

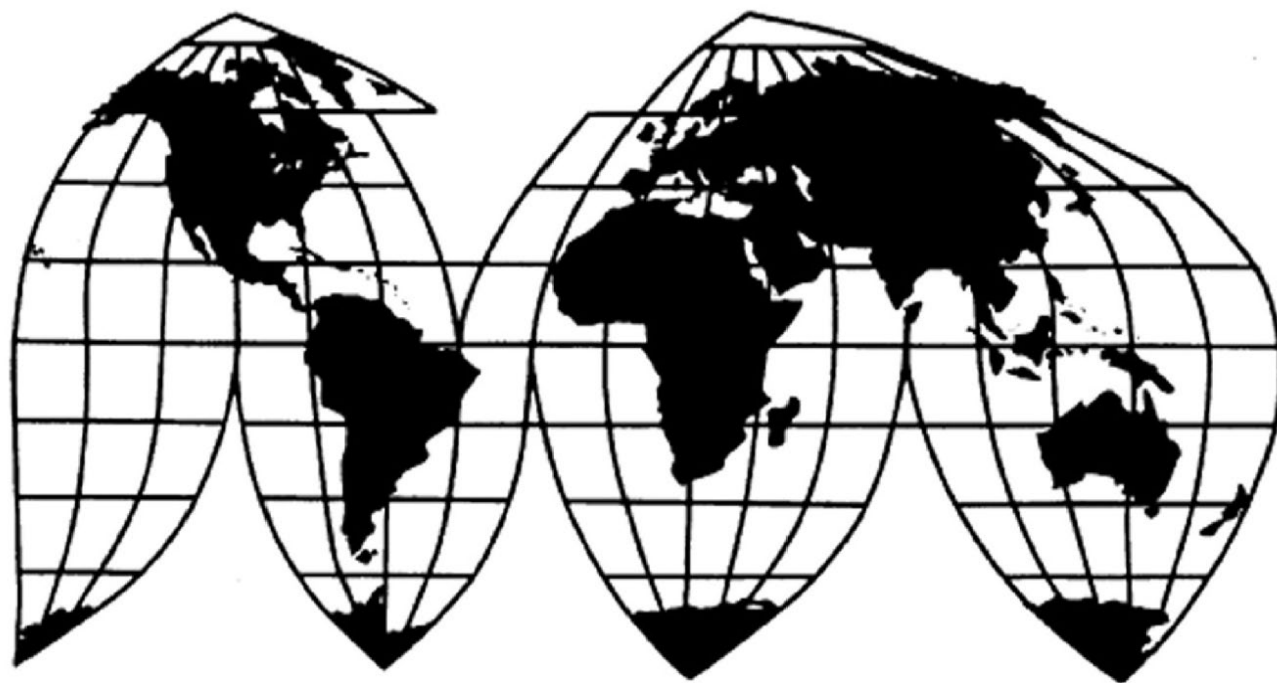
Epoxy Resins from China, India, South Korea, Taiwan, and Thailand

Investigation Nos. 701-TA-716-719 and 731-TA-1683-1687 (Preliminary)

Publication 5510

May 2024

U.S. International Trade Commission



Washington, DC 20436

U.S. International Trade Commission

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CONTENTS

	Page
Determinations	1
Views of the Commission.....	3
Part I: Introduction.....	I-1
Background.....	I-1
Statutory criteria	I-2
Organization of report.....	I-3
Market summary.....	I-4
Summary data and data sources.....	I-5
Previous and related investigations.....	I-5
Nature and extent of alleged subsidies and sales at LTFV	I-6
Alleged subsidies	I-6
Alleged sales at LTFV	I-6
The subject merchandise	I-7
Commerce’s scope	I-7
Tariff treatment.....	I-9
The product.....	I-10
Description and applications.....	I-10
Manufacturing processes	I-14
Domestic like product issues.....	I-17
Part II: Conditions of competition in the U.S. market.....	II-1
U.S. market characteristics.....	II-1
Impact of section 301 tariffs	II-2
Channels of distribution	II-3
Geographic distribution	II-4
Supply and demand considerations.....	II-5
U.S. supply	II-5
U.S. demand	II-9

CONTENTS

	Page
Part II: Conditions of competition in the U.S. market--Continued	
Substitutability issues.....	II-11
Factors affecting purchasing decisions.....	II-11
Comparison of U.S.-produced and imported epoxy resins.....	II-13
Part III: U.S. producers' production, shipments, and employment	III-1
U.S. producers	III-1
U.S. production, capacity, and capacity utilization.....	III-8
Constraints on capacity	III-8
Operations data.....	III-9
Alternative products.....	III-11
U.S. producers' U.S. shipments and exports.....	III-12
U.S. producers' inventories.....	III-13
U.S. producers' imports from subject sources.....	III-14
U.S. employment, wages, and productivity	III-15
Part IV: U.S. imports, apparent U.S. consumption, and market shares.....	IV-1
U.S. importers.....	IV-1
U.S. imports.....	IV-4
Negligibility.....	IV-9
Cumulation considerations	IV-14
Fungibility	IV-15
Geographical markets	IV-21
Presence in the market	IV-23
Apparent U.S. consumption and market shares.....	IV-28
Quantity.....	IV-28
Value.....	IV-30

CONTENTS

	Page
Part V: Pricing data	V-1
Factors affecting prices	V-1
Raw material costs	V-1
Transportation costs to the U.S. market.....	V-1
U.S. inland transportation costs	V-1
Pricing practices	V-1
Pricing methods.....	V-1
Sales terms and discounts	V-3
Price data.....	V-3
Price trends.....	V-13
Price comparisons	V-17
Lost sales and lost revenue	V-19
Part VI: Financial experience of the U.S. producers	VI-1
Background.....	VI-1
Operations on epoxy resins.....	VI-2
Net sales	VI-5
Cost of goods sold and gross profit or loss.....	VI-7
SG&A expenses and operating income or loss.....	VI-10
Interest expense, other expenses and income, and net income or loss.....	VI-11
Capital expenditures and R&D expenses, total net assets and ROA	VI-11
Assets and ROA	VI-13
Capital and investment	VI-15

CONTENTS

	Page
Part VII: Threat considerations and information on nonsubject countries.....	VII-1
The industry in the subject countries.....	VII-3
Industry events in the subject countries.....	VII-6
Changes in operations.....	VII-8
Operations on epoxy resins.....	VII-11
Subject foreign producers' exports.....	VII-19
Alternative products.....	VII-21
Exports.....	VII-23
U.S. inventories of imported merchandise.....	VII-24
U.S. importers' outstanding orders.....	VII-26
Third-country trade actions.....	VII-27
Information on nonsubject countries.....	VII-27

CONTENTS

Page

Appendixes

A. Federal Register notices	A-1
B. List of staff conference witnesses	B-1
C. Summary data	C-1
D. Domestic like product narratives	D-1
E. U.S. shipments of epoxy resins by product form and group type	E-1
F. Company-specific financial data.....	F-1
G. U.S. industry summary data including processors	G-1
H. Financial data for domestic industry expanded to include processors	H-1

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

UNITED STATES INTERNATIONAL TRADE COMMISSION

Investigation Nos. 701-TA-716-719 and 731-TA-1683-1687 (Preliminary)

Epoxy Resins from China, India, South Korea, Taiwan, and Thailand

DETERMINATIONS

On the basis of the record¹ 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 epoxy resins from South Korea, Taiwan, and Thailand, provided for in subheading 3907.30.00 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 alleged to be subsidized by the governments of South Korea and Taiwan.² The Commission also determines that there is a reasonable indication that an industry in the United States is threatened with material injury by reason of imports of epoxy resins from China and India, provided for in subheading 3907.30.00 of the Harmonized Tariff Schedule of the United States, that are alleged to be sold in the United States at LTFV and alleged to be subsidized by the governments of China and India.³

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

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

² 89 FR 33319 and 89 FR 33324 (April 29, 2024).

³ 89 FR 33319 and 89 FR 33324 (April 29, 2024).

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 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 3, 2024, the U.S. Epoxy Resin Producers *Ad Hoc* Coalition, which is composed of Olin Corp., Clayton, Missouri and Westlake Corp., Houston, Texas, 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 epoxy resins from China, India, South Korea, and Taiwan and LTFV imports of epoxy resins from China, India, South Korea, Taiwan, and Thailand. Accordingly, effective April 3, 2024, the Commission instituted countervailing duty investigation Nos. 701-TA-716-719 and antidumping duty investigation Nos. 731-TA-1683-1687 (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 9, 2024 (89 FR 24860). The Commission conducted its conference on April 24, 2024. 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 epoxy resins from South Korea, Taiwan, and Thailand that are allegedly sold in the United States at less than fair value (“LTFV”) and imports of epoxy resins from South Korea and Taiwan that are allegedly subsidized by the governments of South Korea and Taiwan. We also find that there is a reasonable indication that an industry in the United States is threatened with material injury by reason of imports of epoxy resins from China and India that are allegedly sold in the United States at LTFV and imports of epoxy resins from China and India that are allegedly subsidized by the governments of China and India.

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

The U.S. Epoxy Resin Producers *Ad Hoc* Coalition (“Petitioners” or “Coalition”), filed the petitions in these investigations on April 3, 2024.³ Petitioners participated in the staff conference accompanied by counsel and filed a postconference brief.⁴

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*, 20 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 The Coalition consists of Olin Corp. (“Olin”) and Westlake Corp. (“Westlake”).

⁴ See Petitioners’ Confidential Post Conf. Br., EDIS Doc. 819940 (April 29, 2024) (“Petitioners’ Post Conf. Br.”).

Several respondent entities participated in these investigations. Atul Limited and Atul USA Inc. (“Atul”), an Indian producer of epoxy resins and its related U.S. importer, appeared remotely at the staff conference accompanied by counsel and submitted a postconference brief.⁵ Aditya Birla Chemicals (Thailand) Ltd. (“Aditya Birla”), the sole foreign producer and exporter of subject merchandise in Thailand, and Grasim Industries (“Grasim”), a foreign producer and exporter of subject merchandise in India, both appeared at the staff conference through counsel. Grasim also submitted a postconference brief.⁶ PPG Industries, Inc. (“PPG”), an importer of subject merchandise, appeared at the staff conference accompanied by counsel and submitted a postconference brief.⁷

A number of additional respondents did not appear at the staff conference but filed postconference briefs: Aalborz Chemicals LLC d/b/a AAL Chem (“Aalborz”), an importer of subject merchandise,⁸ Huntsman Advanced Materials Americas LLC (“Huntsman”), which identified itself as a U.S. producer and importer of subject merchandise,⁹ and Huntsman Advanced Materials (Guangdong) Company Ltd., a foreign producer and exporter of subject merchandise (collectively, “Huntsman”); and Kumho P&B Chemicals, Inc. (“Kumho”), a foreign producer and exporter of subject merchandise from South Korea.¹⁰

⁵ See Atul Confidential Post Conf. Br., EDIS Doc. 819958 (April 29, 2024) (“Atul Post Conf. Br.”).

⁶ See Grasim Confidential Post Conf. Br., EDIS Doc. 819956 (April 29, 2024) (“Grasim Post Conf. Br.”).

⁷ See PPG Confidential Post Conf. Br., EDIS Doc. 819941 (April 29, 2024) (“PPG Post Conf. Br.”).

⁸ See Aalborz Public Post Conf. Br., EDIS Doc. 819948 (April 29, 2024) (“Aalborz Post Conf. Br.”).

⁹ See Huntsman Confidential Post Conf. Br., EDIS Doc. 819969 (April 29, 2024) (“Huntsman Post Conf. Br.”). Huntsman submitted a response to the U.S. Producers’ Questionnaire. Confidential Staff Report, INV-WW-043 (May 13, 2024) as revised in INV-WW-047 (May 16, 2024) (“CR”) and *Epoxy Resins from China, India, South Korea, Taiwan, and Thailand*, Inv. Nos. 701-TA-716-719 and 731-TA-1683-1687 (Preliminary), USITC Pub. 5510 (May 2024) (“PR”) at III-1, n.1. Huntsman’s original response reported ***. Huntsman U.S. Producers’ Questionnaire Response at II-11, III-6, III-9c. These and other data raised questions about the nature of its activities. The Commission issued a supplemental questionnaire to U.S. producers, including Huntsman, but Huntsman’s supplemental response shed little additional light on the nature of its activities. CR/PR at III-1, n.1.

Huntsman’s questionnaire responses and postconference brief leave a number of points unclear, and additional data arrived too late for inclusion of the company’s data in the body of the Staff Report. However, based on the information available on the current record and presented in Appendices G and H of the Staff Report, we analyze in Sections IV.A and IV.B. whether Huntsman engages in sufficient production-related activities to qualify as a domestic producer and if so, whether it should be excluded from the domestic industry as a related party.

We note that Petitioners question whether Huntsman produces liquid epoxy resins and, even if it does, whether the Commission ***. Petitioners’ Post Conf. Br. at 11, n.48. Petitioners reserved the right to argue both points in any final phase of the investigations.

¹⁰ See Kumho’s Confidential Post Conf. Br., EDIS Doc. 819936 (April 29, 2024) (“Kumho Post Conf. Br.”).

U.S. industry data are based on the questionnaire responses of three firms that accounted for the vast majority of U.S. production of epoxy resins in 2023.¹¹ U.S. import data are based on adjusted official U.S. imports statistics (which were used to calculate subject import volume and apparent U.S. consumption) and the questionnaire responses of 29 firms that accounted for the majority of epoxy resins imports from subject and nonsubject sources in 2023.¹² U.S. purchaser data are based on the questionnaire responses of 26 firms that responded to the Commission’s lost sales and lost revenue survey.¹³ Foreign producer/exporter data are based on the questionnaire responses of 11 firms.¹⁴

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.”¹⁵ 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.”¹⁶ 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.”¹⁷

¹¹ CR/PR at I-5. The staff report includes certain U.S. industry data compilations that include Huntsman. See Table C-2 and Appendices G & H.

¹² CR/PR at IV-1. Coverage of the Commission’s importer questionnaire data for 2023 was *** percent for all import sources and *** percent for subject imports based on adjusted official U.S. imports statistics for HTSUS statistical reporting number 3907.30.0000. CR/PR at IV-1, nn.3 & 4. Responding importers are estimated to account for the following shares of subject imports during 2023: *** percent of subject imports from China; *** percent of subject imports from India, *** percent of subject imports from South Korea, *** percent of subject imports from Taiwan, and *** percent of subject imports from Thailand. CR/PR IV-1, n.3.

¹³ CR/PR at I-5.

¹⁴ CR/PR at I-5. These responding firms’ exports are estimated to account for the following shares of exports to the United States from each subject country during 2023: *** percent of exports from China; *** percent of exports from India; *** percent of exports from South Korea; *** percent of exports from Taiwan; and *** percent of exports from Thailand. CR/PR Table VII-1.

¹⁵ 19 U.S.C. § 1677(4)(A).

¹⁶ 19 U.S.C. § 1677(4)(A).

¹⁷ 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.¹⁸ 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.”¹⁹ The Commission then defines the domestic like product in light of the imported articles Commerce has identified.²⁰ 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.²¹ No single factor is dispositive, and the Commission may consider other factors it deems relevant based on the facts of a particular investigation.²² The Commission looks for clear dividing lines among possible like products and disregards minor

¹⁸ 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).

¹⁹ *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. Cir. Feb. 7, 2020) (the statute requires the Commission to start with Commerce’s subject merchandise in reaching its own like product determination).

²⁰ *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).

²¹ *See, e.g., Cleo Inc. v. United States*, 501 F.3d 1291, 1299 (Fed. Cir. 2007); *NEC Corp. v. Dep’t 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).

²² *See, e.g., S. Rep. No. 96-249 at 90-91 (1979).*

variations.²³ It may, where appropriate, include domestic articles in the domestic like product in addition to those described in the scope.²⁴

In its notice of initiation, Commerce defined the imported merchandise within the scope of the investigation as:

The merchandise subject to these investigations are fully or partially uncured epoxy resins, also known as epoxide resins, polyepoxides, oxirane resins, ethoxyline resins, diglycidyl ether of bisphenol, (chloromethyl)oxirane, or aromatic diglycidyl, which are polymers or prepolymers containing epoxy groups (*i.e.*, three-membered ring structures comprised of two carbon atoms and one oxygen atom). Epoxy resins range in physical form from low viscosity liquids to solids. All epoxy resins are covered by the scope of these investigations irrespective of physical form, viscosity, grade, purity, molecular weight, or molecular structure, and packaging.

Epoxy resins may contain modifiers or additives, such as hardeners, curatives, colorants, pigments, diluents, solvents, thickeners, fillers, plasticizers, softeners, flame retardants, toughening agents, catalysts, Bisphenol F, and ultraviolet light inhibitors, so long as the modifier or additive has not chemically reacted so as to cure the epoxy resin or convert it into a different product no longer containing epoxy groups. Such epoxy resins with modifiers or additives are included in the scope where the epoxy resin component comprises no less than 30 percent of the total weight of the product. The scope also includes blends of epoxy resins with different types of epoxy resins, with or without the inclusion of modifiers and additives, so long as the combined epoxy resin component comprises at least 30 percent of the total weight of the blend.

Epoxy resins that enter as part of a system or kit with separately packaged co-reactants, such as hardeners or curing agents, are within the scope. The scope does not include any separately packaged co-reactants that would not fall within the scope if entered on their own.

²³ 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.”).

²⁴ See, e.g., *Pure Magnesium from China and Israel*, Inv. Nos. 701-TA-403 and 731-TA-895-96 (Final), USITC Pub. 3467 (Nov. 2001) at 8 n.34; *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).

The scope includes merchandise matching the above description that has been processed in a third country, including by commingling, diluting, introducing, or removing modifiers or additives, or performing any other processing that would not otherwise remove the merchandise from the scope of the investigations if performed in the subject country.

The scope also includes epoxy resin that is commingled or blended with epoxy resin from sources not subject to these investigations. Only the subject component of such commingled products is covered by the scope of these investigations.

Excluded from the scope are phenoxy resins, which are polymers with a weight greater than 11,000 Daltons, a Melt Flow Index (MFI) at 200 °C (392 °F) no less than 4 grams and no greater than 70 grams per 10 min, Glass-Transition Temperatures (Tg) no less than 80 °C (176 °F) and no greater than 100 °C (212 °F), and which contain no epoxy groups other than at the terminal ends of the molecule.

Excluded from the scope are certain paint and coating products, which are blends, mixtures, or other formulations of epoxy resin, curing agent, and pigment, in any form, packaged in one or more containers, wherein (1) the pigment represents a minimum of 10 percent of the total weight of the product, (2) the epoxy resin represents a maximum of 80 percent of the total weight of the product, and (3) the curing agent represents 5 to 40 percent of the total weight of the product.

Excluded from the scope are preimpregnated fabrics or fibers, often referred to as “pre-pregs,” which are composite materials consisting of fabrics or fibers (typically carbon or glass) impregnated with epoxy resin.

This merchandise is currently classifiable under Harmonized Tariff Schedule of the United States (HTSUS) subheading 3907.30.0000. Subject merchandise may also be entered under subheadings 3907.29.0000, 3824.99.9397, 3214.10.0020, 2910.90.9100, 2910.90.9000, 2910.90.2000, and 1518.00.4000. The HTSUS subheadings are provided for convenience and customs purposes only; the written description of the scope is dispositive.²⁵

Epoxy resins are a diverse class of prepolymers and polymers featuring epoxy groups.²⁶ The epoxy groups are highly reactive, and the resins do not become inactive until they are reacted with a curing agent in a curing process. Curing agents can also be called curatives, hardeners, or cross-linking agents, and hundreds of different chemicals can be used.²⁷ In their

²⁵ 89 Fed. Reg. 33319 (Apr. 29, 2024) and 89 Fed. Reg. 33324 (Apr. 29, 2024).

²⁶ CR/PR at I-10.

²⁷ CR/PR at I-10.

cured form, epoxy resins possess the following properties: strong adhesion, excellent resistance to corrosion and chemicals, high mechanical strength, and excellent properties for insulation applications. As an example of the high mechanical strength, in their cured form, epoxy resins will adhere to most materials, including metals, concrete and glass.²⁸ The leading applications for epoxy resins are coatings, construction, composites, electrical and electronic laminates, and adhesives.²⁹

A. Arguments of the Parties

Petitioners argue that the Commission should define a single domestic like product consisting of epoxy resins coextensive with the scope of the investigations.³⁰ None of the respondents objected to Petitioners' proposed definition for purposes of the preliminary determination.

B. Analysis

Based on the record, we define a single domestic like product consisting of all epoxy resins, coextensive with the scope.

Physical Characteristics and Uses. All epoxy resins within the scope share the same general physical characteristics. The record indicates that all epoxy resins are uncured thermosetting resins that do not develop useful properties until they have been reacted with a curing agent and they all have high reactivity in that they are receptive to a wide range of modifiers and bond well with different materials.³¹ In addition, all epoxy resins are either prepolymers or polymers that contain epoxy groups and have great strength and durability that make them resistant to chemicals and moisture after curing.³²

Manufacturing Facilities, Production Processes and Employees. All epoxy resins are reportedly produced on the same production lines, using similar production processes and the same employees.³³

Channels of Distribution. Epoxy resins produced by the domestic industry are sold through similar channels of distribution, mainly to *** with the remainder sold to ***.³⁴

²⁸ CR/PR at I-10.

²⁹ CR/PR at I-10 to I-11.

³⁰ Petitioners' Post Conf. Br. at 7-9.

³¹ CR/PR at I-10; Petitioners' Post Conf. Br. at 7.

³² CR/PR at I-10; Petitioners' Post Conf. Br. at 7.

³³ Petitioners' Post Conf. Br. at 8.

