***

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

Note: Zeroes, null values, and undefined calculations are suppressed and shown and as "—".