³⁴ CR/PR Table II-2; Huntsman U.S. Producers' Questionnaire Response at II-9.

Interchangeability. Epoxy resins can be used as adhesives or coatings, or as a bonding material in construction or other applications.³⁵ The record information suggests that while users might prefer epoxy resins with a specific weight or viscosity or improved high-temperature resistance for particular applications, those preferences do not create any clear dividing lines within the continuum of epoxy resin products.³⁶

Producer and Customer Perceptions. The record establishes that customers and producers view epoxy resins as a single product category.³⁷

Price. The pricing data indicate that prices for different epoxy resin products generally fell within a similar range during the period of investigation (“POI”).³⁸

Conclusion. All domestically produced epoxy resins within the scope possess similar physical characteristics, have the same range of end uses, and are produced through the same production processes at the same manufacturing facilities using the same employees. Epoxy resins are sold through similar channels of distribution, are perceived to be a single product category by market participants, and are sold within the same general range of prices. Based on the preponderance of similarities among all types of epoxy resins, and in the absence of any contrary argument, we define a single domestic like product consisting of epoxy resins, coextensive with the scope, for purposes of our preliminary determinations.³⁹

³⁵ CR/PR at I-10 to I-11.

³⁶ Conference Transcript (“Conf. Tr”). at 93-94 (Weinmann); Conf. Tr. at 167 (Mr. Pierce); Conf. Tr. at 178 (Camsuzou); Petitioners’ Post Conf. Br. at 9. There is no information on the record suggesting the epoxy resins produced by Huntsman are not interchangeable with those made by Olin and Westlake.

³⁷ Petitioners’ Post Conf. Br. at 8 (citing U.S. producer and customer websites grouping epoxy resins under one category).

³⁸ CR/PR Table V-7.

³⁹ The Commission requested U.S. producers and importers to comment on the comparability of epoxy resins that are part of a system/kit containing co-reactants with epoxy resins sold by themselves using the Commission’s traditional six like product factors. CR/PR at I-17–18. The domestic producers reported that epoxy resins that are part of a system/kit are fully or mostly comparable across all six like product factors to epoxy resins sold by themselves. The domestic producers, along with the majority of responding U.S. importers, reported that epoxy resins in systems/kits have the same physical characteristics and end uses as epoxy resins, are made in the same facilities using the same processes and workers, are sold in the same or similar channels of distribution, are interchangeable, are perceived by purchasers as within the same product category, and are priced similarly. CR/PR Table I-3, *** U.S. Producers’ Questionnaire at V-1, and Appendix D. Therefore, and in the absence of any contrary argument, the Commission finds that there are no clear dividing lines separating epoxy resins in systems/kits from other epoxy resin products within the scope.

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.”⁴⁰ In defining the domestic industry, the Commission’s general practice has been to include in the industry producers of all domestic production of the like product, whether toll-produced, captively consumed, or sold in the domestic merchant market.

These investigations raise the issue of whether Huntsman, ***, engages in sufficient production-related activities to qualify as a domestic producer. In deciding whether a firm qualifies as a domestic producer of the domestic like product, the Commission generally analyzes the overall nature of a firm’s U.S. production-related activities, and production-related activity at minimum levels could be insufficient to constitute domestic production.⁴¹

We must also determine whether any producer of the domestic like product should be excluded from the domestic industry pursuant to Section 771(4)(B) of the Tariff Act. This provision allows the Commission, if appropriate circumstances exist, to exclude from the domestic industry producers that are related to an exporter or importer of subject merchandise

⁴⁰ 19 U.S.C. § 1677(4)(A).

⁴¹ The Commission generally considers six factors: (1) source and extent of the firm’s capital investment; (2) technical expertise involved in U.S. production activities; (3) value added to the product in the United States; (4) employment levels; (5) quantity and type of parts sourced in the United States; and (6) any other costs and activities in the United States directly leading to production of the like product. No single factor is determinative and the Commission may consider any other factors it deems relevant in light of the specific facts of any investigation. *Crystalline Silicon Photovoltaic Cells and Modules from China*, Inv. Nos. 701-TA-481 and 731-TA-1190 (Final), USITC Pub. 4360 at 12-13 (Nov. 2012), *aff’d*, *Changzhou Trina Solar Energy Co. v. USITC*, 879 F. 3d 1377 (Fed. Cir. 2018).

or which are themselves importers.⁴² Exclusion of such a producer is within the Commission's discretion based upon the facts presented in each investigation.⁴³

A. Sufficient Production-Related Activities

1. Arguments of the Parties

Petitioners' Arguments. Petitioners argue that firms that formulate or blend⁴⁴ epoxy resins do not engage in sufficient production-related activities to qualify as domestic producers.⁴⁵ Petitioners claim that the capital investment required for the production of epoxy resins is extensive and requires the use of expensive, large-scale machinery, and compliance with local and national environmental, health, and safety standards.⁴⁶ According to Petitioners, building a fully-integrated epoxy resins production facility can cost as much as \$8 billion, while processing requires far less capital investment.⁴⁷ Petitioners also argue that the production of epoxy resins requires complex chemical knowledge and technical expertise while the processing of epoxy resins involves a much less complex production process.⁴⁸

⁴² 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).

⁴³ The primary factors the Commission has examined in deciding whether appropriate circumstances exist to exclude a related party include the following:

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

⁴⁴ When asked to clarify the distinction between "blenders" and "formulators," a representative of PPG testified that blenders mix epoxy resins with other materials without reacting the epoxy resin with other components of the mixture. In contrast, formulators react epoxy resins with other materials, creating a compound and transforming the materials. Conf. Tr. at 161-162 (Pierce) (Marlier). PPG Post Conf. Br., Response to Staff Questions, at 4. Herein, we refer to formulators and blenders collectively as "processors" unless otherwise indicated.

⁴⁵ Petitioners' Post Conf. Br., Exh. 1, Responses to Staff Questions, at 13.

⁴⁶ Petitioners' Post Conf. Br., Exh. 1, Responses to Staff Questions, at 13.

⁴⁷ Petitioners' Post Conf. Br., Exh. 1, Responses to Staff Questions, at 13.

⁴⁸ Petitioners' Post Conf. Br., Exh. 1, Responses to Staff Questions, at 13.

Respondents' Arguments. Huntsman contends that the scope of these investigations includes formulations of epoxy resins, that it produces epoxy resin products covered by the scope, and that it should therefore be included in the domestic industry definition.⁴⁹ No other respondent party takes a position on this issue.

2. Analysis

While, as discussed below, there are questions about the nature of Huntsman's operations, we analyze the limited information available in these preliminary investigations to determine whether to include Huntsman in the domestic industry.

Source and Extent of Capital Investment. Available information on the record indicates that Huntsman's capital expenditures during the period of investigation ranged from \$*** to \$***, Olin's expenditures ranged from \$*** to \$***, and Westlake's expenditures ranged from \$*** to \$***.⁵⁰ Huntsman reported that greenfield capital investment costs to replicate its epoxy resins operations would total \$***, while Olin and Westlake reported greenfield investment costs of \$*** and \$***, respectively.⁵¹

Technical Expertise Involved. *** begin the production of epoxy resins with the reaction of ECH and BPA.⁵² Once produced, epoxy resins can take either liquid, semi-solid, or solid forms, depending on the amount of BPA added.⁵³ All firms reported that their domestic production activities require ***.⁵⁴ Huntsman reported that its research and development ("R&D") expenses ranged from \$*** to \$*** during the POI, while Olin reported R&D expenses of \$*** to \$*** and Westlake reported R&D expenses of \$*** to \$***.⁵⁵

Value Added. Westlake reports that ***, while Olin maintains that only the ***. As calculated based on reported cost of goods sold ("COGS"), Westlake's value added through manufacturing activities ranged from *** percent during the POI, while Olin's value added

⁴⁹ Huntsman Post Conf. Br. at 3–4.

⁵⁰ CR/PR Tables VI-4 & G-4.

⁵¹ CR/PR Table G-4; Supplemental U.S. Producer Questionnaires at S-8.

⁵² CR/PR at I-13.

⁵³ CR/PR at I-15. Huntsman reported that *** It is unclear, however, whether Huntsman engages in the production of epoxy resins *** to produce ***. Thus, based on the information available in the preliminary phase of these investigations, it is unclear whether Huntsman is a producer of ***. CR/PR Table G-2.

⁵⁴ See Supplemental U.S. Producer Questionnaires at S-4 & S-4. CR/PR Table G-5.

⁵⁵ See Supplemental U.S. Producer Questionnaires at S-4. CR/PR Table G-4.

ranged from *** percent.⁵⁶ Huntsman reports that ***.⁵⁷ As calculated based on reported COGS, Huntsman's value added through manufacturing activities ranged from *** percent.⁵⁸

Employment Levels. Olin reported that it employed *** and Westlake reported that it employed *** during the POI.⁵⁹ By comparison, Huntsman reported that it ***.⁶⁰

Quantity and Parts Sourced in the United States. Huntsman reported that ***.⁶¹ The ***.⁶² By contrast, Olin reports that ***. ***.⁶³ Westlake reported that its purchases of raw materials fall into three groups. The first represents *** that it uses to produce epoxy resins for itself.⁶⁴ The second group, representing ***. The third group, representing ***.⁶⁵

Conclusion. Based on the limited information available on the record of the preliminary phase of the investigations, Huntsman appears to engage in sufficient production-related activities to qualify as a domestic producer. Although Huntsman's reported capital expenditures were lower than those of Olin and Westlake they were still substantial, and its reported greenfield capital investment costs were comparable to those of Westlake, though much lower than those of Olin. Huntsman's claimed processing of epoxy resins into in-scope specialty resins and blends reportedly requires a high degree of technical expertise, including substantial amounts of R&D expenditures, and utilizes a relatively large number of employees. Moreover, the value added by Huntsman's production activities are otherwise comparable to those of Olin's production activities, and exceeded the value added by Westlake's production activities. Although Huntsman sourced most of its inputs from subject and nonsubject sources, whereas Olin and Westlake sourced most of their inputs domestically, Huntsman's reported greenfield capital investment costs, degree of technical expertise, employment, and value-added are otherwise comparable to that of Olin and/or Westlake.

However, we recognize that, despite *** with those of Olin and Westlake, Huntsman reported levels of production less than *** of those reported by Olin and Westlake.⁶⁶ We also

⁵⁶ CR/PR Table G-4. Value added is calculated as the share of conversion costs (direct labor and other factory costs) out of COGS. CR/PR Table G-4 note.

⁵⁷ See Supplemental U.S. Producer Questionnaires at S-4.

⁵⁸ CR/PR Table G-4.

⁵⁹ CR/PR Table G-4.

⁶⁰ CR/PR Table G-4.

⁶¹ CR/PR Table G-4. In terms of subject sources, it primarily imported from *** during each year of the POI, but also imported lesser amounts of epoxy resins from ***. CR/PR Table G-11.

⁶² CR/PR Table G-4.

⁶³ CR/PR Table G-4.

⁶⁴ See Supplemental U.S. Producer Questionnaires at S-4.

⁶⁵ CR/PR Table G-4.

⁶⁶ Compare CR/PR Table G-11 with III-7, see CR/PR Table G-4.

note that Huntsman reported ***.⁶⁷ In any final-phase investigations, we will further investigate Huntsman's allocation of reported data to the production of in-scope merchandise and further analyze whether it should be included in the domestic industry. But, based on the information available, we find that Huntsman engages in sufficient production-related activities to qualify as a domestic producer for purposes of the preliminary phase of the investigations.⁶⁸

B. Related Parties

We also consider whether any producer of the domestic like product should be excluded from the domestic industry pursuant to Section 771(4)(B) of the Tariff Act.⁶⁹ The record indicates that *** are subject to possible exclusion from the domestic industry under the

⁶⁷ Huntsman Supplemental Questionnaire Response at S-2.

⁶⁸ In any final phase of the investigations, the Commission intends to further examine whether to include *** in the domestic industry. In particular, the Commission intends to explore the nature of *** operations, including the large variance in its raw material inputs compared to other domestic producers and the allocation of its data to the production of in-scope merchandise. We also intend to further explore the operations of *** to determine the extent that they engage in processing operations. We will also examine the operations of any other processors that may qualify for inclusion in the domestic industry.

⁶⁹ 19 U.S.C. § 1677(4)(B). The primary factors the Commission has examined in deciding whether appropriate circumstances exist to exclude a related party include the following:

- (1) the percentage of domestic production attributable to the importing producer;
- (2) the reason the U.S. producer has decided to import the product subject to investigation (whether the firm benefits from the LTFV sales or subsidies or whether the firm must import in order to enable it to continue production and compete in the U.S. market);
- (3) whether inclusion or exclusion of the related party will skew the data for the rest of the industry;
- (4) the ratio of import shipments to U.S. production for the imported product; and
- (5) whether the primary interest of the importing producer lies in domestic production or importation. *Changzhou Trina Solar Energy Co. v. USITC*, 100 F. Supp.3d 1314, 1326-31 (Ct. Int'l. Trade 2015), *aff'd*, 839 F.3d 1377 (Fed. Cir. 2018); *see also Torrington Co.*, 790 F. Supp. at 1168.

related parties provision because they imported subject merchandise during the POI.⁷⁰ In addition, *** is related to *** by virtue of *** direct ownership and *** is related to *** by virtue of its affiliate relationship.⁷¹ Both *** and *** are subject producers and exporters of epoxy resin. Thus, *** is also subject to possible exclusion under the related parties provision due to its direct ownership of a subject producer and exporter while *** may be subject to possible exclusion under the related parties provision depending on the nature of its affiliation with ***. Neither Petitioners nor Respondents addressed the issue of related parties.⁷² We discuss below whether appropriate circumstances exist to exclude any related party from the domestic industry.

***. *** was the *** domestic producer of epoxy resins in 2023, accounting for *** percent of U.S. production that year.⁷³ *** is a *** in these investigations.⁷⁴ *** subject imports from *** were equivalent to *** percent of its U.S. production in 2021, *** percent in 2022, and *** percent in 2023.⁷⁵ *** reported that it ***.⁷⁶

In light of *** low ratio of subject imports to domestic production throughout the POI and ***, its primary interest would appear to be in domestic production. There is no evidence

⁷⁰ CR/PR Tables III-11 and G-11. *** may also qualify for possible exclusion because it purchased subject merchandise from unaffiliated importers. CR/PR Table G-12. A domestic producer that does not itself import subject merchandise or does not share a corporate affiliation with an importer may nonetheless be deemed a related party if it controls a purchaser of large volumes of subject imports. See SAA at 858. The Commission has found such control to exist, for example, where the domestic producer's purchases were responsible for a predominant proportion of an importer's subject imports and the importer's subject imports were substantial. See, e.g., *Iron Construction Castings from Brazil, Canada, and China*, Inv. Nos. 701-TA-248, 731-TA-262-263, 265 (Fourth Review), USITC Pub. 4655 at 11 (Dec. 2016); *Chlorinated Isocyanurates from China and Spain*, Inv. Nos. 731-TA-1082-1083 (Second Review), USITC Pub. 4646 at 12 (Nov. 2016). The volume of subject imports from *** that *** purchased accounted for just *** percent of subject imports from *** by *** and its purchases of subject imports from *** accounted for *** percent of *** imports of *** subject merchandise. CR/PR Tables G-12–13. In neither case do *** purchases appear to account for a sufficient share of imports to indicate control over the importer. We therefore find that *** does not qualify for possible exclusion under the related parties provision by virtue of its purchases.

⁷¹ CR/PR Table III-2; *** Questionnaire Response at I-6–7; *** Questionnaire Response at I-3–4; *** Questionnaire Response at I-6–7. *** is affiliated with a foreign producer from a subject country but because that foreign producer did not export to the United States, *** does not qualify as a related party. See 19 U.S.C. § 1677(4)(B)(ii)(I).

⁷² Petitioners reserved the right to revisit in any final phase of these investigations whether the Commission should ***. Petitioners noted ***. Petitioners also pointed to ***. Petitioners' Post Conf. Br. at 11, n.48.

⁷³ CR/PR Table G-1.

⁷⁴ CR/PR Table III-1.

⁷⁵ CR/PR Table III-11.

⁷⁶ CR/PR Table III-12.

on the record that *** benefitted from its subject imports to an extent that its inclusion in the domestic industry would skew industry data, nor is there any evidence that *** affiliation with a subject *** producer and exporter shielded it from subject import competition such that its inclusion in the domestic industry would skew industry data.⁷⁷ Given these considerations, and the absence of any contrary argument, we find that appropriate circumstances do not exist to exclude *** from the domestic industry as a related party.

. *** was the *** domestic producer of epoxy resins in 2023, accounting for *** percent of U.S. production that year.⁷⁸ *** the petitions.⁷⁹ *** imports of subject merchandise were *** pounds in 2021, *** pounds in 2022, and *** pounds in 2023.⁸⁰ *** subject imports were equivalent to *** percent of its U.S. production in 2021, *** percent in 2022, and *** percent in 2023.⁸¹ *** reported the reason it imported subject merchandise, in relevant part, as, ***.⁸² Its capital expenditures during the POI were \$ in 2021, \$*** in 2022, and \$*** in 2023.⁸³

Given *** low ratio of subject imports to domestic production and substantial capital investments during the POI, and based on the current limited record, *** principal interest would appear to be in domestic production. Additionally, the record in these preliminary investigations does not contain sufficient evidence for us to determine that *** affiliation with a subject *** producer and exporter shielded it from subject import competition or otherwise benefitted its domestic production operations such that including *** in the domestic industry would skew the data.⁸⁴ We therefore do not exclude it from the domestic industry.

For the foregoing reasons, we find that appropriate circumstances do not exist to exclude any producer from the domestic industry pursuant to the related parties provision. Accordingly, consistent with our definition of the domestic like product, we define the domestic industry as all domestic producers of epoxy resins.

⁷⁷ Commissioner Schmidlein does not join this sentence. In her view, the analysis supporting this conclusion is unclear.

⁷⁸ CR/PR Table G-1.

⁷⁹ CR/PR Table G-1.

⁸⁰ CR/PR Table G-11.

⁸¹ CR/PR Table G-11.

⁸² Huntsman's Importer's Questionnaire response at II-4.

⁸³ CR/PR Table H-3.

⁸⁴ We intend to further examine whether to include *** in the domestic industry in any final phase of these investigations with the benefit of a more fulsome record concerning the nature of *** operations and affiliation with ***.

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.⁸⁵ The statute further provides that subject imports from a single country which comprise less than 3 percent of total such imports of the product may not be considered negligible if there are several countries subject to investigation with negligible imports and the sum of such imports from all those countries collectively accounts for more than 7 percent of the volume of all such merchandise imported into the United States.⁸⁶

A. Arguments of the Parties

Petitioners' Arguments. Petitioners argue subject imports from China and India should not be deemed negligible for the purposes of the preliminary phase of these investigations.⁸⁷ Specifically, they argue that official import statistics for HTSUS statistical reporting number 3907.30.0000, covering "epoxide resins" in their primary form, understate the volume of subject imports from China and India entering into the U.S. market because responding importers reported that *** percent of all imports from China and *** percent of subject imports from India were entered ***.⁸⁸ While acknowledging that importer questionnaire

⁸⁵ 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)).

⁸⁶ 19 U.S.C. § 1677(24)(A)(ii).

⁸⁷ Petitioner's Post Conf. Br. at 11–18. Petitioners cite to *Co-Steel Raritan, Inc. v. United States*, 357 F.3d 1294 (Fed. Cir. 2004), to argue that in a preliminary phase investigation, the Commission examines negligibility under the same "reasonable indication" standard as material injury and threat of material injury. Specifically, under the *American Lamb*, the Commission examines whether "the record as a whole contains clear and convincing evidence that imports from a specific subject country are negligible and whether no likelihood exists that contrary evidence will arise in the final phase investigation." Petitioners' Post Conf. Br. at 11–12 (*citing American Lamb co. v. United States*, 785 F.2d 994, 1004 (Fed. Cir. 1986)). Petitioners contend that the record in these preliminary phase investigations do not contain clear and convincing evidence that subject imports from China and India are negligible and that it is likely that contrary evidence will arise in any final phase investigations. Petitioners' Post Conf. Br. at 12.

⁸⁸ Petitioner's Post Conf. Br. at 12–13.

responses do not ***, they nevertheless argue that ***.⁸⁹ In essence, Petitioners request the Commission to assume all non-responding U.S. importers would enter ***.

In the event that the Commission does not adopt Petitioners' preferred approach, they claim that the Commission should nevertheless find that subject imports from China are not negligible because epoxy resins from China were allegedly routed through Canada following the imposition of Section 301 duties on imports from China in August 2018.⁹⁰ With respect to India, Petitioners argue that only adjusted official import statistics can accurately reflect the volume of subject imports from India as *** did not respond to the Commission's questionnaires and, of those that did respond, ***.⁹¹ Accordingly, Petitioners claim that the Commission should not deem imports from India negligible and instead base its finding on the more complete data likely to be collected in any final phase of these investigations.⁹²

Alternatively, Petitioners argue that in the event that the Commission finds that subject imports from either China or India are negligible for purposes of its assessment of material injury, it should nevertheless find they are not negligible for purposes of its threat analysis as they will imminently exceed the negligibility threshold.⁹³ They emphasize the Chinese industry's *** available capacity.⁹⁴ They also highlight that China has recently become a major net exporter of epoxy resins, with the ratio of its exports to its imports increasing from 32.1 percent in 2021, to 56.7 percent in 2022, 108.2 percent in 2023, and 162.6 percent in the first quarter of 2024, reflecting a new, substantial, and fast-increasing export orientation.⁹⁵

⁸⁹ Petitioners' Post Conf. Br. at 13 (calculations provided in Exh. 10, indicating that, if adjusted, ***). However, it appears that Petitioners based their calculations on an incomplete set of importer questionnaire responses with respect to China and the rate of entry *** for all responding importers is lower than represented by Petitioners, at *** percent (and that for India is *** percent). *Calculated from* Foreign Producer Questionnaire Responses (China).

⁹⁰ Petitioners' Post Conf. Br. at 14–16, Exh. 1, Responses to Staff Questions at 15–16. Petitioners claim that evidence corroborating this transshipment includes: the 104 percent increase in Canadian imports of epoxy resins from 2021 to 2023 (based on GTA data for HS 3907.30); U.S. imports of relatively large volumes of epoxy resins from Canada despite the ***, a signed declaration, and a distributor communication that Chinese imports are being routed through Canada for re-shipment to the United States. *See* Petitioners' Post Conf. Br. at 14–15 (*citing* Petitioners' Post Conf. Br. at Exh. 5 (declaration of *** & Att. C; Petitions, Vol. I, Exhs. I-7 (***) at 47) & I-25 (Olin's Internal Call Report)).

⁹¹ Petitioners' Post Conf. Br. at 16–17 & Exh. 1, 25–31.

⁹² Petitioners' Post Conf. Br. at 17–18.

⁹³ Petitioners' Post Conf. Br. at 41–43.

⁹⁴ Petitioners' Post Conf. Br. at 42 (*citing* Petitions, Vol. I at 41–42). They cite information from ***, a consulting firm, and claim that China had *** metric tons of epoxy resins production capacity in 2021, which *** metric tons, or *** pounds of capacity in 2024 – more than enough to ***. Petitioner's Post Conf. Br. Exh. 1, Responses to Commissioner Questions at 16 (*citing* Exh. 6 Declaration of ***; Petitions, Vol. I, Exh. I-7 at 73).

⁹⁵ Petitioners' Post Conf. Br. at 42 (*citing* Exh. 1, Responses to Staff Questions, at 19).

With respect to subject imports from India, Petitioners highlight that such imports accounted for an increasing percentage of total imports during each year of the POI based on official import statistics, increasing from *** percent in 2021 to *** percent in 2022 and *** percent in 2023.⁹⁶ Additionally, Petitioners contend that ***.⁹⁷

Respondents' Arguments. Respondent PPG argues that epoxy resins from both China and India are below the statutory 3 percent negligibility threshold.⁹⁸ With respect to China, PPG argues that the petitions reflect that subject imports from China only accounted for 1.3 percent⁹⁹ of all epoxy resin imports during the negligibility assessment period based on Census data.¹⁰⁰ PPG also contests Petitioners' argument that epoxy resins from China were transshipped through Canada, on multiple grounds.¹⁰¹ With respect to subject imports from India, PPG highlights that they accounted for only 1.8 percent of all epoxy resin imports during the negligibility assessment period and were below the 3 percent threshold during virtually every month of the 12-month pre-petition period.¹⁰²

PPG also argues that subject imports from China and India will not imminently exceed the 3 percent negligibility threshold.¹⁰³ With respect to subject imports from China, PPG contends that these imports accounted for an average of 0.72 percent of total U.S. imports in the first two months of 2024, and are unlikely to increase further given the existing 25 percent

⁹⁶ Petitioners' Post Conf. Br. at 42 (*citing* Exh. 3, Apparent Domestic Consumption and U.S. Market Shares).

⁹⁷ Petitioners' Post Conf. Br. at 42 (*citing* Petition, Vol. I at 26).

⁹⁸ PPG Post Conf. Br. at 4-7, 9.

⁹⁹ CR/PR Table IV-4 indicates that subject imports from China accounted 1.2 percent of all imports during the negligibility assessment period.

¹⁰⁰ PPG Post Conf. Br. at 5 (*citing* Petitions Vol. I, Exh. I-24).

¹⁰¹ Specifically, it claims that transshipment allegations are more appropriately raised with U.S. Customs and Border Protection ("CBP") and that the Commission rejected similar negligibility arguments based on alleged transshipments in *Certain Aperture Masks from Japan and Korea*. PPG Post Conf. Br. at 6 (*citing* *Certain Aperture Masks from Japan and Korea*, Inv. Nos. 731-TA-823-824 (Preliminary), USITC Pub. 3185 at 9, n.48. (Apr. 1999)). PPG also claims that, although it is not aware of any liquid epoxy resin manufacturers in Canada, there are companies that purportedly make downstream products in Canada. PPG Post Conf. Br. at 6-7 (*citing* Exh. 3, the homepages of Resinate and Polymeres Technologies). PPG further argues that the average unit values ("AUVs") of the allegedly transshipped imports from Canada are more than 25 percent higher than the AUVs of imports from China, indicating that producers in China would lack an incentive to transship through Canada to avoid paying the 25 percent Section 301 duties. PPG Post Conf. Br. at 7 (*citing* Exh. 2, Census Data Compilations).

¹⁰² PPG Post Conf. Br. at 9 (*citing* Petition Vol. I, Exh. I-24). Atul and Grasim largely echo PPG's arguments with respect to the alleged negligibility of subject imports from India, both on the basis of the current and imminent levels of these imports. *See* Atul Post Conf. Br. at 3-7; *see also* Grasim Post Conf. Br. at 4-21.

¹⁰³ PPG Post Conf. Br. at 7-11.

Section 301 duties and the 6.1 percent normal tariff rate applicable to these imports.¹⁰⁴ Regarding subject imports from India, PPG claims that the *** does not indicate that subject imports from India will imminently increase from 1.8 percent of all imports to three percent.¹⁰⁵ They also contend that the 137 percent increase in these imports from 2021 to 2023 is misleading as these imports began at a low base volume and would take three years to meet the 3 percent threshold at the current rate of increase.¹⁰⁶ According to PPG, producers of subject merchandise in India are primarily focused on satisfying their allegedly growing home market demand and, to a lesser extent, satisfying demand in the Middle East and Africa.¹⁰⁷

While respondent Grasim largely echoes PPG's negligibility arguments, it presents some additional arguments on whether subject imports from India will imminently exceed the negligibility threshold.¹⁰⁸ Specifically, Grasim claims that an average of *** percent of responding Indian producers' epoxy resin shipments were made in their home market, which has been growing at more than *** percent annually due to growth in India's construction and infrastructure market, wind energy market, and automotive and industrial coatings markets.¹⁰⁹ According to Grasim, *** will result in Indian producers shipping even greater quantities of epoxy resins in their home market.¹¹⁰ It contends that the epoxy resin producers in India supply the majority of their exports to ***, which allegedly have growing demand underpinned by growth in their infrastructure, construction, and automotive sectors.¹¹¹ Grasim alleges that the slower growth rate of the U.S. epoxy resins market, existing customs duties of 6.1 percent,

¹⁰⁴ PPG Post Conf. Br. at 7 – 8 (citing Exh. 2, Census Data Compilations, & Notice of Action Pursuant to Section 301: China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation, 83 Fed Reg. 40,823 (Aug. 16, 2018)).

¹⁰⁵ PPG Post Conf. Br. at 9 (citing Petition Vol. I at 26).

¹⁰⁶ PPG Post Conf. Br. at 9–10 (citing Exh. 2, Census Data Compilations); Grasim Post Conf. Br. at 8 – 9 (citing Exhs. 11–12).

¹⁰⁷ PPG Post Conf. Br. at 10–11 (citing Conf. Tr. at 153 and 188 (Stoel)); *** Foreign Producer Questionnaire at II-2(a); *** Foreign Producer Questionnaire at II-11.

¹⁰⁸ Grasim Post Conf. Br. at 6–21.

¹⁰⁹ Grasim Post Conf. Br. at 10–11 (citing Exh. 1, Declaration of ***, Chief Executive Officer (CEO) – Advanced Materials (Epoxy resins) Division at Grasim); Exh. 7, Aggregated Foreign Producer Questionnaire II-9 Data for Indian Producers (showing they will supply ***); Exhs. 13 & 14 (articles on GDP growth in India and on growth in India's construction market); Exh. 15, Global Wind Energy Council, From Local Wind Power to Global Export Hub: India Wind Energy Market Outlook (Aug. 2023) at 21-23).

¹¹⁰ Grasim Post Conf. Br. at 15 (citing Exh. 6, Email ***).

¹¹¹ Grasim Post Conf. Br. at 1, 15 (citing Exh. 1, Declaration of ***, Chief Executive Officer (CEO) – Advanced Materials (Epoxy resins) Division at Grasim).

and difficulty competing with established, scaled, U.S. producers makes the United States a less attractive export destination.¹¹²

B. Analysis

We first consider what data to use for calculating import shares for purpose of our negligibility analysis. The coverage of the Commission's importer questionnaire data for 2023 was *** percent for all import sources and *** percent for subject imports based on adjusted official U.S. imports statistics for HTSUS statistical reporting number 3907.30.0000.¹¹³ The questionnaire coverage of responding importers, based on the same adjusted official import statistics, accounted for *** percent of imports from China, *** percent from India, *** percent from South Korea, *** percent from Taiwan, and *** percent from Thailand.¹¹⁴ Given the relatively low coverage afforded by importer questionnaire responses, the best information available on the record for purposes of negligibility calculations consists of official U.S. import statistics reported in the primary HTSUS statistical reporting number for epoxy resins (*i.e.*, 3907.30.0000) as adjusted to exclude out-of-scope merchandise that responding U.S. importers reported were included within the primary HTS number, as well as to add in additional in-scope epoxy resins that responding U.S. importers reported having imported under other HTSUS statistical reporting numbers.¹¹⁵

As discussed in Section V.A., above, Petitioners argue that significant volumes of imports from India and China were entered under HTSUS statistical reporting numbers other than 3907.30.0000, and the Commission should make certain adjustments to official U.S. import statistics, as described above.¹¹⁶ While we agree certain adjustments are appropriate, in particular those described in the preceding paragraph,¹¹⁷ we disagree that the Commission should further adjust the official import statistics to account for the low coverage of importer questionnaire responses with respect to China and India as Petitioners contend. Such adjustments would be unduly speculative, based on the unsupported assumption that non-responding importers would report the same ratio of subject imports under *** as responding importers. It is also based on the unsupported assumption that the ratio would differ solely based on source; that is, that all importers from each of the subject countries would have the

¹¹² Grasim Post Conf. Br. at 15–16 (*citing* Exh. 1, Declaration of ***, Chief Executive Officer (CEO) – Advanced Materials (Epoxy resins) Division at Grasim; Petitions Vol. I at 14 & Exh. I-6.)

¹¹³ *Derived from* CR/PR at IV-1, nn.3 & 4.

¹¹⁴ CR/PR at IV-1, n.3.

¹¹⁵ CR/PR Table IV-4, source.

¹¹⁶ *See* CR/PR Table IV-4 at source.

¹¹⁷ *See* CR/PR Table IV-4 at source.

same ratio, and that all importers of nonsubject merchandise as a group would have the same ratio. Indeed, Petitioners' argument is undermined by their admission that the Commission "can rely on Census data for HTS code 3907.30.0000 to analyze import trends."¹¹⁸

Based on adjusted official Commerce import statistics, during the 12-month period preceding the filing of the petitions (April 2023 through March 2024), subject imports from South Korea accounted for 45.8 percent of total imports, subject imports from Taiwan accounted for 14.5 percent of total imports, and subject imports from Thailand accounted for 5.7 percent of total imports.¹¹⁹ Consequently, we find that imports of epoxy resins from South Korea, Taiwan, and Thailand subject to antidumping duty investigations and subject imports from Korea and Taiwan subject to countervailing duty investigations are not negligible.

Subject imports from China and India, however, accounted for 1.2 percent and 2.4 percent of total imports, respectively, during the twelve-months preceding the filing of the petition, and the sum of such imports collectively accounted for 3.6 percent of total imports.¹²⁰ Because imports from China and India subject to the antidumping and countervailing duty investigations are below the 3 percent negligibility threshold individually, as well as the 7 percent negligibility threshold collectively, we find that such imports are negligible for purposes of our present material injury analysis.¹²¹

We next consider whether subject imports from China and India have the potential to imminently exceed the 3 percent negligibility threshold for purposes of determining threat of material injury. Under the relevant *American Lamb* standard,¹²² the record in the preliminary phase of these investigations does not provide clear and convincing evidence that there is not a potential for subject imports from China and India to imminently exceed the negligibility threshold.

¹¹⁸ Petitioners' Post Conf. Br. at 13. With respect to Petitioners' contention that the Commission should find that subject imports from China are not negligible based on allegations that such imports have been transshipped through Canada, the record here does not permit the Commission to identify or quantify what, if any, imports are so transshipped. In comments on final phase questionnaires, parties are invited to suggest how the Commission could assess Petitioners' claims regarding this issue.

¹¹⁹ CR/PR Table IV-4. Subject import volume is the same with respect to imports of epoxy resins from each source subject to antidumping and countervailing duty investigations.

¹²⁰ CR/PR Table IV-4. Subject import volume is the same with respect to imports of epoxy resins from each source subject to antidumping and countervailing duty investigations.

¹²¹ Given the incomplete coverage of imports by importer questionnaire responses, the Commission intends to further examine negligibility and the most appropriate data base for evaluating negligibility based on the questionnaire coverage received in any final phase of the investigations.

¹²² *American Lamb Co.*, 785 F.2d at 1001; *Co-Steel Raritan, Inc. v. United States*, 357 F.3d 1294 (Fed. Cir. 2004).

China. As discussed above, subject imports from China accounted for 1.2 percent of total imports during the April 2023 through March 2024 period.¹²³ China's share of total epoxy resin imports over sequential 12-month periods has fluctuated downward since the 12-month period ending in January 2022, when they accounted of 2.8 percent of all imports during that period.¹²⁴ The volume of arranged subject imports from China for the first half of 2024 accounted for *** percent of total arranged imports.¹²⁵

The capacity, capacity utilization, and export shipment data on the record, however, indicates that there is a potential for significantly increased subject imports from China in the imminent future. Specifically, the two foreign producers in China that furnished questionnaire responses reported capacity increases in each year of the POI, from *** pounds in 2021 to *** pounds in 2022 and to *** pounds in 2023; they projected further capacity increases to *** pounds in 2024 and *** pounds in 2025.¹²⁶ Their reported increases in capacity, coupled with declining production,¹²⁷ resulted in steeply declining capacity utilization during the POI, from *** percent in 2021 to *** percent in 2022 and *** percent in 2023; it is projected to remain low at *** percent in 2024 and *** percent in 2025.¹²⁸ This low capacity utilization rate provides these producers with the ability and incentive to imminently increase their exports of epoxy resins to the United States.¹²⁹ Indeed, the responding producers project that their volume of exports to the United States will increase sharply in 2024 and 2025, more than *** their peak export volume during the POI, even as their capacity utilization is projected to

¹²³ CR/PR Table IV-4.

¹²⁴ CR/PR Table IV-5, Fig. IV-2.

¹²⁵ CR/PR Table VII-17. We note that the first half of 2024 contains months included in the negligibility period (January – March 2024). *Id.* Due to low questionnaire coverage for imports from China, the volume of arranged imports may understate the actual volume of arranged imports from China into the U.S. market. See CR/PR at IV-1, n.3.

¹²⁶ CR/PR Table VII-11.

¹²⁷ CR/PR Table VII-11. Their production was *** pounds in 2021, *** pounds in 2022, and *** pounds in 2023; it is projected to increase to *** pounds in 2024 and *** pounds in 2025. *Id.*

¹²⁸ CR/PR Table VII-11. According to a news article in January 2022, Yangnong was scheduled to start a new 396.8 million pounds per annum epoxy resin plant in December 2021, which was projected to increase supply to the market early in 2022. A further 617.3 million pounds annual capacity was planned to come online in 2022, followed by a 2.557 billion pounds annual epoxy resins capacity in the next two to three years. CR/PR Table VII-4. Moreover, on May 11, 2023, the Dongying Economic and Technological Development Zone of Shangdong Province announced the new development of electronic grade epoxy resin and special resin new materials, with a capacity of 400 million pound per year. *Id.*

¹²⁹ The potential imposition of *** could provide an additional incentive for epoxy resins producers in China to ***. See Petitioners' Post Conf. Br. at 49 (*citing* Exh. 8, ***).

remain low.¹³⁰ Although the two responding Chinese producers, alone, possessed excess capacity equivalent to *** percent of apparent U.S. consumption in 2023, these data likely understate the ability and incentive of the subject industry in China to increase exports to the United States in the imminent future, as responding producers accounted for only *** percent of epoxy resins production in China and *** percent of total exports from China in 2023.¹³¹

The record also contains information from ***. Specifically, *** indicates that China had *** pounds of epoxy resins production capacity in 2021, and Westlake estimates that Chinese capacity had increased to *** pounds of capacity by 2024.¹³²

Given the limited coverage of Commission questionnaire responses regarding the industry in China and imports from China, the projected increases in responding Chinese foreign producers' capacity, production, and exports to the United States, and the available information concerning Chinese producers' ***, we find the record does not contain clear and convincing evidence that there is not a potential that subject imports from China will imminently account for more than three percent of total imports of epoxy resins. Accordingly, we find that imports from China subject to the antidumping and countervailing duty investigations have the potential to imminently exceed the 3 percent negligibility threshold and are therefore not negligible for purposes of analyzing threat of material injury.

India. Subject imports from India accounted for 2.4 percent of total imports during the April 2023 through March 2024 period.¹³³ Moreover, epoxy resin imports from India during rolling 12-month periods accounted for a fluctuating but generally increasing share of total imports since the 12-month period ending in January 2022, when they accounted for 1.7 percent of total imports.¹³⁴ The volume of arranged subject imports from India for the first half of 2024 accounted for *** percent of total arranged imports.¹³⁵

¹³⁰ CR/PR Table VII-12. Their exports to the United States were *** pounds in 2021, *** pounds in 2022, and *** pounds in 2023, and are projected to be *** pounds in 2024 and *** pounds in 2025. *Id.*

¹³¹ *Calculated from* CR/PR Tables IV-11 and VII-1.

¹³² Petitions, Vol. I, Exhibit I-7 ***; Petitioners' Post Conf. Br., Exh. 1, Responses to Staff Questions, at 16. Petitioners argue that the evidence also suggests that China's epoxy resin industry has also recently and rapidly become export-oriented. Petitioners' Post Conf. Br. at 42 (*citing* Exh. 1, Responses to Staff Questions, at 19).

¹³³ CR/PR Table IV-4.

¹³⁴ CR/PR Table IV-6, Fig. IV-3.

¹³⁵ *Calculated from* CR/PR Table VII-17. We note that the first half of 2024 contains months included in the negligibility period (January – March 2024). *Id.* We also note that, given the limited questionnaire coverage for imports from India, arranged imports may understate the actual volume of arranged imports from India into the U.S. market. See CR/PR at IV-1, n.3.

The capacity, capacity utilization, and inventory data on the record indicates that there is a potential for significantly increased subject imports from India in the imminent future. Specifically, the three responding foreign producers in India reported increasing their capacity in each year of the POI, from *** pounds in 2021 to *** pounds in 2022 and *** pounds in 2023; they project even larger capacity increases to *** pounds in 2024 and to *** pounds in 2025.¹³⁶ While these capacity increases were accompanied by increased production,¹³⁷ resulting in generally increasing capacity utilization during the POI and projected increases from 2024 to 2025, the record reflects that these producers nevertheless possessed substantial excess capacity in 2023, equivalent to *** percent of apparent U.S. consumption that year.¹³⁸ This substantial amount of excess capacity provides these producers the ability and the incentive to significantly increase their exports of epoxy resins to the United States. Although the responding producers project that their volume of exports to the United States will decrease in 2024 and 2025, their total exports increased from *** pounds in 2021 to *** pounds in 2023.¹³⁹ Furthermore, these data may understate the capacity, production, and exports of epoxy resin producers in India, as responding producers only accounted for *** percent of epoxy resins production in India and *** percent of export shipments from India to the United States in 2023.¹⁴⁰

Given the incomplete coverage of Commission questionnaire responses regarding the industry in India and imports from India, the projected large increases in responding Indian foreign producers' production and capacity, and the increase in subject imports from India as a share of total imports during the POI, we find the imports from India subject to the antidumping and countervailing duty investigations have the potential to imminently exceed the 3 percent negligibility threshold and are therefore not negligible for purposes of analyzing threat of material injury.

¹³⁶ CR/PR Table VII-11.

¹³⁷ CR/PR Table VII-11. Their production was *** pounds in 2021, *** pounds in 2022, and *** pounds in 2023, and is projected to increase to *** pounds in 2024 and *** pounds in 2025. *Id.*

¹³⁸ *Calculated from* CR/PR Tables IV-11 and VII-1. Their capacity utilization was *** percent in 2021, *** percent in 2022, and *** percent in 2023, and is projected to be *** percent in 2024 and *** percent in 2025. CR/PR Table VII-1. On June 15, 2021, it was announced that Aditya would increase epoxy product capacity by approximately 275.6 million pounds per annum through an expansion at its Vilayat, Gujarat, India location. It will include standard and specialty epoxy products along with curing agents. CR/PR Table VII-4.

¹³⁹ CR/PR Table VII-12. Their exports to the United States were *** pounds in 2021, *** pounds in 2022, and *** pounds in 2023, and are projected to be *** pounds in 2024, and *** pounds in 2025. *Id.*

¹⁴⁰ CR/PR Table VII-1.

VI. Cumulation

For purposes of evaluating the volume and effects for a determination of reasonable indication of material injury by reason of subject imports, section 771(7)(G)(i) of the Tariff Act requires the Commission to cumulate subject imports from all countries as to which petitions were filed and/or investigations self-initiated by Commerce on the same day, if such imports compete with each other and with the domestic like product in the U.S. market. In assessing whether subject imports compete with each other and with the domestic like product, the Commission generally has considered four factors:

- (1) the degree of fungibility between subject imports from different countries and between subject imports and the domestic like product, including consideration of specific customer requirements and other quality related questions;
- (2) the presence of sales or offers to sell in the same geographic markets of subject imports from different countries and the domestic like product;
- (3) the existence of common or similar channels of distribution for subject imports from different countries and the domestic like product; and
- (4) whether the subject imports are simultaneously present in the market.¹⁴¹

While no single factor is necessarily determinative, and the list of factors is not exclusive, these factors are intended to provide the Commission with a framework for determining whether the subject imports compete with each other and with the domestic like product.¹⁴² Only a “reasonable overlap” of competition is required.¹⁴³

¹⁴¹ See *Certain Cast-Iron Pipe Fittings from Brazil, the Republic of Korea, and Taiwan*, Inv. Nos. 731-TA-278-280 (Final), USITC Pub. 1845 (May 1986), *aff'd*, *Fundicao Tupy, S.A. v. United States*, 678 F. Supp. 898 (Ct. Int’l Trade), *aff'd*, 859 F.2d 915 (Fed. Cir. 1988).

¹⁴² See, e.g., *Wieland Werke, AG v. United States*, 718 F. Supp. 50 (Ct. Int’l Trade 1989).

¹⁴³ The Statement of Administrative Action (SAA) to the Uruguay Round Agreements Act (URAA), expressly states that “the new section will not affect current Commission practice under which the statutory requirement is satisfied if there is a reasonable overlap of competition.” H.R. Rep. No. 103-316, Vol. I at 848 (1994) (*citing Fundicao Tupy*, 678 F. Supp. at 902); see *Goss Graphic Sys., Inc. v. United States*, 33 F. Supp. 2d 1082, 1087 (Ct. Int’l Trade 1998) (“cumulation does not require two products to be highly fungible”); *Wieland Werke, AG*, 718 F. Supp. at 52 (“Completely overlapping markets are not required.”).

A. Arguments of the Parties

Petitioner's Argument. Petitioners argue that the Commission should cumulate subject imports from all five subject countries for its analysis of present material injury.¹⁴⁴ They highlight that the petitions in these investigations were filed on the same day and that subject imports from all sources and the domestic like product compete with each other in the U.S. market.¹⁴⁵ Petitioners contend that subject imports from all sources and the domestic like product are fungible, claiming that subject imports provide the same performance characteristics in the various applications in which epoxy resins are used, as corroborated by domestic producer responses and the vast majority of importer responses concerning interchangeability.¹⁴⁶ They also argue that epoxy resins from all sources share channels of distribution in that the domestic like product and subject imports are primarily sold to independent blenders, processors, or formulators and distributors.¹⁴⁷ With respect to geographic overlap, Petitioners claim that subject imports and the domestic like product were sold in every region of the continental United States during the POI.¹⁴⁸ Finally, with respect to simultaneous presence, they claim that the domestic like product and subject imports from each country were sold in the U.S. market in significant volumes in each year of the period of investigation.¹⁴⁹ Thus, Petitioners argue that there is a reasonable overlap of competition between and among subject imports from each country and the domestic like product that warrants the cumulative assessment of subject imports.¹⁵⁰

Respondents' Argument. For purposes of the preliminary phase of these investigations, respondents have not raised any cumulation arguments.

B. Analysis

We consider subject imports from South Korea, Taiwan, and Thailand on a cumulated basis, because the statutory criteria for cumulation are satisfied and the record shows a reasonable overlap in competition. As an initial matter, petitioners filed the antidumping and

¹⁴⁴ Petitioner's Post Conf. Br. at 18–20.

¹⁴⁵ Petitioner's Post Conf. Br. at 18–19.

¹⁴⁶ Petitioner's Post Conf. Br. at 19 (*citing* Exh. 11, Interchangeability Responses).

¹⁴⁷ Petitioner's Post Conf. Br. at 19 (*citing* Exh. 9, Channels of Distribution).

¹⁴⁸ Petitioner's Post Conf. Br. at 20 (*citing* Exh. 12, Geographic Distribution of Domestic and Subject Shipments).

¹⁴⁹ Petitioner's Post Conf. Br. at 20 (*citing* Exh. 3, Apparent Domestic Consumption and U.S. Market Shares).

¹⁵⁰ Petitioner's Post Conf. Br. at 20.

countervailing duty petitions with respect to all three countries on the same day, April 3, 2024.¹⁵¹

Fungibility. Domestic producers *** reported that epoxy resins from all sources are always interchangeable while *** reported that they are frequently interchangeable.¹⁵² Similarly, the vast majority of responding importers reported that epoxy resins from all sources were always or frequently interchangeable.¹⁵³

Furthermore, the record indicates that subject imports from South Korea, Taiwan, and Thailand largely overlapped with the domestic like product in terms of epoxy resins product groups and forms.¹⁵⁴ Specifically, a *** of U.S. shipments in 2023 by *** and responding importers of subject merchandise from these three subject countries were of BADGE-type epoxy resins in both liquid and solid forms.¹⁵⁵ Moreover, U.S. shipments from each of these sources included shipments of group 2 resins (*e.g.*, brominated) and group 3 resins (*e.g.*, multifunctional) in 2023, with a substantial overlap in terms of liquid and solid forms.¹⁵⁶ Given the U.S. purchaser and importer responses on interchangeability, the quarterly pricing data reflecting competition between the domestic product and subject imports across *** pricing products, and the substantial degree of overlap between U.S. shipments from all sources in terms of epoxy groups and forms, the record shows that subject imports from each source and the domestic product are fungible.

Channels of Distribution. The domestic like product shipped by *** was primarily sold to ***, which accounted for between *** and *** percent of their U.S. shipments during the POI, but also to ***, which accounted for between *** and *** percent of their U.S. shipments during the same period.¹⁵⁷ Although a majority of U.S. shipments of subject imports from South Korea were made to ***, ranging from *** to *** percent during the POI, a substantial share of such shipments were also made to ***, ranging from *** to *** percent, and a lesser portion to ***, ranging from *** to *** percent.¹⁵⁸ Similarly, while a majority of U.S.

¹⁵¹ CR/PR Table I-1.

¹⁵² CR/PR Table II-7; *** U.S. Producer Questionnaire Response at IV-20.

¹⁵³ CR/PR Table II-8.

¹⁵⁴ CR/PR Tables E-1 & E-4–6.

¹⁵⁵ CR/PR Tables V-8, E-1, E-4–6. BADGE-type epoxy resins, in solid and liquid form, comprised *** percent of *** U.S. shipments in 2023, *** percent of importers' U.S. shipments of imports from South Korea, *** percent of importers' U.S. shipments of imports from Taiwan, and *** percent of importers' U.S. shipments of imports from Thailand. *Id.*

¹⁵⁶ CR/PR Tables IV-7, E-1, E-4–6.

¹⁵⁷ CR/PR Table II-2. Though these figures do not include data from ***, it reported shipping a *** of its epoxy resin to ***, with a smaller portion shipped to *** during the POI. See *** U.S. Producer Questionnaire Response at II-9.

¹⁵⁸ CR/PR Table II-2.

shipments of subject imports from Taiwan were made to ***, ranging from *** to *** percent during the POI, a substantial share of such shipments were also made to ***, ranging from *** to *** percent, and a lesser portion to ***, ranging from *** to *** percent.¹⁵⁹ Finally, a substantial share of U.S. shipments of subject imports from Thailand were sold to ***, ranging from *** to *** percent¹⁶⁰ and to ***, ranging from *** to *** percent). The balance was shipped to ***.¹⁶¹ Accordingly, while epoxy resins from each source were shipped in varying proportion to ***, with a portion of subject imports from each source also being shipped to ***, the record nevertheless indicates that there was a substantial degree of overlap in channels of distribution by virtue of U.S. shipments of the domestic like product and subject imports from each source to both ***.

Geographic Overlap. The domestic like product and subject imports from South Korea, Taiwan, and Thailand were sold in every region of the contiguous United States.¹⁶² Official import statistics indicate that imports from all three subject countries entered the United States through borders in the North, South, East, and West.¹⁶³ Thus, the record shows that subject imports from each source and the domestic product overlapped geographically.

Simultaneous Presence in Market. Based on official Commerce import statistics, subject imports from South Korea, Taiwan, and Thailand were present in the U.S. market during each of the 36 months of the POI.¹⁶⁴ Similarly, the Commission's quarterly pricing data reflect that domestically produced epoxy resins were present in the U.S. market *** of the POI.¹⁶⁵

Conclusion. The record in the preliminary phase of these investigations indicates that subject imports from South Korea, Taiwan, and Thailand are fungible with the domestic like product and each other. It also indicates that imports from each of these subject countries and the domestic like product were sold in overlapping channels of distribution and geographic markets and were simultaneously present in the U.S. market during the POI. Because there exists a reasonable overlap of competition between and among imports from South Korea, Taiwan, and Thailand and the domestic like product, we cumulate subject imports from these three countries for purposes of our analysis of a reasonable indication of material injury.

¹⁵⁹ CR/PR Table II-2.

¹⁶⁰ CR/PR Table II-2.

¹⁶¹ CR/PR Table II-2.

¹⁶² CR/PR Table II-3; see *** U.S. Producer Questionnaire Response at IV-10. *** also reported selling epoxy resins to the "other" region of the United States.

¹⁶³ CR/PR Table IV-9.

¹⁶⁴ CR/PR Table IV-10.

¹⁶⁵ See CR/PR Table V-7.

VII. 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.¹⁶⁶ 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.¹⁶⁷ The statute defines “material injury” as “harm which is not inconsequential, immaterial, or unimportant.”¹⁶⁸ 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.¹⁶⁹ 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.”¹⁷⁰

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,¹⁷¹ 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.¹⁷² 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

¹⁶⁶ 19 U.S.C. §§ 1671b(a), 1673b(a).

¹⁶⁷ 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).

¹⁶⁸ 19 U.S.C. § 1677(7)(A).

¹⁶⁹ 19 U.S.C. § 1677(7)(C)(iii).

¹⁷⁰ 19 U.S.C. § 1677(7)(C)(iii).

¹⁷¹ 19 U.S.C. §§ 1671b(a), 1673b(a).

¹⁷² *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).

tangential cause of injury and that there is a sufficient causal, not merely a temporal, nexus between subject imports and material injury.¹⁷³

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.¹⁷⁴ In performing its examination, however, the Commission need not isolate

¹⁷³ 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).

¹⁷⁴ SAA at 851-52 (“{T}he Commission must examine other factors to ensure that it is not attributing injury from other sources to the subject imports.”); S. Rep. 96-249 at 75 (1979) (the Commission “will consider information which indicates that harm is caused by factors other than less-than-fair-value imports.”); H.R. Rep. 96-317 at 47 (1979) (“in examining the overall injury being experienced by a domestic industry, the ITC will take into account evidence presented to it which demonstrates that the harm attributed by the petitioner to the subsidized or dumped imports is attributable to such other factors;” those factors include “the volume and prices of nonsubsidized imports or imports sold at fair value, contraction in demand or changes in patterns of consumption, trade restrictive practices of and competition between the foreign and domestic producers, developments in technology and the export performance and productivity of the domestic industry”); accord *Mittal Steel*, 542 F.3d at 877.

the injury caused by other factors from injury caused by unfairly traded imports.¹⁷⁵ 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.¹⁷⁶ It is clear that the existence of injury caused by other factors does not compel a negative determination.¹⁷⁷

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.”¹⁷⁸ 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

¹⁷⁵ 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.”).

¹⁷⁶ S. Rep. 96-249 at 74-75; H.R. Rep. 96-317 at 47.

¹⁷⁷ 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.”).

¹⁷⁸ *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 *Swift-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.”¹⁷⁹ The Federal Circuit has examined and affirmed various Commission methodologies and has disavowed “rigid adherence to a specific formula.”¹⁸⁰

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.¹⁸¹ Congress has delegated this factual finding to the Commission because of the agency’s institutional expertise in resolving injury issues.¹⁸²

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 or threat of material injury by reason of subject imports.

1. Demand Conditions

U.S. demand for epoxy resins depends on demand for downstream products, including adhesives, coatings, and bonding materials in construction and other applications.¹⁸³ U.S. producers Olin and Westlake reported that U.S. demand for epoxy resins *** during the POI while Huntsman reported demand ***.¹⁸⁴ The majority of responding importers reported that U.S. demand for epoxy resins steadily increased or fluctuated up.¹⁸⁵

U.S. producers reported that the U.S. market for epoxy resins is subject to business cycles. *** reported that an estimated 30 percent of its business is seasonal due to demand

¹⁷⁹ *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.

¹⁸⁰ *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.”).

¹⁸¹ We provide in our discussion below a full analysis of other factors alleged to have caused any material injury experienced by the domestic industry.

¹⁸² *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.”).

¹⁸³ CR/PR at II-9.

¹⁸⁴ CR/PR at Table II-5; Huntsman’s U.S. Producers’ Questionnaire Response at IV-14. Petitioners attribute the decline in apparent U.S. consumption from 2022 to 2023 in part to purchasers destocking inventory. Petitioners’ Post Conf. Br. at 33–34.

¹⁸⁵ CR/PR at Table II-5.

created by the construction cycle.¹⁸⁶ *** reported that demand slows on an annual basis due to construction projects slowing in the winter and as the number of construction projects fluctuates with the economy.¹⁸⁷ *** reported that demand typically follows a pattern of restocking in Q1 with increased demand in Q2 and Q3 followed by decreased demand in Q4.¹⁸⁸

Apparent U.S. consumption of epoxy resins declined irregularly during the POI, initially increasing from *** pounds in 2021 to *** pounds in 2022, and then declining to *** pounds in 2023, for an overall decline from 2021 to 2023 of *** percent.¹⁸⁹

2. Supply Conditions

The domestic industry was the largest supplier of epoxy resins to the U.S. market during the POI, although its market share declined. The industry's share of apparent U.S. consumption decreased *** percentage points between 2021 and 2023, declining from *** percent in 2021 to *** percent in 2023.¹⁹⁰ *** was the largest U.S. producer during the POI, accounting for *** percent of U.S. production.¹⁹¹

Cumulated subject imports from South Korea, Taiwan, and Thailand were the second largest source of supply to the U.S. market, gaining *** percentage points of market share from 2021 to 2023, increasing from *** percent in 2021 to *** percent in 2022, before declining to *** percent in 2023.¹⁹²

The share of apparent U.S. consumption held by nonsubject imports, which for purposes of analyzing material injury includes imports from China and India, remained flat over the POI, as it increased from *** percent in 2021 to *** percent in 2022, before reverting to *** percent in 2023.¹⁹³ The largest source of nonsubject imports during the period of investigation was Germany.¹⁹⁴

¹⁸⁶ CR/PR at II-10.

¹⁸⁷ CR/PR at II-10.

¹⁸⁸ *** U.S. Producers' Questionnaire Response at IV-16.

¹⁸⁹ CR/PR Table C-1.

¹⁹⁰ CR/PR at Table C-2.

¹⁹¹ CR/PR at Table G-1. PPG and other respondents allege that Winter Storm Uri (in February 2021) and chlorine production issues (at various points in 2021 and 2022) caused supply disruptions. We address these claims fully below in our discussion of the impact subject imports had on the domestic industry.

¹⁹² CR/PR at Table C-2.

¹⁹³ CR/PR at Table C-2.

¹⁹⁴ CR/PR at II-8.

During the POI, subject imports from China were subject to additional *ad valorem* duties pursuant to Section 301 of the Trade Act of 1974, as amended (“Section 301”).¹⁹⁵

3. Substitutability and Other Conditions

Based on the record in the preliminary phase of these investigations, we find that there is at least a moderate-to-high degree of substitutability between domestically produced epoxy resins and epoxy resins imported from subject sources. As discussed above, all responding U.S. producers and the vast majority of subject importers reported that the domestic like product and epoxy resins from all subject sources are always or frequently interchangeable.¹⁹⁶ Certain applications, however, may require specific blends of epoxy resins and some purchasers require producers to become certified prior supplying these specific blends.¹⁹⁷ Substitutability may also be limited to a degree by different lead times from domestic and subject sources.¹⁹⁸

We also find that price is an important factor, among others, in purchasing decisions. Purchasers identified price among the top three factors more than any other factor.¹⁹⁹ Most producers, nearly half of importers, and over one third of purchasers said differences other than price were sometimes or never important.²⁰⁰

The *** majority of epoxy resins sold by U.S. producers are to processors with the remainder being made to distributors, while U.S. importers of subject merchandise made the *** majority of their sales to processors and end users, with only a small share of their sales

¹⁹⁵ Effective August 23, 2018, subject merchandise from China imported under HTS statistical reporting numbers 3907.29.0000 and 3907.30.0000, became subject to an additional 25 percent *ad valorem* duty. Effective January 1, 2019, subject merchandise from China imported under HTS statistical reporting numbers 2910.90.2000, 2910.90.9100, 3214.10.0020, 3824.99.9397, became subject to an additional 25 percent *ad valorem* duty. Effective September 1, 2019, subject merchandise from China imported under HTS statistical reporting number 1518.00.4000 became subject to an additional 7.5 percent *ad valorem* duty. CR/PR at I-9 and nn.14–17.

¹⁹⁶ CR/PR at Tables II-7 and II-8.

¹⁹⁷ CR/PR at II-11.

¹⁹⁸ CR/PR at II-12. Epoxy resins are primarily sold from inventory. U.S. producers reported that *** percent of their commercial shipments came from inventories, with lead times averaging *** days. The remaining *** percent of their commercial shipments were produced to order, with lead times averaging *** days. Importers reported that 84.9 percent of their commercial shipments came from U.S. inventories with lead times averaging 31 days. Importers reported that 8.3 percent of their commercial shipments came from foreign inventories with lead times averaging 42 days. The remaining 6.8 percent of commercial shipments were produced to order with lead times averaging 98 days.

¹⁹⁹ CR/PR at Table II-6. While purchasers cited quality most frequently as the most important factor, there is no indication in the record of quality concerns with either the domestic like product or subject imports during the POI.

²⁰⁰ CR/PR at Table II-9.

being made to distributors.²⁰¹ The share of importers' sales of subject merchandise to processors declined over the POI while their share of sales to end users increased.²⁰²

Olin and Westlake both produced epoxy resins using ECH and BPA.²⁰³ Raw material costs represent the largest component of the domestic industry's COGS, and they declined as a share of COGS from *** percent in 2021 to *** percent in 2023.²⁰⁴ Average raw material costs increased in 2022 and then declined in 2023.²⁰⁵

The record reflects that production of epoxy resins is capital intensive.²⁰⁶ The high fixed costs associated with the production of epoxy resins incentivizes producers to operate at a high rate of capacity utilization that spreads fixed costs across a greater volume of production.²⁰⁷

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."²⁰⁸

Cumulated subject imports increased from 193.9 million pounds in 2021 to 237.6 million pounds in 2022, before decreasing to 191.3 million pounds in 2023.²⁰⁹

Notwithstanding the absolute decline in volume, cumulated subject imports as a share of apparent U.S. consumption increased between 2021 and 2023, from *** percent of apparent U.S. consumption in 2021 to *** percent in 2022, before declining to *** percent in 2023, for an overall increase of *** percentage points.²¹⁰

Based on the record in the preliminary phase of these investigations, we find that the volume of cumulated subject imports in absolute terms and relative to consumption in the United States is significant, and that the increase in the volume of subject imports relative to consumption is significant.

²⁰¹ CR/PR at Table II-2.

²⁰² CR/PR at Table II-2.

²⁰³ CR/PR at I-14; Conf. Tr. at 27 (Espinosa). Based on the limited available information, we are unable to determine whether Huntsman also manufactures epoxy resin by reacting BPA and ECH, or does so with different raw materials using some other process.

²⁰⁴ CR/PR at Table H-1.

²⁰⁵ CR/PR at VI-9.

²⁰⁶ CR/PR at VI-8 & n.17.

²⁰⁷ CR/PR at VI-8 & n.17.

²⁰⁸ 19 U.S.C. § 1677(7)(C)(i).

²⁰⁹ CR/PR Tables IV-11 & C-2 (less China and India).

²¹⁰ CR/PR Tables IV-11 & C-2 (less China and India). Cumulated subject imports also increased as a ratio to domestic industry production during the POI, from *** percent in 2021 to *** percent in 2022, before declining to *** percent in 2023. *Calculated from* CR/PR Tables G-6 & G-15.

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.²¹¹

As discussed in Section VII.B.3, above, we find that there is at least a moderate-to-high degree of substitutability between cumulated subject imports and the domestic like product, and that price is an important factor in purchasing decisions for epoxy resins.

The Commission collected quarterly quantity and f.o.b. pricing data on sales of four types of epoxy resins shipped to unrelated U.S. customers during the POI.²¹² Two U.S. producers and 12 importers provided usable pricing data for sales of the requested products, although not all firms reported pricing for all products for all quarters.²¹³ The pricing data reported by these firms accounted for approximately *** percent of U.S. producers' U.S. commercial shipments of domestically produced epoxy resins and *** percent of importers' U.S. commercial shipments of cumulated subject imports in 2023.²¹⁴

Cumulated subject imports undersold the domestic like product in 83 of 125 quarterly comparisons, or 66.4 percent of the time, with underselling margins ranging

²¹¹ 19 U.S.C. § 1677(7)(C)(ii).

²¹² CR/PR at V-3–4. The four pricing products are:

Product 1. – Bisphenol A liquid epoxy resin, basic commodity grade (i.e., D.E.R. 331, EPON 828, KER 828, YD 128, NPEL128, BE-188, and SM 828), sold in bulk (ISO Tanks or Tank Truck).

Product 2. – Bisphenol A liquid epoxy resin, basic commodity grade (i.e., D.E.R. 331, EPON 828, KER 828, YD 128, NPEL128, BE-188, and SM 828), sold in packages (Totes, Intermediate Bulk Containers (“IBC’s”), or drums).

Product 3. – Bisphenol A solid epoxy resin, Type 3, Epoxy Equivalent Weight (“EEW”) based on solids range between 700-850 g/eq (i.e., D.E.R. 663U, D.E.R. 663UE, EPON 2003, KD 213, KD 243C, KER 3033, NPES 903H, BE 503, YD 903).

Product 4. – Bisphenol A solid epoxy resin, Type 4, Epoxy Equivalent Weight (“EEW”) based on solids range between 800-1,000 g/eq (i.e., D.E.R. 664UE, EPON 2004, KD 214L, NPES 904H, BE 504H).

²¹³ CR/PR at V-4.

²¹⁴ CR/PR at V-4. Due to the uncertainties associated with *** operations, as discussed in Section IV.A.2. above, and the time constraints associated with processing its pricing data following the return of supplemental questionnaires, *** quarterly pricing data were not included in Section V of the CR/PR. *** share of domestic production was only *** percent of total domestic production of epoxy resins in 2023. CR/PR Table G-1. Accordingly, the exclusion of its data should have a minimal impact on the pricing data utilized by the Commission in the preliminary phase of these investigations.

between *** and *** percent, and averaging *** percent.²¹⁵ They oversold the domestic like product in the remaining 42 quarterly comparisons, or 33.6 percent of the time, with overselling margins ranging between *** percent and *** percent and averaging *** percent.²¹⁶ The volume of subject import sales in quarters with underselling was *** pounds, representing *** percent of total reported subject import pricing sales volume, compared to *** million pounds in the quarters with overselling, representing *** percent of total reported subject import sales volume.²¹⁷ Thus, the quarterly price comparison data show that cumulated subject imports from South Korea, Taiwan, and Thailand predominantly undersold the domestic like product in terms of the number of quarterly comparisons and in terms of volume.

We have also considered purchasers' responses to the Commission's lost sales/lost revenue survey. Of the 26 responding purchasers, 18 reported that, during the January 2021 to December 2023 POI, they had purchased subject epoxy resins from South Korea, Taiwan, and Thailand instead of the domestic like product, and 17 of these purchasers reported that subject imports were lower priced than the domestic like product.²¹⁸ Nine of those purchasers also reported that price was a primary reason for their decision to purchase epoxy resins imported from the subject countries rather than the domestic like product; the total volume involved was *** pounds.²¹⁹ The volume of subject imports purchased in lieu of the domestic like product was equivalent to *** percent of all reported purchases of cumulated subject imports (*i.e.*, not including purchases from China and India) during the POI.²²⁰

Based on the at least moderate-to-high degree of substitutability between subject imports and the domestic like product, the importance of price in purchasing decisions, the predominant underselling, and the purchaser responses regarding comparative prices and lost sales, we find that cumulated subject imports undersold the domestic like product to a

²¹⁵ CR/PR Table V-11.

²¹⁶ CR/PR Table V-12.

²¹⁷ CR/PR Table V-12.

²¹⁸ CR/PR Table V-15.

²¹⁹ CR/PR Table V-15. Purchaser *** reported that it had purchased subject imports instead of the domestic like product, that subject imports were lower priced, but that subject imports' lower price was not a primary reason for purchasing subject imports in lieu of the domestic like product. CR/PR Table V-15. As *** only purchased subject imports from China and India, its response was not included in the total volume of lost sales, discussed above. Its response was also excluded from the count of purchasers reporting that they had purchased subject imports in lieu of the domestic product primarily on the basis of their lower price.

²²⁰ Calculated from CR/PR Tables IV-11, V-13, & V-15.

significant degree. The underselling resulted in subject imports gaining market share at the expense of the domestic industry during the POI; from 2021 to 2023, cumulated subject imports gained *** percentage points of market share directly at the expense of the domestic industry.²²¹

We have also examined price trends during the POI. Prices for U.S.-produced pricing products increased during each quarter of 2021 and the first half of 2022, before decreasing irregularly until the end of the POI.²²² Prices for domestically produced products 1, 3, and 4 were all lower at the end of the POI than at the beginning, while prices for product 2 were higher.²²³ Specifically, reported prices for domestically produced product 1 declined by *** percent, product 3 by *** percent, and product 4 by *** percent during the POI.²²⁴ Prices for domestically produced product 2 increased, overall, by *** percent during the POI.²²⁵ Prices for all four products imported from subject sources increased through Q3 2021, fluctuated until Q3 2022, and then declined irregularly until the end of the POI for overall declines across all products.²²⁶ Specifically, prices for product 1 declined by 19.2 percent, product 2 by 28.2 percent, product 3 by 23 percent, and product 4 by 39.8 percent.²²⁷ Of the 20 responding purchasers that reported having knowledge of the issue, 13 purchasers reported that domestic producers had reduced prices to compete with subject imports, reporting an average price reduction of 36.4 percent.²²⁸ More specifically, 11 reported that domestic producers reduced prices by an average of *** percent to compete with subject imports from South Korea, nine reported that domestic producers reduced prices by an average of *** percent to compete with subject imports from Taiwan, and three reported that domestic producers reduced prices by an average of *** percent to compete with subject imports from Thailand.²²⁹ The price trend data and purchaser confirmations of lost revenues is consistent with Petitioner's assertion that the domestic industry sought to compete more aggressively on price, particularly starting in 2023, to stem the loss of market share to subject imports in 2022.²³⁰ It is also consistent with

²²¹ CR/PR Table G-15.

²²² CR/PR Table V-8.

²²³ CR/PR Table V-7. U.S. producers' shipments of Product 2 represented approximately *** percent of total U.S. producers' shipments reported in the pricing data. *Id.*

²²⁴ CR/PR Table V-7.

²²⁵ CR/PR Table V-7.

²²⁶ *Derived from* CR/PR Tables V-3–6.

²²⁷ *Derived from* CR/PR Tables V-3–6.

²²⁸ CR/PR Table V-17. While this includes reports with respect to China and India, for the purposes of our present material injury analysis, we rely on the reported country-specific price reductions for South Korea, Taiwan, and Thailand, as discussed below. See CR/PR Table V-18.

²²⁹ CR/PR Table V-18.

²³⁰ Petitioners' Post Conf. Br. at 31.

testimony from a Westlake representative that it was “forced to accept the lowest prices for our epoxy resins in 2023” in an attempt to maintain an economical rate of capacity utilization,²³¹ and with the affidavit of ***, which attested that ***. ”²³² In addition, the AUV of U.S. producers’ U.S. shipments and U.S. producers’ net sales increased between 2021 and 2022, but then decreased in 2023 to a level lower than that recorded in 2021 (as did the AUVs of cumulated subject imports).²³³ Given the declines in prices and AUVs for the domestic like product and cumulated subject imports during the POI,²³⁴ and purchaser responses confirming substantial reductions in prices of the domestic product in an effort to compete with subject import pricing, we find that cumulated subject imports depressed prices for the domestic like product to a significant degree.²³⁵

We have also considered whether cumulated subject imports prevented price increases for domestically produced epoxy resins which otherwise would have occurred to a significant degree. As discussed above, domestic producer prices declined over the POI, particularly from 2022 to 2023. While apparent U.S. consumption declined by *** percent from 2021 to 2023, the domestic industry’s COGS-to-net-sales ratio increased irregularly from *** percent in 2021 to *** percent in 2023, an overall increase of *** percentage points.²³⁶ The domestic industry’s net sales value was relatively stable at \$*** in 2021 and 2022, before it plummeted to \$*** in 2023, decreasing to a greater degree than the domestic industry’s total COGS.²³⁷ As a result, the domestic industry’s ratio of COGS to net sales increased and its operating income

²³¹ Conf. Tr. at 30 (Kaufman).

²³² Petitioners’ Post Conf. Br. at Exh. 5 at 4 (declaration of ***). The Staff Report notes that “{p}urchasers noted that although U.S. producers reduced their prices, their price decreases have lagged behind price decreases from subject countries.” CR/PR at V-24.

²³³ CR/PR Table C-2.

²³⁴ Domestic producers’ unit net sales AUVs declined from 2021 to 2023 while their unit net COGS increased, and from 2022 to 2023 while both domestic producers’ unit net sales AUVs and unit COGS decreased, domestic producers’ unit net sales AUVs decline by *** percent while their unit COGS only declined by *** percent. CR/PR Table C-2. Thus, declines in domestic producers’ COGS do not explain why domestic producers’ prices declined during the POI.

²³⁵ Respondents argue that the decline in prices towards the end of the POI were merely a return to “normal” historic levels, after a sharp increase earlier in the POI due to alleged supply issues. PPG Post Conf. Br. at 31; Aalborg Post Conf. Br. at 2; Kumho Post Conf. Br. at 5–6. However, the pricing data show that prices were generally lower at the end of the POI than they were at the very start of the POI, before any such supply issues. CR/PR at Tables V-8 and V-9.

We acknowledge that apparent consumption declined by *** percent over the POI. In any final phase investigations, we will examine the impact demand declines may have on prices.

²³⁶ CR/PR Table H-1.

²³⁷ CR/PR Table H-1.

to net sales ratio declined irregularly, from *** percent in 2021 to *** percent in 2023.²³⁸ In the final phase of these investigations, we will further explore whether subject imports prevented price increases for the domestic like product that would have otherwise occurred.

In sum, based on the record in the preliminary phase of these investigations, we find that cumulated subject imports significantly undersold the domestic like product, captured market share at the expense of the domestic industry during the POI, and depressed domestic prices to a significant degree. Accordingly, we find that cumulated subject imports had significant price effects.

E. Impact of the Subject Imports²³⁹

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 (“R&D”), 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.”²⁴⁰

The domestic industry’s capacity and production declined during each year of the POI. Its capacity declined from *** pounds in 2021 to *** pounds in 2022 and *** pounds in 2023, for an overall decline of *** percent.²⁴¹ Similarly, its production declined from *** pounds in 2021 to *** pounds in 2022 and *** pounds in 2023, for an overall decline of *** percent.²⁴² Because the domestic industry’s production declined to a greater degree than its capacity from 2021 to 2022 its capacity utilization decreased from *** percent in 2021 to *** percent in

²³⁸ CR/PR Table H-1.

²³⁹ In its notice initiating the antidumping duty investigations, Commerce initiated investigations based on estimated dumping margins of 266.37 to 354.99 percent for China; 9.92 to 15.68 percent for India; 35.29 to 57.38 percent for South Korea; 91.15 to 139.29 percent for Taiwan; and 143.73 to 176.34 percent for Thailand. *Certain Epoxy Resins From the People's Republic of China, India, the Republic of Korea, Taiwan, and Thailand: Initiation of Less-Than-Fair-Value Investigations*, 89 Fed. Reg. 33324, 33328 (April 29, 2024).

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

²⁴¹ CR/PR Tables C-2 & G-6.

²⁴² CR/PR Tables C-2 & G-6.

2022; the inverse was true from 2022 to 2023, resulting in the domestic industry’s capacity utilization increasing to *** percent in 2023, despite its declining production.²⁴³

The domestic industry’s employment indicators varied. Its number of production-related workers (“PRWs”) declined by *** percent from 2021 to 2023, declining from *** PRWs in 2021 to *** PRWs in 2022 and *** PRWs in 2023.²⁴⁴ Its total hours worked declined by *** percent between 2021 and 2023, increasing from *** hours in 2021 to *** hours in 2022, before declining to *** hours in 2023.²⁴⁵ The domestic industry’s wages paid and productivity fluctuated downward during the POI. Wages paid decreased by *** percent between 2021 and 2023, rising from \$*** in 2021 to \$*** in 2022, then declining to \$*** in 2023.²⁴⁶ Productivity (in pounds per hour) decreased by *** percent from 2021 to 2023, decreasing from *** pounds per hour in 2021 to *** pounds per hour in 2022, then increasing to *** pounds per hour in 2023.²⁴⁷

The volume of the domestic industry’s U.S. shipments declined by *** percent from 2021 to 2023, from *** pounds in 2021 to *** pounds in 2022 and *** pounds in 2023.²⁴⁸ As measured by value, however, the domestic industry’s U.S. shipments increased from \$*** in 2021 to \$*** in 2022, before plummeting to \$*** in 2023.²⁴⁹ Thus, despite an initial increase in the total value of the domestic industry’s U.S. shipments from 2021 to 2022, the value of its shipments declined overall by *** percent during the POI, driven by a *** percent decline from 2022 to 2023.²⁵⁰ The domestic industry’s share of apparent U.S. consumption decreased from *** percent in 2021 to *** percent in 2022 before partially recovering to *** percent in 2023, for an overall decrease of *** percentage points from 2021 to 2023.²⁵¹

The domestic industry’s end-of-period inventories decreased by *** percent from 2021 to 2023, decreasing from *** pounds in 2021 to *** pounds in 2022 and *** pounds in 2023.²⁵² As a ratio to total U.S. shipments, the domestic industry’s end-of-period inventories increased from *** percent in 2021 to *** percent in 2022 and *** percent in 2023.²⁵³

²⁴³ CR/PR Tables C-2 & G-6.

²⁴⁴ CR/PR Tables C-2 & G-14.

²⁴⁵ CR/PR Tables C-2 & G-14.

²⁴⁶ CR/PR Tables C-2 & G-14.

²⁴⁷ CR/PR Tables C-2 & G-14.

²⁴⁸ CR/PR Tables C-2 & G-15.

²⁴⁹ CR/PR Table C-2.

²⁵⁰ CR/PR Table C-2.

²⁵¹ CR/PR Tables C-2 & G-15.

²⁵² CR/PR Tables C-2 & G-9.

²⁵³ CR/PR Tables C-2 & G-9.

The domestic industry's financial performance generally improved or was stable from 2021 to 2022, but deteriorated substantially from 2022 to 2023, with total net sales value, gross profits, operating income, net income, operating income margin, and net income margin all following this pattern.²⁵⁴ Specifically, its total net sales value increased from \$*** in 2021 to \$*** in 2022, before declining to \$*** in 2023 for an overall decrease of *** percent from 2021 to 2023.²⁵⁵ Its gross profits increased from \$*** in 2021 to \$*** in 2022, before declining to \$*** in 2023, for an overall decrease of *** percent from 2021 to 2023.²⁵⁶ Its operating income increased from \$*** in 2021 to \$*** in 2022, before declining to \$*** in 2023, for an overall decrease of *** percent from 2021 to 2023.²⁵⁷ Its net income increased from \$*** in 2021 to \$*** in 2022, before declining to \$*** in 2023, for an overall decrease of *** percent from 2021 to 2023.²⁵⁸ Its operating income margin increased from *** percent in 2021 to *** percent in 2022, before declining to *** percent in 2023, for an overall decrease of *** percentage points from 2021 to 2023.²⁵⁹ Its net income margin increased from *** percent in 2021 to *** percent in 2022, before declining to *** percent in 2023, for an overall decrease of *** percentage points from 2021 to 2023.²⁶⁰ Its net assets increased from \$*** in 2021 to \$*** in 2022 and \$*** in 2023, for an overall increase of *** percent from 2021 to 2023.²⁶¹ The domestic industry's net assets increased from \$*** in 2021 to \$*** in 2022 and \$*** in 2023, for an overall increase of *** percent from 2021 to 2023.²⁶²

The domestic industry made capital investments during the POI that generally followed the trend of their financial performance.²⁶³ The industry's capital expenditures increased from \$*** in 2021 to \$*** in 2022, before declining to \$*** million in 2023, for an overall decline of *** percent during the POI.²⁶⁴ The domestic industry's research and development expenses decreased by *** percent between 2021 and 2023, decreasing from \$*** in 2021 to \$*** in 2022 and \$*** in 2023.²⁶⁵

²⁵⁴ See CR/PR Tables H-1.

²⁵⁵ CR/PR Tables C-2 & H-1.

²⁵⁶ CR/PR Tables C-2 & H-1.

²⁵⁷ CR/PR Tables C-2 & H-1.

²⁵⁸ CR/PR Tables C-2 & H-1.

²⁵⁹ CR/PR Tables C-2 & H-1.

²⁶⁰ CR/PR Tables C-2 & H-1.

²⁶¹ CR/PR Tables C-2 & H-5.

²⁶² CR/PR Tables C-2 & H-5.

²⁶³ CR/PR Tables C-2 & H-3.

²⁶⁴ CR/PR Tables C-2 & H-3.

²⁶⁵ CR/PR Tables C-2 & H-4.

As discussed above, cumulated subject imports undersold the domestic like product to a significant degree which allowed them to gain market share at the expense of the domestic industry. Subject imports captured *** percentage points of market share directly from the domestic industry, overall, from 2021 to 2023. Cumulated subject imports also significantly depressed prices for the domestic like product as the domestic industry sought to compete more aggressively on price in an effort to regain market share, sales volume, and an economical rate of capacity utilization. While the domestic industry's output indicators deteriorated from 2021 to 2022 as it lost market share to subject imports, its financial performance was generally stable from 2021 to 2022 as prices generally increased, leading to higher average unit values, a decreased COGS-to-net sales ratio, and an increase in the industry's operating margin. However, notwithstanding the fact that the domestic industry gained back some market share in 2023, the domestic industry's financial performance deteriorated by nearly every metric as prices in the U.S. market declined from 2022 to 2023. This deterioration was due in material part to low-priced cumulated subject imports depressing the prices of the domestic like product.

Respondents contend that cumulated subject import market penetration increased during the POI, not due to underselling, but due to the effects of Winter Storm Uri on domestic production of epoxy resins.²⁶⁶ The preliminary record of these investigations, however, does not support this argument. The parties do not dispute that Olin and Westlake's resulting *force majeure* declarations were lifted in March 8, 2021, and January 4, 2022, respectively.²⁶⁷ Thus, any supply disruptions that may have resulted from these declarations would not sufficiently explain the domestic industry's loss of market share to cumulated subject imports during the POI.²⁶⁸ Moreover, the record shows that the domestic industry shipped a greater volume of

²⁶⁶ See PPG's Post Conf. Br. at 15-16 (arguing the Texas Freeze caused Olin and Westlake to declare *force majeure* beginning in February 2021 and not ending until July 2021 for Olin and January 2022 for Westlake); see also Aalborz Post Conf. Br. at 1-2 & Kumho Post Conf. Br. at 5.

²⁶⁷ Petitioners' Post Conf. Br. at 27 (citing Conf. Tr. at 140-41 (Camsuzou), 142-145 (Pierce), and 146 (Jacobson); Exh. 5 (Declaration of *** Global Business Director for Epoxy Allylics, Aromatics, and Epoxy Resins for Olin; Exhibit 6 (Declaration of ***, Business Finance Leader at Westlake.); see, e.g., PPG's Post Conf. Br. at 15-16.

²⁶⁸ PPG also claims that price decreases were a result of *** (PPG Post Conf. Br. at 24-25 & Exh. 4). However, *** attests that ***. Petitioners' Post Conf. Br. at Exh. 5 at 4 (declaration of ***). Moreover, he stated:

Petitioners' Post Conf. Br. at Exh. 5 at 4 (declaration of ***). We note that while Olin's net sales quantity *** from 2021 to 2022, Westlake's net sales quantity also ***, despite an increase in apparent U.S. consumption during this period. See CR/PR Tables C-2 & F-1. We will further investigate this issue in any final phase of these investigations.

epoxy resins in 2021 than during any other year of the POI, supporting Petitioners' claims that they were able to supply purchasers with their usual quantities despite the effects of Winter Storm Uri.²⁶⁹ Additionally, the contention that subject imports were responding to tightness of supply in the market is inconsistent with the predominant underselling we see on the record throughout the POI.

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 subject imports. Between 2021 and 2023, nonsubject imports (which for purposes of our material injury analysis include imports from China and India) maintained a stable share of apparent U.S. consumption, accounting for *** percent of apparent U.S. consumption in both 2021 and 2023.²⁷⁰ Moreover, the average unit values of nonsubject imports were significantly higher than those of cumulated subject imports (and the domestic like product), and increased each year of the POI.²⁷¹ Consequently, nonsubject imports can explain neither the domestic industry's loss of market share nor its price declines.

Trends in demand also do not explain the injury experienced by the domestic industry. The domestic industry's U.S. shipments declined to a greater degree than apparent U.S. consumption; while apparent U.S. consumption declined by *** percent during the POI, the domestic industry's U.S. shipments declined by *** percent as measured by quantity.²⁷² Moreover, demand trends cannot explain the domestic industry's loss of market share to cumulated subject imports, either in periods of increasing consumption during 2022 or in periods of decreasing consumption in 2023.

In sum, based on the record of the preliminary phase of these investigations, we find that subject imports had a significant impact on the domestic industry. Consequently, we determine that there is a reasonable indication that an industry in the United States is materially injured by reason of cumulated subject imports from South Korea, Taiwan, and Thailand.

²⁶⁹ See CR/PR Table C-2; *see also* Petitioners' Post Conf. Br. at 37 & Conf. Tr. at 107–108 (Bellinger)).

²⁷⁰ CR/PR Table C-2.

²⁷¹ CR/PR Table C-2.

²⁷² CR/PR Table C-2.

VIII. Reasonable Indication of Threat of Material Injury by Reason of Allegedly Dumped and Subsidized Subject Imports from China and India

We have determined that there is a potential that subject imports from China and India will imminently account for more than 3 percent of all subject merchandise imported into the United States. Therefore, we need to determine whether there is a reasonable indication that the domestic industry is threatened with material injury by reason of subject imports from China and India that are allegedly sold at LTFV and subsidized by the governments of China and India.

A. Legal Standard

Section 771(7)(F) of the Tariff Act directs the Commission to determine whether there is a reasonable indication that the U.S. industry is threatened with material injury by reason of subject imports by analyzing 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.”²⁷³ The Commission may not make such a determination “on the basis of mere conjecture or supposition,” and considers the threat factors “as a whole” in making its determination whether dumped or subsidized imports are imminent and whether material injury by reason of subject imports would occur unless an order is issued.²⁷⁴ In making

²⁷³ 19 U.S.C. § 1677(7)(F)(ii).

²⁷⁴ 19 U.S.C. § 1677(7)(F)(ii).

our determinations, we consider all statutory threat factors that are relevant to these investigations.²⁷⁵

B. Cumulation for Threat of Material Injury

We must consider whether to cumulate allegedly dumped and subsidized subject imports from China and India with those from other sources eligible for cumulation. In contrast to cumulation for material injury, cumulation for a threat analysis is discretionary. Under Section 771(7)(H) of the Tariff Act, the Commission may “to the extent practicable” cumulatively assess the volume and price effects of subject imports from all countries as to which petitions were filed on the same day if the requirements for cumulation in the material injury context are satisfied.²⁷⁶

²⁷⁵ These factors are as follows:

(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,

(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,

...

(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).

19 U.S.C. § 1677(7)(F)(i). To organize our analysis, we discuss the applicable statutory threat factors using the same volume/price/impact framework that applies to our material injury analysis. Statutory threat factors (I), (II), (III), (V), and (VI) are discussed in the analysis of subject import volume. Statutory threat factor (IV) is discussed in the analysis of subject import price effects. Statutory factors (VIII) and (IX) are discussed in the analysis of impact. Statutory factor (VII) concerning agricultural products is inapplicable to these investigations.

²⁷⁶ 19 U.S.C. § 1677(7)(H).

Imports from all other sources subject to investigation remain eligible for cumulation with subject imports from China and India for purposes of our threat analysis.²⁷⁷ Thus, subject imports from South Korea, Thailand, and Taiwan are eligible for cumulation with allegedly dumped and subsidized subject imports from China and India for purposes of our threat of material injury analysis.²⁷⁸

Petitioners contends that, given the reasonable overlap of competition between the subject imports and domestically produced epoxy resins during the POI, the Commission should exercise its discretion and cumulate subject imports from China, India, South Korea, Taiwan, and Thailand for purposes of threat.²⁷⁹

For the purposes of the preliminary phase of these investigations, respondents have not raised any arguments concerning cumulation for the assessment of threat.

We previously found in Section VI.B. that the petitions for all investigations were filed on the same day and that there is a reasonable overlap of competition between and among subject imports from South Korea, Taiwan, and Thailand and the domestic like product. Specifically, we found that subject imports from South Korea, Taiwan, and Thailand were fungible based in part on a majority or plurality of market participant responses indicating that subject imports from these sources were always or frequently interchangeable with each other and the domestic like product. We also observed that subject imports from South Korea, Taiwan, and Thailand and the domestic like product largely shared an overlap in U.S. shipments in terms of epoxy resin type and form.

We also found that that imports from each of these subject countries and the domestic like product were sold in overlapping channels of distribution, geographic markets, and were simultaneously present in the U.S. market during the POI. The inclusion of data concerning subject imports from China and India does not materially change this analysis.

Fungibility. With respect to fungibility, majorities of U.S. producers reported that subject imports from China and India were always interchangeable with subject imports from each other source and the domestic like product.²⁸⁰ Similarly, pluralities of U.S. importers reported that subject imports from China and India were always or frequently interchangeable in these same comparisons.²⁸¹

²⁷⁷ See 19 U.S.C. § 1677(7)(G)(ii), (7)(H).

²⁷⁸ See 19 U.S.C. § 1677(7)(H); see generally *Cold-Rolled Steel Flat Products from Brazil, India, Korea, Russia, and the United Kingdom*, Inv. Nos. 701-TA-540, 542-544 and 731-TA-1283, 1285, 1287, and 1289-1290 (Final), USITC Pub. 4637 (Sept. 2016) at 24.

²⁷⁹ Petitioners' Post Conf. Br. at 43.

²⁸⁰ CR/PR Table II-7; *** U.S. Producer Questionnaire at IV-20.

²⁸¹ CR/PR Table II-8.

U.S. shipments of epoxy resins from China and India also share a substantial degree of overlap in terms of product group and form in 2023. While there were *** U.S. shipments of subject imports from India in solid form, there were shipments of *** product groups in *** form in 2023.²⁸² While U.S. shipments of subject imports from China did not include any *** products, they did include shipments of *** products in *** and smaller volumes of *** products in ***.²⁸³ Also, U.S. shipments of subject imports from China were *** concentrated in *** products, consistent with subject imports from South Korea, Taiwan, and Thailand as well as the domestic like product.²⁸⁴ Thus, the record indicates that subject imports from all five sources and the domestic like product are fungible.

Channels of Distribution. The record also shows that subject imports from China and India share overlapping channels of distribution with subject imports from South Korea, Taiwan, and Thailand and the domestic like product. Indeed, subject imports from China and India were sold in all three channels of distribution during each year of the POI in varying proportions, including to ***.²⁸⁵

Geographic Overlap. Subject imports from China and India were both sold in all geographic markets of the contiguous United States alongside subject imports from each other source and the domestic product.²⁸⁶ Moreover, subject imports from China and India entered into the U.S. market from all four borders of entry, as was the case for subject imports from each other source.²⁸⁷ Thus, the record indicates that subject imports from China and India were sold in overlapping geographic regions of the United States with subject imports from South Korea, Taiwan, and Thailand, and the domestic like product.

Simultaneous Presence in Market. Based on official Commerce import statistics, subject imports from all five sources were present in the U.S. market during each of the 36 months of the POI.²⁸⁸

Based on the factors discussed above, we find that there exists a reasonable overlap of competition between and among subject imports from all five countries and the domestic like

²⁸² CR/PR Table E-3. The *** of these shipments were concentrated in product groups ***. *Id.*

²⁸³ CR/PR Table E-2.

²⁸⁴ CR/PR Table E-2. *** of U.S. shipments of subject imports from China group 1 products in 2023. *Id.*

²⁸⁵ CR/PR Table II-2. Subject imports from China were primarily sold to *** in 2021 and to *** for the remainder of the POI, while subject imports from India were primarily sold to *** during each year of the POI. *Id.*

²⁸⁶ CR/PR Table II-3. Subject imports from China were the only subject product reportedly sold in the *** region of the United States.

²⁸⁷ CR/PR Table IV-9.

²⁸⁸ CR/PR Table V-10.

product. There is also no information on the record to suggest that the reasonable overlap of competition between and among subject imports, including allegedly dumped and subsidized imports from China and India, and the domestic like product that now exists will not continue into the imminent future. We do not find differences in the likely conditions of competition among subject imports from the five countries that would warrant not using our discretion to cumulate, and no party has argued that we should not use our discretion to cumulate subject imports from China and India or advanced any reason to not do so.²⁸⁹ Accordingly, we exercise our discretion to cumulate subject imports from these sources for purposes of our analysis of whether there exists a reasonable indication of threat of material injury.

C. Analysis of Threat of Material Injury Factors

1. Likely Volume

We found in Section VII.C. above, that the volume of cumulated subject imports from South Korea, Taiwan, and Thailand is significant in absolute terms and relative to consumption in the United States. We also found that the increase in volume of cumulated subject imports relative to consumption in the United States, is significant. We note that the cumulative subject import volume from all five countries increased relative to consumption by *** percentage points from 2021 to 2023.²⁹⁰

The record indicates that subject imports from these five countries are likely to maintain a significant presence in the U.S. market and substantially increase relative to apparent U.S. consumption in the imminent future in the absence of relief. Responding subject producers cumulatively increased their capacity during the POI and possessed substantial excess capacity in 2023. During the 2021–2023 period, responding foreign producers in the five subject countries increased practical epoxy resins capacity from 2.6 billion pounds in 2021 to 2.7 billion pounds in 2022 and 2.8 billion pounds in 2023.²⁹¹ Because their production was relatively stable during the POI, subject producers' capacity utilization declined substantially, from 78.4

²⁸⁹ While subject imports from several countries, especially subject imports from China, exhibited differences in import volume and underselling trends during the POI, this may reflect incomplete coverage of imports by the Commission's importer questionnaire responses. We will further investigate any differences in conditions of competition relevant to our cumulation analysis in any final phase of these investigations.

²⁹⁰ CR/PR Table C-2.

²⁹¹ CR/PR Table VII-9. The cumulated production capacity of the responding subject foreign producers is large, equivalent to approximately *** times domestic capacity, and increased year-on-year through the POI. *Calculated from* CR/PR Table VII-9 & Table C-2.

percent in 2021 to 72.1 percent in 2022 and 71.4 percent in 2023.²⁹² Their excess capacity was equivalent to *** percent of apparent U.S. consumption in 2023.²⁹³ Responding subject producers' capacity is projected to increase to 3.2 billion pounds by 2025 while their capacity utilization is projected to rise to 73.1 percent.

Cumulated subject producers from these five countries also possessed large and increasing end-of-period inventories with which they could increase their exports to the U.S. market. End-of-period inventories held by the subject producers increased from 181.4 million pounds in 2021 to 183.5 million pounds in 2023, equivalent to *** percent of apparent U.S. consumption that year, and are projected to increase to 189.2 million pounds by 2025.²⁹⁴

Subject producers in China, India, South Korea, Taiwan, and Thailand collectively exported large volumes of subject imports during the POI that accounted for nearly half of their total shipments, and increasingly targeted the U.S. market as an export destination.²⁹⁵ The subject producers' total export shipments to the United States increased from 168.6 million pounds in 2021, accounting for 8.4 percent of their total shipments, to 209.5 million pounds in 2023, accounting for 10.3 percent of their total shipments.²⁹⁶

In light of the significant volume and market share of cumulated subject imports during the POI, the large and increasing capacity of the five subject industries, including substantial excess capacity, the subject foreign producers' large inventories, and the subject foreign producers' demonstrated ability to supply export markets generally and the United States in particular, we find a reasonable indication that in the absence of relief, cumulated subject imports are likely to remain significant and substantially increase relative to apparent U.S. consumption, as occurred during the POI, in the imminent future.

2. Likely Price Effects

As discussed in Section VII.B.3 above, we have found at least a moderate-to-high degree of substitutability between domestically produced epoxy resins and subject imports, and that price is an important consideration in purchasing decisions.

²⁹² CR/PR Table VII-9.

²⁹³ Calculated from CR/PR Tables VII-9 and C-2.

²⁹⁴ CR/PR Table VII-9. Two foreign producers reported the ability to shift production from other products to epoxy resins. CR/PR at II-4.

²⁹⁵ CR/PR at Table VII-9. As a share of total shipments, cumulated foreign producers' exports to the U.S. market increased from *** percent in 2021 to *** percent in 2023.

²⁹⁶ CR/PR Table VII-9. While there are no trade measures currently in place on epoxy resins, ***, Petitioners' Post Conf. Br. at Exh. 8, ***. Likewise, Grasim argued that the Indian producers have ***. Grasim Confidential Post Con. Br. at 15 (*citing* Ex. 6, Email ***).

As discussed in Section VII.D above, we have found that subject imports from South Korea, Taiwan, and Thailand undersold the domestic like product to a significant degree during the POI. Similarly, the pricing data with respect to the five cumulated sources of subject imports show underselling by subject imports in 57.9 percent of quarterly comparisons, at margins ranging from *** to *** percent and averaging *** percent.²⁹⁷ There were *** pounds of subject epoxy resins (81.3 percent of volume) in the quarters with underselling compared to *** million pounds (18.7 percent of volume) in the quarters with overselling.²⁹⁸

Given the at least moderate-to-high degree of substitutability between domestic and subject epoxy resins and the importance of price to purchasing decisions, the significant volumes of cumulated subject imports that are likely to enter the U.S. market in the imminent future absent relief will likely continue to undersell the domestic like product to a significant degree. The likely low prices of the cumulated subject imports, in turn, are likely to either increase demand for cumulated subject imports, causing an additional shift in market share from the domestic industry to cumulated subject imports, or significantly depress or suppress prices for domestically produced epoxy resins. Accordingly, we find that significant subject import underselling is likely to continue in the imminent future, likely having significant price effects.

3. Likely Impact²⁹⁹

We found in Section VII.E. above that the significant volumes of low-priced cumulated subject imports from South Korea, Taiwan, and Thailand had a significant impact on the domestic industry during the POI. In our threat analysis, we have found that cumulated subject imports are likely to continue to enter the U.S. market in significant volumes and to engage in significant underselling of the domestic like product in the imminent future. We conclude that

²⁹⁷ CR/PR Table V-12.

²⁹⁸ CR/PR Table V-12. Five purchasers reported that domestic producers reduced prices by an average of *** percent to compete with subject imports from China and one reported that domestic producers reduced prices to compete with subject imports from India but did not report the magnitude of the price reductions. CR/PR Table V-18.

²⁹⁹ Commerce has initiated countervailing duty investigations on 16 alleged subsidy programs in China, 15 alleged subsidy programs in India, 32 alleged subsidy programs in South Korea, and 22 alleged subsidy programs in Taiwan. *Department of Commerce Countervailing Duty Investigation Initiation Checklist, Epoxy Resins from China*, Apr. 23, 2024, at 6–15; *Department of Commerce Countervailing Duty Investigation Initiation Checklist, Epoxy Resins from India*, Apr. 23, 2024, at 6–14; *Department of Commerce Countervailing Duty Investigation Initiation Checklist, Epoxy Resins from South Korea*, Apr. 23, 2024, at 6–20; *Department of Commerce Countervailing Duty Investigation Initiation Checklist, Epoxy Resins from Taiwan*, Apr. 23, 2024, at 6–16.

cumulated subject imports from all five countries will likely have the same type of adverse impact on the domestic industry in the imminent future that the subject imports from three countries did during the POI. As noted above, the domestic industry's output and financial indicators significantly declined in 2023 (as did apparent U.S. consumption), indicating potential vulnerability to increased volumes of low-priced subject imports. The significant volumes of low-priced subject imports will likely continue to displace sales of the domestic like product from the U.S. market and/or depress (or possibly suppress) domestic prices, causing the domestic industry to lose market share or revenue and leading to adverse effects on the domestic industry's production, U.S. shipments, revenues, and financial performance.

In Section VII.E above, we considered other factors, including demand and nonsubject imports, and concluded that any injury that may be attributable to these factors is distinct from the injury attributable to cumulated subject imports. This analysis is equally pertinent to likely conditions in the imminent future. We therefore find that further subject imports are imminent and that material injury by reason of cumulated subject imports would occur unless antidumping and countervailing duty orders are issued. Accordingly, we find a reasonable indication that the domestic industry is threatened with material injury by reason of cumulated imports of epoxy resins from China and India subject to the antidumping and countervailing duty investigations.

IX. Conclusion

For the reasons stated above, we determine that there is a reasonable indication that an industry in the United States is materially injured by reason of imports of epoxy resins from South Korea, Taiwan, and Thailand that are allegedly sold in the United States at LTFV and imports of epoxy resins from South Korea and Taiwan that are allegedly subsidized by the governments of South Korea and Taiwan. We also find that there is a reasonable indication that an industry in the United States is threatened with material injury by reason of imports of epoxy resins from China and India that are allegedly sold in the United States at LTFV and imports of epoxy resins from China and India that are allegedly subsidized by the governments of China and India.

Part I: Introduction

Background

These investigations result from petitions filed on April 3, 2024 with the U.S. Department of Commerce (“Commerce”) and the U.S. International Trade Commission (“USITC” or “Commission”) by the U.S. Epoxy Resin Producers Ad Hoc Coalition,¹ alleging that an industry in the United States is materially injured and threatened with material injury by reason of subsidized imports of epoxy resins from China, India, South Korea, and Taiwan and less-than-fair-value (“LTFV”) imports of epoxy resins from China, India, South Korea, Taiwan, and Thailand.² Table I-1 presents information relating to the background of these investigations.^{3 4}

Table I-1
Epoxy resins: Information relating to the background and schedule of this proceeding

Effective date	Action
April 3, 2024	Petitions filed with Commerce and the Commission; institution of the Commission’s countervailing and antidumping duty investigations (89 FR 24860, April 9, 2024)
April 23, 2024	Commerce’s initiation of countervailing and antidumping duty investigations (89 FR 33319 and 89 FR 33324, April 29, 2024)
April 24, 2024	Commission’s conference
May 17, 2024	Commission’s vote
May 20, 2024	Commission’s determinations
May 28, 2024	Commission’s views

¹ The coalition is comprised of domestic epoxy resins producers Olin Corp., Clayton, Missouri, and Westlake Corp., Houston, Texas.

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

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

⁴ A list of witnesses appearing at the conference is presented in appendix B of this report.

Statutory criteria

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

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

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

In evaluating the volume of imports of merchandise, the Commission shall consider whether the volume of imports of the merchandise, or any increase in that volume, either in absolute terms or relative to production or consumption in the United States is significant. . . In evaluating the effect of imports of such merchandise on prices, the Commission shall consider whether. . . (I) there has been significant price underselling by the imported merchandise as compared with the price of domestic like products of the United States, and (II) the effect of imports of such merchandise otherwise depresses prices to a significant degree or prevents price increases, which otherwise would have occurred, to a significant degree. . . In examining the impact required to be considered under subparagraph (B)(i)(III), the Commission shall evaluate (within the context of the business cycle and conditions of competition that are distinctive to the affected industry) all relevant economic factors which have a bearing on the state of the industry in the United States, including, but not limited to. . . (I) actual and potential decline in output, sales, market share, gross profits, operating profits, net profits, ability to service debt, productivity, return on investments, return on assets, and utilization of capacity, (II) factors affecting domestic prices, (III) actual and potential negative effects on cash flow, inventories, employment, wages, growth, ability to raise capital, and investment, (IV) actual and potential negative effects on the existing development and production efforts of the domestic industry, including efforts to develop a derivative or more advanced version of the domestic like product, and (V) in {an antidumping investigation}, the magnitude of the margin of dumping.

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

In addition, Section 771(7)(J) of the Act (19 U.S.C. § 1677(7)(J)) provides that—⁶

(J) EFFECT OF PROFITABILITY.—The Commission may not determine that there is no material injury or threat of material injury to an industry in the United States merely because that industry is profitable or because the performance of that industry has recently improved.

Organization of report

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

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

Market summary

Epoxy resins are a class of thermosetting resins that, when reacted with a hardener or curing agent, form a strong, durable substance used in a vast array of commercial and industrial applications including protective coatings (e.g., power coatings, marine finishes, and can interiors), construction (e.g., industrial and commercial flooring and paving), composites (e.g., turbine blades, automotive and aerospace parts), electronics (e.g., printed circuit boards), and adhesives (e.g., plastic-to-plastic and plastic-to-metal bonding in furniture and appliance manufacturing).⁷

The leading U.S. producers of epoxy resins are Olin Corp. (“Olin”) and Westlake Corp. (“Westlake”).⁸ The leading producers of epoxy resins outside the United States include ***.⁹ The leading U.S. importers of epoxy resins include ***. U.S. purchasers are firms that formulate epoxy resins into downstream products.

Apparent U.S. consumption of epoxy resins totaled approximately *** pounds (\$***) in 2023. U.S. producers’ U.S. shipments of epoxy resins totaled *** pounds (\$***) in 2023, and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value. U.S. imports from subject sources totaled 201.2 million pounds (\$340.0 million) in 2023 and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value. U.S. imports from nonsubject sources totaled 70.6 million pounds (\$301.7 million) in 2023 and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value.

⁷ Petitions, Vol. I, pp. 2–4, 9–10 and exh. I-7.

⁸ Petitions, Vol. I, p. 3.

⁹ Petitions, Vol. I, exh. I-7.

Summary data and data sources

A summary of data collected in these investigations is presented in appendix C, table C-1 and table C-2. Except as noted, U.S. industry data are based on the questionnaire response of two firms that accounted for the vast majority of U.S. production of epoxy resins in 2023. U.S. imports are based on adjusted official U.S. imports statistics and the questionnaire response of 29 firms, which accounted for the majority of epoxy resins imports from subject and nonsubject sources in 2023. U.S. purchaser data are based on the questionnaire response of 26 firms which responded to the Commission's lost sales and lost revenue survey. Foreign producer/exporter data are based on the questionnaire response of 11 firms, which provide information on their epoxy resin operations in China, India, South Korea, Taiwan, and Thailand.

Previous and related investigations

Epoxy resins have not been the subject of any prior related antidumping or countervailing duty investigations in the United States.¹⁰

¹⁰ The Commission, however, has conducted antidumping and countervailing duty investigations on products that contain epoxy resins. See *Steel Wire Garment Hangers from Taiwan*, Inv. No. 731-TA-1197 (Final), USITC Publication 4363 (November 2012), pp. 5, I-6–I-11, and IV-10; *Cast Iron Soil Pipe Fittings from China*, Inv. Nos. 701-TA-583 and 731-TA-1381 (Final), USITC Publication 4812 (August 2018), pp. 24, I-10–I-13, and V-9; *Cast Iron Soil Pipe from China*, Inv. Nos. 701-TA-597 and 731-TA-1407 (Final), USITC Publication 4879 (April 2019), pp. 17, I-10–I-14, and V-10; *Steel Racks from China*, Inv. Nos. 701-TA-608 and 731-TA-1420 (Final), USITC Publication 4951 (September 2019), pp. 7, I-10, III-4–III-5, and IV-4; *Acrylonitrile-Butadiene Rubber (NBR) from France, Mexico, and South Korea*, Inv. Nos. 731-TA-1567-1569 (Final), USITC Publication 5336 (August 2022), pp. 6, I-7, and I-10; *Prestressed Concrete Steel Wire Strand from Argentina, Colombia, Egypt, the Netherlands, Saudi Arabia, Taiwan, Turkey, and the United Arab Emirates*, Inv. Nos. 701-TA-646 and 731-TA-1502-1504, 1508-1509, 1512, 1514, and 1516 (Final), USITC Publication 5153 (January 2021), pp. I-15, I-16, and V-1.

Nature and extent of alleged subsidies and sales at LTFV

Alleged subsidies

On April 29, 2024, Commerce published a notice in the Federal Register of the initiation of its countervailing duty investigations on epoxy resins from China, India, South Korea, and Taiwan.¹¹

Alleged sales at LTFV

On April 29, 2024, Commerce published a notice in the Federal Register of the initiation of its antidumping duty investigation on epoxy resins from China, India, South Korea, Taiwan, and Thailand.¹² Commerce's estimated dumping margins for epoxy resins for each of the countries covered by the initiation are as follows:

- China—266.37 to 354.99 percent;
- India—9.92 to 15.68 percent;
- South Korea—35.29 to 57.38 percent;
- Taiwan—91.15 to 139.29 percent; and
- Thailand—143.73 to 176.34 percent.

¹¹ For further information on the alleged subsidy programs see Commerce's notice of initiation and related CVD Initiation Checklists. 89 FR 33319, April 29, 2024.

¹² 89 FR 33324, April 29, 2024.

The subject merchandise

Commerce's scope

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

The merchandise subject to these investigations are fully or partially uncured epoxy resins, also known as epoxide resins, polyepoxides, oxirane resins, ethoxyline resins, diglycidyl ether of bisphenol, (chloromethyl)oxirane, or aromatic diglycidyl, which are polymers or prepolymers containing epoxy groups (i.e., three-membered ring structures comprised of two carbon atoms and one oxygen atom). Epoxy resins range in physical form from low viscosity liquids to solids. All epoxy resins are covered by the scope of these investigations irrespective of physical form, viscosity, grade, purity, molecular weight, or molecular structure, and packaging.

Epoxy resins may contain modifiers or additives, such as hardeners, curatives, colorants, pigments, diluents, solvents, thickeners, fillers, plasticizers, softeners, flame retardants, toughening agents, catalysts, Bisphenol F, and ultraviolet light inhibitors, so long as the modifier or additive has not chemically reacted so as to cure the epoxy resin or convert it into a different product no longer containing epoxy groups. Such epoxy resins with modifiers or additives are included in the scope where the epoxy resin component comprises no less than 30 percent of the total weight of the product. The scope also includes blends of epoxy resins with different types of epoxy resins, with or without the inclusion of modifiers and additives, so long as the combined epoxy resin component comprises at least 30 percent of the total weight of the blend.

Epoxy resins that enter as part of a system or kit with separately packaged co-reactants, such as hardeners or curing agents, are within the scope. The scope does not include any separately packaged co-reactants that would not fall within the scope if entered on their own.

The scope includes merchandise matching the above description that has been processed in a third country, including by commingling, diluting, introducing, or removing modifiers or additives, or performing any other processing that would not otherwise remove the merchandise from the scope of the investigations if performed in the subject country.

The scope also includes epoxy resin that is commingled or blended with epoxy resin from sources not subject to these investigations. Only the subject component of such commingled products is covered by the scope of these investigations.

Excluded from the scope are phenoxy resins, which are polymers with a weight greater than 11,000 Daltons, a Melt Flow Index (MFI) at 200 °C (392 °F) no less than 4 grams and no greater than 70 grams per 10 min, Glass-Transition Temperatures (T_g) no less than 80 °C (176 °F) and no greater than 100 °C (212 °F), and which contain no epoxy groups other than at the terminal ends of the molecule.

Excluded from the scope are certain paint and coating products, which are blends, mixtures, or other formulations of epoxy resin, curing agent, and pigment, in any form, packaged in one or more containers, wherein (1) the pigment represents a minimum of 10 percent of the total weight of the product, (2) the epoxy resin represents a maximum of 80 percent of the total weight of the product, and (3) the curing agent represents 5 to 40 percent of the total weight of the product.

Excluded from the scope are preimpregnated fabrics or fibers, often referred to as “pre-pregs,” which are composite materials consisting of fabrics or fibers (typically carbon or glass) impregnated with epoxy resin.¹³

¹³ 89 FR 33319, April 29, 2024 and 89 FR 33324, April 29, 2024.

Tariff treatment

Based upon the scope set forth by Commerce, information available to the Commission indicates that the merchandise subject to these investigations are imported under statistical reporting number 3907.30.0000 of the Harmonized Tariff Schedule of the United States (“HTS”). Subject merchandise may also be imported under statistical reporting numbers 1518.00.4000, 2910.90.2000, 2910.90.9100, 3214.10.0020, 3824.99.9397, and 3907.29.0000 of the HTS. The 2024 general rate of duty is 3.7 percent ad valorem for HTS subheading 3214.10.00, 4.8 percent ad valorem for HTS subheading 2910.90.91, 5 percent ad valorem for HTS subheading 3824.99.93, 5.5 percent ad valorem for HTS subheading 2910.90.20, 6.1 percent ad valorem for HTS subheading 3907.30.00, 6.5 percent ad valorem for HTS subheading 3907.29.00, and 8 percent ad valorem for HTS subheading 1518.00.40.¹⁴ Decisions on the tariff classification and treatment of imported goods are within the authority of U.S. Customs and Border Protection.

Section 301 Tariffs

Effective August 23, 2018, merchandise imported under HTS statistical reporting numbers 3907.29.0000 and 3907.30.0000 originating in China became subject to an additional 25 percent ad valorem duty under Section 301 of the Trade Act of 1974 (“Section 301”) under heading 9903.88.02.¹⁵

In 2019, merchandise imported under HTS statistical reporting numbers 2910.90.2000, 2910.90.9100, 3214.10.0020, 3824.99.9397 originating in China became subject to an additional 25 percent ad valorem duty under Section 301 under heading 9903.88.03.¹⁶

Effective September 1, 2019, merchandise imported under HTS statistical reporting number 1518.00.4000 originating in China became subject additional duties, currently 7.5 percent ad valorem under Section 301 under heading 9903.88.15.¹⁷

¹⁴ USITC, HTSUS (2024) Revision 1, USITC Pub. 5491, January 2024.

¹⁵ 83 FR 40823; HTSUS (2024), Revision 1, USITC Pub. 5491, January 2024, Chapter 99, as provided for in U.S. Note 20(c) to subchapter III and provided for in the subheadings enumerated in U.S. Note and 20(d), pp. 99-III-24 – 99-III-27.

¹⁶ Effective September 24, 2018, the additional duty rate was 10 percent ad valorem and on January 1, 2019, the rate was increased to 25 percent ad valorem. 83 FR 47974, September 21, 2018. See also HTS heading 9903.88.03 and U.S. notes 20(e) and 20(f) to subchapter III of chapter 99 and related tariff provisions for this duty treatment. USITC, HTSUS (2024) Revision 1, USITC Pub. 5491, January 2024, pp. 99-III-27 – 99-III-51.

The product

Description and applications

Epoxy resins are a diverse class of prepolymers and polymers featuring epoxy groups.¹⁸ The epoxy groups are highly reactive, and the resins do not become inactive until they are reacted with a curing agent. Curing agents can also be called curatives, hardeners, or cross-linking agents. The interaction with the curing agent is the curing process, and hundreds of chemicals can be used.¹⁹ In their cured form, epoxy resins possess the following properties: strong adhesion, excellent resistance to corrosion and chemicals, high mechanical strength, and excellent properties for insulation applications. As an example of the high mechanical strength, in their cured form, epoxy resins will adhere to most materials, including metals, concrete and glass.²⁰

Leading applications

The leading applications for epoxy resins are:

Coatings

Protective coatings have traditionally been the largest market for epoxy resins. The major coating segments for this application include powder coatings, industrial maintenance and marine finishes, automotive primers, beverage, beer, and food can interiors, machinery and equipment, appliances, and surface industrial coatings.

Construction

Epoxy resins are used in flooring, paving, and construction, primarily in industrial and commercial flooring applications.

(...continued)

¹⁷ Section 301 duties under heading 9903.88.15 became effective on September 1, 2019, and were modified on February 14, 2020. 84 FR 43304, 43304-43471; 85 FR 3741, p. 3741. HTSUS (2024), Revision 1, USITC Publication 5491, January 2024, Chapter 99, as provided for in U.S. Note 20(r) to subchapter III and provided for in the subheadings enumerated in U.S. Note and 20(s), pp. 99-III-87 – 99-III-101.

¹⁸ An epoxy group is a three-atom ring: two atoms of carbon and one atom of oxygen. Its triangular structure has substantial ring strain, making the groups highly reactive. Wikipedia, “Epoxide,” accessed May 5, 2024, <https://en.wikipedia.org/wiki/Epoxide>.

¹⁹ Petitions, Vol I., p. 8.

²⁰ Conference transcript, p. 16 (Kohl).

Composites

A composite is created when continuous, chopped, or woven fibers are embedded in a resin matrix. Epoxy-based composites are made from liquid epoxy resins and reinforcing glass, carbon, or aramid fibers. Composites have been used in military and space applications. Composites are also used in wind turbine blades, automotive and aerospace parts, pipes, tanks, snow skis, tennis racquets, fishing rods, surfboards, and golf club shafts.

Electrical and electronics laminates

Epoxy resins are used to enclose, encapsulate, or seal a device in a protective matrix. Typically, brominated epoxy resins are used in the manufacture of printed circuit boards because of its flame-retardant properties.

Adhesives

Epoxy resin adhesives are among the most widely used structural adhesives, known especially for their strong adhesion to a variety of materials. These are used in greater quantities in automotive assembly operations to bond dissimilar materials such as steel, plastics, and aluminum, which are difficult to bond with mechanical fasteners. Adhesives are also used in the aerospace segment.²¹

Types of Epoxy Resins

Epoxy resins are characterized by the epoxy groups on the chemical structure, and there are various types. Production by Olin and Westlake and representative chemical abstracts service registry numbers (“CAS”) are shown in table I-2. The following are the major types of these resins relevant to the scope:

- Bisphenol A diglycidyl ether (“BADGE”)-type resins are the most common epoxy resin is bisphenol A diglycidyl ether, also known as BADGE or DGEBA, which is formed by reacting ECH with BPA. The majority of global production, 80-85 percent, is this type of reaction.
- Brominated resins are designed for applications requiring a high degree of flammability resistance.

²¹ Petitions, Vol. I, pp. 9-10; Grasim’s postconference brief, pp. 12-14; PPG’s postconference brief, pp. 492-493 of 521 (.pdf enumeration); KBP’s postconference brief, p. 10; exhibit 2.

- Novolac resins are used in electrical laminates and encapsulations, moldings and castings and reinforced plastics requiring high chemical resistance.
- Cycloaliphatic resins feature lower viscosities, higher heat-distortion temperatures, lower conductivity, and excellent resistance to weather exposure. These resins are particularly useful for electrical applications and for composites.
- Waterborne resins use water, as opposed to solvent or other chemicals, to lower viscosity and improve application properties. These resins are useful in structural applications or as coatings.
- Multifunctional epoxies are used to produce advanced composites, adhesives, and electronic encapsulations.
- Aliphatic epoxies are mostly used as reactive diluents to modify viscosity, as flexibilizing agents to increase elongation and impact resistance or as plasticizers and stabilizers for vinyl resins.
- Glycidyl amines are used as additives in conventional epoxy resins to increase cure rates and raise glass transition temperatures. They are used in carbon-fiber reinforced composites for the aerospace industry.
- Glycidyl imides are used extensively as curing agents for polyesters powder coatings.
- Glycidyl esters are used as agents to increase flexibility in other epoxy resins.²²

²² Petitions, Vol. I, pp. 10-12.

Table I-2**Epoxy resins: Olin and Westlake's production by epoxy type, by firm and representative chemical abstracts service registry numbers**

Type	Example CAS Number	Olin Production	Westlake Production
BADGE-type resins	25068-38-6 25036-25-3 (solid)	Yes	Yes
Brominated resins	40039-93-9	Yes	Yes
Novolac resins	28064-14-4	Yes	Yes
Cycloaliphatic resins	30583-72-3	No	Yes
Waterborne resins		Yes	Yes
Multifunctional epoxies	28906-96-9 and 37382-79-9	Yes	Yes
Aliphatic epoxies	30499-70-8	Yes	Yes
Glycidyl amines	28768-32-3	No	Yes
Glycidyl imides		No	No
Glycidyl esters		No	Yes

Source: Conference transcript, pp. 123-125 (Weinmann and Espinosa); Petitioner's postconference brief, Exhibit I-17.

Note: Both firms produce Novolac, but not in the United States. CAS numbers shown represent in-scope compounds. Other examples of in-scope epoxy resins are CAS # 68609-97-2 (an example of an epoxy-functional reactive modifier), CAS # 24969-06-0 (a homopolymer of epichlorohydrin), and CAS # 9003-36-5 (an example of the Bisphenol-F diglycidyl ether or BFDGE epoxy resins).

Manufacturing processes

There are many chemical reactions that can be carried out to manufacture an epoxy resin. About 80-85 percent of reactions globally utilize the raw materials of epichlorohydrin (“ECH”) and bisphenol-A (“BPA”), as shown in figure I-1.²³ The reaction is used in manufacturing by both Olin and Westlake.²⁴

Figure I-1
Epoxy resins: Manufacturing of BADGE-type epoxy resins

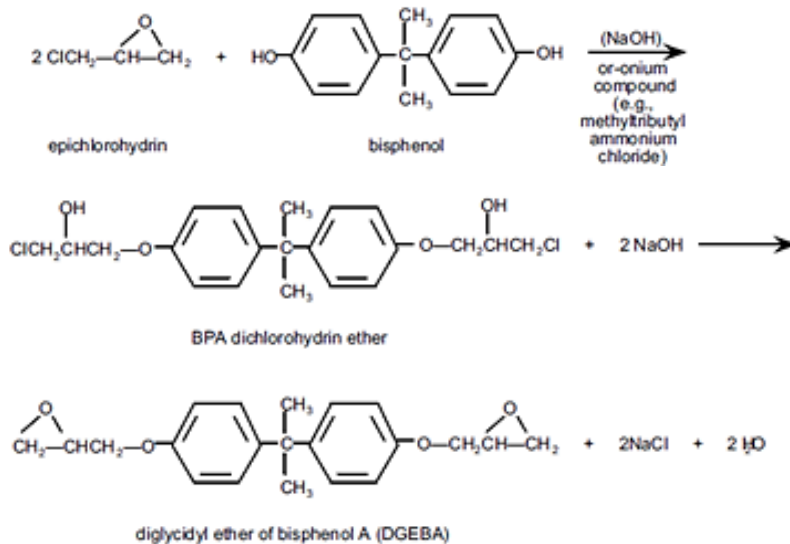
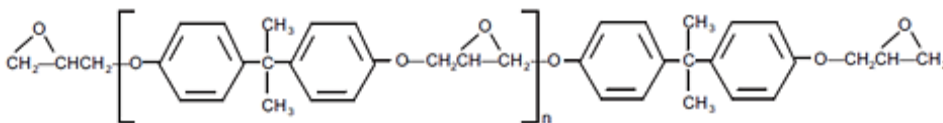


Figure continued.

²³ Petition, p. 10; Exhibit I-34 and conference transcript pp. 64 and 132 (Weinmann). There are other upstream raw materials that are common. Epichlorohydrin can be produced in two ways: from allyl chloride, obtained by the reaction of propylene and chlorine, or from allyl alcohol, obtained by the reaction of propylene and acetic acid. The production of bisphenol-A includes the raw materials phenol and acetone. (Metoree, “15 Epichlorohydrin Manufacturers in 2024,” accessed May 13, 2024, <https://us.metoree.com/categories/6187/#:~:text=Epichlorohydrin%20can%20be%20produced%20in,of%20propylene%20and%20acetic%20acid.&text=Allyl%20chloride%20is%20reacted%20with%20hypochlorous%20acid%20solution%20to%20obtain%20dichloropropanol>); Mitsubishi, “Mitsubishi Chemical Bisphenol-A Technology,” accessed May 13, 2024, https://www.m-chemical.co.jp/en/petrochem-license/technologies/pdf/Introduction_MCC_BPA_Process.pdf).

²⁴ Westlake stated that the category that accounts for most of its production, and most of its sales, is based on liquid epoxy resin, especially the conventional variety made from epichlorohydrin and bisphenol-A. Olin also manufactures its BADGE product using the same reaction. Olin has a fully integrated facility which is highly capital intensive and cost about \$8 billion. Conference transcript, p. 24 (Bellinger), 27-28 (Espinosa).

To yield the general structure of BADGE-type epoxy resins:



Source: Petitions, Vol. I, p. 10, Exhibit I-34; see also Jeffrey Groto, "The Winding Road to Renewable Thermoset Polymers Part 5: Epoxies, August 13, 2015, <https://polymerinnovationblog.com/the-winding-road-to-renewable-thermoset-polymers-part-5-epoxies/>; Polymer Science Learning Center, "Making Epoxy Resins," accessed May 13, 2024; <https://www.pslc.ws/mactest/eposyn.htm>.

Note: In the general structure, n can vary depending on the manufacturer's desired outcome. When n = 0, the compound is the same as the DGEBA compound.

The manufacture of the chemical reaction described in figure I-1 includes the following processes:

- 1) Reaction of ECH and BPA: ECH and BPA are infused into a reactor. These are melted and undergo the first stage reaction, which takes place at a constant temperature. In this first stage reaction, the epoxy radical is separated from the ECH to be attached to a hydroxyl radical from the BPA, thus producing chlorohydrin ether.
- 2) Reaction with caustic soda: A solution of 20-40 percent caustic soda is added to the reaction vessel as the chlorohydrin ether solution is brought to the boiling point. This addition causes a dechlorination reaction to occur, thus producing a terminal epoxy radical. The monoglycidyl ether BPA produced as a result continues to react with BPA and ECH and gradually forms a polymer.
- 3) Evaporation: After the polymer is produced, it is transferred through a storage tank to the ECH separation evaporator, where the ECH evaporates under a vacuum.
- 4) Separation: After the evaporation of unreacted ECH, the two phases are separated by adding an inert solvent, which is used to eliminate sodium chloride and the reaction by-product by the difference in specific gravity. The polymer with adjusted acidity is evaporated under vacuum to eliminate the solvent, thus obtaining epoxy product.
- 5) Washing: The resin is then washed with water.²⁵

²⁵ Petitions, Vol. I, pp. 12-13.

The output epoxy resin can either be a liquid, semi-solid, or solid, depending on the amount of BPA that has been added.²⁶ When manufacturing liquid epoxy resins (“LER”), Westlake’s process uses various ratios of ECH to BPA to control the molecular weight of the epoxy resin. Westlake makes several grades of LER, and each LER type (or grade) uses a different ratio of ECH to BPA.²⁷ The final epoxy resin is shipped as a liquid or solid to customers. Westlake also makes blends, which are not the use of different ratios of ECH to BPA, but rather, different epoxy resins in the same container that are preferred in customers’ downstream applications.²⁸

In subject countries, Indian firm Atul ***.²⁹ Indian firm Grasim ***.³⁰ South Korea, Taiwan, and China ***.³¹

²⁶ Petitions, Vol. I, p. 10.

²⁷ Petitioner’s postconference brief, Exhibit I-17.

²⁸ An example is a liquid epoxy resin plus a low viscosity modifier, which is another epoxy resin. It helps the liquid to be emptied from the drum container. Conference transcript, p. 99 (Weinmann).

²⁹ Atul’s postconference brief, pp. 2-3.

³⁰ Chemical Economics Handbook, Epoxy Resins, August 2021 (Revised April 2022), p. 94. Grasim’s postconference brief, Annexure I, p. 40 of 181 (.pdf enumeration).

³¹ Chemical Economics Handbook, Epoxy Resins, August 2021 (Revised April 2022), pp. 24, 71-72, 89, 92-93.

Domestic like product issues

Petitioner proposes that the Commission should find that there is one domestic like product that is coextensive with the scope.³² Respondents Huntsman Americas (“Huntsman”), Kumho P&B Chemicals, Inc. (“KBP”), and PPG Industries, Inc. (“PPG”) did not comment on the domestic like product other than to note that at this stage of the proceeding they do not contest the definition proposed by Petitioner.³³

The Commission’s decision regarding the appropriate domestic product(s) that are “like” the subject imported product is based on a number of factors including: (1) physical characteristics and uses; (2) interchangeability; (3) channels of distribution; (4) common manufacturing facilities, production processes, and production employees; (5) customer and producer perceptions; and (6) price.

In these preliminary investigations, the Commission requested U.S. producers and importers to comment on the comparability of epoxy resins that are part of a system/kit with separate co-reactant(s) to epoxy resins sold by themselves using the six like product factors. Responses provided by firms are summarized in table I-3. *** responding domestic producers reported that epoxy resins that are part of a system/kit are fully comparable to epoxy resins sold by themselves across all six domestic like product factors. In general, the majority of responding U.S. importers reported that epoxy resins that are part of a system/kit are fully or mostly comparable to epoxy resins sold by themselves across all six domestic like product factors. Appendix D contains responding firms’ narratives regarding the domestic like product factors.

³² Petitions, Vol. I, p. 17-21; Petitioner’s written testimony, April 23, 2024, PowerPoint, slide 2; Conference transcript, pp. 21-22; and Petitioner’s postconference brief, April 29, 2024, pp. 6-10.

³³ Huntsman’s postconference brief, April 29, 2024, pp. 1-4; KBP’s postconference brief, April 29, 2024, pp. 3-4; and PPG’s postconference brief, April 29, 2024, pp. 3-4. PPG noted that it reserved the right to address this issue if the Commission deems it necessary to progress this case to the final phase. PPG’s postconference brief, April 29, 2024, p. 4.

Table I-3

Epoxy resins: Count of firm's responses regarding the domestic like product factors comparing epoxy resins that are part of a system/kit with separate co-reactant(s) to epoxy resins sold by themselves

Count in number of firms reporting

Factor	Firm type	Fully	Mostly	Somewhat	Never
Physical characteristics	U.S. producers	***	***	***	***
Physical characteristics	U.S. importers	5	2	1	2
Interchangeability	U.S. producers	***	***	***	***
Interchangeability	U.S. importers	5	2	1	2
Channels	U.S. producers	***	***	***	***
Channels	U.S. importers	4	1	2	1
Manufacturing	U.S. producers	***	***	***	***
Manufacturing	U.S. importers	6	1	1	2
Perceptions	U.S. producers	***	***	***	***
Perceptions	U.S. importers	4	2	1	1
Price	U.S. producers	***	***	***	***
Price	U.S. importers	4	2	2	1

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

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

U.S. market characteristics

Epoxy resins are a thermosetting resin which becomes insoluble and infusible on heating and reacts with hardening or curing agents to form a strong durable substance used in a vast array of commercial and industrial applications.¹ Epoxy resins are used in a wide range of applications ranging from raw materials for components in automotive and aerospace manufacturing, a raw material in components used in the renewable energy sector, a raw material for components in electrical goods, a rust-avoiding coating in a wide variety of goods ranging from bridges to water tanks, a protective layer that separates food and drinks from metal containers, and a component in adhesives with industrial and commercial uses.^{2 3}

*** of the U.S. producers indicated that the market was ***, while the majority of importers reported that the market was not subject to distinctive conditions of competition. Specifically, U.S. producer *** reported that price and supply chain capabilities were distinct conditions of the epoxy resins market.⁴ Importer *** reported that global production capacity, seasonal factors, and economic factors are conditions of competition distinct to the epoxy resins market. Importer *** reported that China's dominant role in the global market can have an impact on global pricing. Importer *** reported that Olin is a price leader in the U.S. market and has been especially aggressive on pricing after the first half of 2023. Importer *** reported that the presence of a number of suppliers in the global market allows for product differentiation and differing qualifications in the epoxy resins market.

Apparent U.S. consumption of epoxy resins in terms of both quantity and value decreased during the period of investigation. Overall, apparent U.S. consumption in 2023 was *** percent lower in terms of quantity and *** percent lower in terms of value than in 2021.

¹ Petitions, Vol. I, p. 2.

² Petitions, Vol. I, pp. 2-3

³ The majority of purchasers reported that they purchased and sold epoxy resins in kits that contain both the epoxy resin and the co-reactant since January 1, 2021.

⁴ U.S. producer *** reported that unfairly traded imports are a distinct condition of competition in the epoxy resins market.

Impact of section 301 tariffs

U.S. producers and importers were asked to report the impact of section 301 tariffs on overall demand, supply, prices, or raw material costs (table II-1). *** U.S. producers reported that section 301 tariffs had an impact on the U.S. market. U.S. producer *** reported that section 301 tariffs had a limited impact on Chinese imports to the United States because Chinese-produced epoxy resins arrived in the United States through Canada and possibly through Mexico. U.S. producer *** reported that section 301 tariffs have an impact on the price of Chinese imports but have not stopped them from entering the U.S. market.

A number of importers reported that section 301 tariffs had an impact on the U.S. market. Importer *** reported that section 301 tariffs have increased raw material prices. Importer *** reported that Chinese imports were uncompetitive in the U.S. market except for periods when there were supply constraints. Importer *** reported that the additional tariffs had an impact on the variable costs of production of downstream products. Importer *** reported an increase of costs due to the section 301 tariffs. Importer *** reported that Chinese suppliers were at a disadvantage until they received government subsidies that returned them to competitiveness.

Table II-1
Epoxy resins: Count of firms' responses regarding the impact of the 301 tariffs on Chinese origin products

Firm type	Yes	No	Don't know
U.S. producers	***	***	***
Importers	9	5	12

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

Channels of distribution

U.S. producers sold mainly to *** throughout the period. Importers from China sold mainly to *** in 2021 and to *** in 2022 and 2023. Importers from South Korea, and Taiwan sold mainly to *** throughout the period, while importers from India and Thailand sold mainly to *** throughout the period.

Table II-2
Epoxy resins: Share of U.S. shipments by source, channel of distribution, and period

Shares in percent

Source	Channel	2021	2022	2023
United States	Distributors	***	***	***
United States	Processor	***	***	***
United States	End users	***	***	***
China	Distributors	***	***	***
China	Processor	***	***	***
China	End users	***	***	***
India	Distributors	***	***	***
India	Processor	***	***	***
India	End users	***	***	***
South Korea	Distributors	***	***	***
South Korea	Processor	***	***	***
South Korea	End users	***	***	***
Taiwan	Distributors	***	***	***
Taiwan	Processor	***	***	***
Taiwan	End users	***	***	***
Thailand	Distributors	***	***	***
Thailand	Processor	***	***	***
Thailand	End users	***	***	***
Subject	Distributors	***	***	***
Subject	Processor	***	***	***
Subject	End users	***	***	***
Subject less China and India	Distributors	***	***	***
Subject less China and India	Processor	***	***	***
Subject less China and India	End users	***	***	***
Nonsubject	Distributors	***	***	***
Nonsubject	Processor	***	***	***
Nonsubject	End users	***	***	***
All imports	Distributors	***	***	***
All imports	Processor	***	***	***
All imports	End users	***	***	***

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

Geographic distribution

U.S. producers and importers from China reported selling epoxy resins to all regions in the United States while importers from all other subject countries reported selling epoxy resins to all regions of the contiguous United States (table II-3). For U.S. producers, *** percent of sales were within 100 miles of their production facility, *** percent were between 101 and 1,000 miles, and *** percent were over 1,000 miles. Importers sold *** percent of their subject imports of epoxy resins within 100 miles of their U.S. point of shipment, *** percent between 101 and 1,000 miles, and *** percent over 1,000 miles.

Table II-3
Epoxy resins: Count of U.S. producers' and U.S. importers' geographic markets

Region	U.S. producers	China	India	South Korea	Taiwan	Thailand	Subject sources
Northeast	***	2	3	5	5	2	14
Midwest	***	1	4	9	6	3	18
Southeast	***	1	4	6	4	2	15
Central Southwest	***	3	3	6	5	2	14
Mountains	***	3	2	4	2	2	9
Pacific Coast	***	4	3	7	4	2	15
Other	***	1	0	0	0	0	1
All regions (except Other)	***	1	2	2	1	2	7
Reporting firms	2	4	5	11	8	3	20

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

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

Supply and demand considerations

U.S. supply

Table II-4 provides a summary of the supply factors regarding epoxy resins from U.S. producers and from subject countries.

Table II-4
Epoxy resins: Supply factors that affect the ability to increase shipments to the U.S. market, by country

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

Factor	Measure	United States	China	India	South Korea	Taiwan	Thailand	Subject sources
Capacity 2021	Quantity	***	***	***	***	***	***	***
Capacity 2023	Quantity	***	***	***	***	***	***	***
Capacity utilization 2021	Ratio	***	***	***	***	***	***	***
Capacity utilization 2023	Ratio	***	***	***	***	***	***	***
Inventories to total shipments 2021	Ratio	***	***	***	***	***	***	***
Inventories to total shipments 2023	Ratio	***	***	***	***	***	***	***
Home market shipments 2023	Share	***	***	***	***	***	***	***
Non-US export market shipments 2023	Share	***	***	***	***	***	***	***
Ability to shift production	Count	***	***	***	***	***	***	***

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

Note: Responding U.S. producers accounted for the vast majority of U.S. production of epoxy resins in 2023. Responding foreign producer/exporter firms accounted for over 75.0 percent of U.S. imports of epoxy resins from subject countries during 2023. For additional data on the number of responding firms and their share of U.S. production and of U.S. imports from each subject country, please refer to Part I, "Summary Data and Data Sources."

Domestic production

Based on available information, U.S. producers of epoxy resins have the ability to respond to changes in demand with large changes in the quantity of shipments of U.S.-produced epoxy resins to the U.S. market. The main contributing factors to this degree of responsiveness of supply are the availability of unused capacity, available inventories, and ability to shift shipments from alternate markets. Factors mitigating the responsiveness of supply include a limited ability to shift production to or from alternate products.

U.S. producers reported decreased production and production capacity from 2021 to 2023. Production decreased more than production capacity leading to a decrease in capacity utilization over the period. U.S. producers' inventories increased from 2021 to 2023, growing to just under *** of total shipments in 2023. U.S. producers reported selling just under *** of total shipments in markets other than the United States in 2023. *** U.S. producer (***) reported that it was able to produce other products on the same equipment used to produce epoxy resins. U.S. producer *** reported that it would be able to shift approximately *** of production capacity to or from epoxy resins but that this was a small portion of its total epoxy resins' capacity.

Subject imports from China

Based on available information, producers of epoxy resins from China have the ability to respond to changes in demand with large changes in the quantity of shipments of epoxy resins to the U.S. market. The main contributing factors to this degree of responsiveness of supply are the availability of unused capacity, available inventories, and ability to shift shipments from alternate markets. Factors mitigating the responsiveness of supply include a limited ability to shift production to or from alternate products.

Chinese producers increased production capacity while decreasing production, leading to a decrease in capacity utilization from 2021 to 2023. Chinese producers' inventories as a share of commercial shipments remained constant over the period. Chinese producers reported selling the vast majority of total shipments in their home market and just over *** of their total shipments to markets other than the United States in 2023. *** responding Chinese producer reported that it was able to produce other products on the same equipment used to produce epoxy resins. Foreign producer *** reported that it was able to produce hardeners and benzoxazines on the same equipment used to produce epoxy resins.

Subject imports from India

Based on available information, producers of epoxy resins from India have the ability to respond to changes in demand with moderate changes in the quantity of shipments of epoxy resins to the U.S. market. The main contributing factors to this degree of responsiveness of supply are the availability of some unused capacity, some available inventories, and the ability to shift shipments from alternate markets. Factors mitigating the responsiveness of supply include an inability to shift production to or from alternate products.

Indian producers reported increased production and production capacity from 2021 to 2023. Production increased more than production capacity, leading to an increase in capacity utilization from 2021 to 2023. Indian producers' inventories as a share of commercial shipments remained largely constant over the period at just over *** percent of total shipments in all years. Indian producers reported selling the vast majority of total shipments in their home market and just over *** of their total shipments to markets other than the United States in 2023. *** of the responding Indian producers reported that they were able to produce other products on the same equipment used to produce epoxy resins.

Subject imports from South Korea

Based on available information, producers of epoxy resins from South Korea have the ability to respond to changes in demand with moderate-to-large changes in the quantity of shipments of epoxy resins to the U.S. market. The main contributing factors to this degree of responsiveness of supply are some unused capacity, some available inventories, and the ability to shift shipments from alternate markets. Factors mitigating the responsiveness of supply include an inability to shift production to or from alternate products.

South Korean producers reported increased production capacity while decreasing production leading to a decrease in capacity utilization from 2021 to 2023. South Korean producers' inventories as a share of commercial shipments remained largely constant over the period. South Korean producers reported selling over *** of total shipments in their home market and markets other than the United States in 2023. *** of the responding South Korean producers reported that they were able to produce other products on the same equipment used to produce epoxy resins.

Subject imports from Taiwan

Based on available information, producers of epoxy resins from Taiwan have the ability to respond to changes in demand with moderate-to-large changes in the quantity of shipments

of epoxy resins to the U.S. market. The main contributing factors to this degree of responsiveness of supply are some unused capacity, some available inventories, and ability to shift shipments from alternate markets. Factors mitigating the responsiveness of supply include an inability to shift production to or from alternate products.

The sole responding producer from Taiwan reported decreasing production and production capacity from 2021 to 2023. Production decreased more than production capacity leading to a decrease in capacity utilization from 2021 to 2023. The Taiwanese producer's inventories as a share of commercial shipments remained largely constant over the period. The Taiwanese producer reported selling just under *** of its total shipments in its home market and just under *** of total shipments to markets other than the United States in 2023. The sole responding Taiwanese producer reported that it was *** to produce other products on the same equipment used to produce epoxy resins.

Subject imports from Thailand

Based on available information, producers of epoxy resins from Thailand have the ability to respond to changes in demand with moderate changes in the quantity of shipments of epoxy resins to the U.S. market. The main contributing factors to this degree of responsiveness of supply are the availability of some unused capacity, some available inventories, and the ability to shift shipments from alternate markets. Factors mitigating the responsiveness of supply include an inability to shift production to or from alternate products.

The sole responding Thai producer reported constant production capacity and increased production that led to an increase in capacity utilization from 2021 to 2023. The Thai producer's inventory increased slightly over the period but remained below *** percent of total shipments throughout the period. The Thai producer reported selling just over *** in its home market and just over *** of total shipments to markets other than the United States in 2023. The sole responding Thai producer reported that it was *** to produce other products on the same equipment used to produce epoxy resins.

Imports from nonsubject sources

Nonsubject imports accounted for 48.4 percent of total U.S. imports in 2023. The largest source of nonsubject imports in 2023 was Germany which accounted for 30.2 percent of nonsubject imports in the same year.

Supply constraints

*** U.S. producers reported that they had experienced supply constraints since January 1, 2021. U.S. producer *** reported that it placed customers on allocation in the aftermath of a freeze in February 2021 and that these conditions were a force majeure event that constrained its ability to supply epoxy resins to the market for five months. U.S. producer *** reported that its production facility was impacted by Winter Storm Uri and this resulted in a 60-day force majeure production outage. Sixteen of 23 responding importers reported that they had experienced supply constraints in the same period. Responding importers generally reported supply constraints due to logistical disruptions caused by the COVID-19 pandemic and supply constraints caused by Winter Storm Uri. Additionally, importer *** reported supply constraints from South Korean producers due to capacity constraints.

U.S. demand

Based on available information, the overall demand for epoxy resins is likely to experience small-to-moderate changes in response to changes in price. The main contributing factors are the lack of substitute products and the varying cost share of epoxy resins in most of its end-use products.

End uses and cost share

U.S. demand for epoxy resins depends on the demand for U.S.-produced downstream products. Reported end uses include a wide variety of goods. Epoxy resins account for a wide range of the share of the cost of end-use products in which they are used. Reported cost shares for some end uses were as follows:

- Tile grout ***
- Coatings ***
- Wind turbine blades ***
- Civil engineering or construction projects ***
- Automotive coatings ***
- Adhesives ***
- Modified epoxy resins ***

Business cycles

*** U.S. producers and the majority of importers indicated that the market was subject to business cycles specific to the epoxy resins market. Specifically, U.S. producer *** reported that an estimated 30 percent of its business is seasonal due to demand created by the construction sector. U.S. producer *** reported that demand for epoxy resins is driven by the construction sector and demands slows on an annual basis due to construction projects slowing in the winter and as part of a larger cycle as the number of construction projects fluctuate with the economy.

Demand trends

*** responding U.S. producers reported that domestic demand for epoxy resins *** since January 1, 2021. U.S. producers reported that foreign demand for epoxy resins *** since January 1, 2021. The majority of importers reported that domestic demand for epoxy resins steadily increased or fluctuated up, while importer responses were mixed on foreign demand since January 1, 2021 (table II-5).

Table II-5

Epoxy resins: 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	5	11	5	3	1
Foreign demand	U.S. producers	***	***	***	***	***
Foreign demand	Importers	3	6	3	2	4

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

Substitute products

*** of U.S. producers and the majority of importers reported that there were no substitutes for epoxy resins. U.S. producer *** reported that polyester could replace epoxy resins in powder coatings. Importer *** reported that epoxy resins have a large variety of applications and other products may be substituted for epoxy resins depending on the industry and the application involved.

Substitutability issues

This section assesses the degree to which U.S.-produced epoxy resins and imports of epoxy resins from subject countries can be substituted for one another by examining the importance of certain purchasing factors and the comparability of epoxy resins from domestic and imported sources based on those factors. Based on available data, staff believes that there is a moderate-to-high degree of substitutability between domestically produced epoxy resins and epoxy resins imported from subject sources.⁵ Factors contributing to this level of substitutability include similar quality, availability, lead times for epoxy resins from inventory, little preference for any particular country of origin, interchangeability between domestic and subject sources, and limited significant factors other than price for the majority of epoxy resins. Factors limiting substitutability are that some applications require specific blends of epoxy resins which have specific physical qualities, and that purchasers require certification from producers before purchasing these specific blends.

Factors affecting purchasing decisions

Purchasers responding to lost sales lost revenue allegations⁶ were asked to identify the main purchasing factors their firm considered in their purchasing decisions for epoxy resins. The major purchasing factors identified by these firms include availability, lead times, price, supply consistency and reliability, technical and sales support, and quality.

Most important purchase factors

The most often cited top five factors firms consider in their purchasing decisions for epoxy resins were price/cost (22 firms), availability/supply and quality (16 firms each), reliability/supply (9 firms), and reliability/security (5 firms). Quality was the most frequently cited first-most important factor (10 firms), followed by availability/supply (8 firms); price/cost was the most frequently reported second-most important factor (10 firms); and price/cost was the most frequently reported third-most important factor (11 firms).

⁵ The degree of substitutability between domestic and imported epoxy resins depends upon the extent of product differentiation between the domestic and imported products and reflects how easily purchasers can switch from domestically produced epoxy resins to the epoxy resins imported from subject countries (or vice versa) when prices change. The degree of substitutability may include such factors as relative prices (discounts/rebates), quality differences (e.g., grade standards, defect rates, etc.), and differences in sales conditions (e.g., lead times between order and delivery dates, reliability of supply, product services, etc.).

⁶ This information is compiled from responses by purchasers identified by Petitioners to the lost sales lost revenue allegations. See Part V for additional information.

Table II-6

Epoxy resins: Count of ranking of factors used in purchasing decisions as reported by purchasers, by factor

Factor	First	Second	Third	Total
Price / Cost	1	10	11	22
Quality	10	4	2	16
Availability / Supply	8	7	4	16
Reliability / Security	5	4	0	9
Timing / Delivery	0	2	3	5
All other factors	2	0	4	NA

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

Note: Other factors include relationship, partnership, technology, customer service, and past performance.

Lead times

Epoxy resins are primarily sold from inventory. U.S. producers reported that *** percent of their commercial shipments came from inventories, with lead times averaging *** days. The remaining *** percent of their commercial shipments were produced to order, with lead times averaging *** days. Importers reported that 84.9 percent of their commercial shipments came from U.S. inventories with lead times averaging 31 days. Importers reported that 8.3 percent of their commercial shipments came from foreign inventories with lead times averaging 42 days. The remaining 6.8 percent of commercial shipments were produced to order with lead times averaging 98 days.

Comparison of U.S.-produced and imported epoxy resins

In order to determine whether U.S.-produced epoxy resins can generally be used in the same applications as imports from subject countries, U.S. producers and importers were asked whether the products can always, frequently, sometimes, or never be used interchangeably. As shown in tables II-7 to II-8, both responding U.S. producers reported that the epoxy resins from the United States, subject, and nonsubject countries were always interchangeable. The majority of importers reported that epoxy resins from the United States, subject, and nonsubject countries were always or frequently interchangeable. Importer *** reported that liquid epoxy resins from China, South Korea, Taiwan, and Thailand are interchangeable and can be mixed for the same application in the same U.S. tank. Importer *** reported that LER and LER xylene mix are considered commodities and can be swapped between approved suppliers. Importer *** reported that there are certain high-volume end-use formulations that at least one U.S. producer has never been qualified to produce. Importer *** reported that there are several epoxy resins produced in Thailand which are specialty epoxy resins and are not manufactured in the United States. Importer *** reported that the most standard BADGE material is interchangeable but that specialty products such as multi-functional and brominated are not interchangeable. Importer *** reported that the certification and qualification process that firms are required to go through with end customers is long, difficult, and costly.

Table II-7

Epoxy resins: Count of U.S. producers reporting the interchangeability between product produced in the United States and in other countries, by country pair

Country pair	Always	Frequently	Sometimes	Never
United States vs. China	2	0	0	0
United States vs. India	2	0	0	0
United States vs. South Korea	2	0	0	0
United States vs. Taiwan	2	0	0	0
United States vs. Thailand	2	0	0	0
China vs. India	2	0	0	0
China vs. South Korea	2	0	0	0
China vs. Taiwan	2	0	0	0
China vs. Thailand	2	0	0	0
India vs. South Korea	2	0	0	0
India vs. Taiwan	2	0	0	0
India vs. Thailand	2	0	0	0
South Korea vs. Taiwan	2	0	0	0
South Korea vs. Thailand	2	0	0	0
Taiwan vs. Thailand	2	0	0	0
United States vs. Other	2	0	0	0
China vs. Other	2	0	0	0
India vs. Other	2	0	0	0
South Korea vs. Other	2	0	0	0
Taiwan vs. Other	2	0	0	0
Thailand vs. Other	2	0	0	0

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

Table II-8**Epoxy resins: Count of importers reporting the interchangeability between product produced in the United States and in other countries, by country pair**

Country pair	Always	Frequently	Sometimes	Never
United States vs. China	7	5	2	0
United States vs. India	6	5	1	0
United States vs. South Korea	10	7	1	0
United States vs. Taiwan	8	8	2	0
United States vs. Thailand	6	5	2	0
China vs. India	5	5	1	0
China vs. South Korea	6	6	1	0
China vs. Taiwan	5	8	1	0
China vs. Thailand	3	5	1	0
India vs. South Korea	6	6	1	0
India vs. Taiwan	5	7	1	0
India vs. Thailand	4	4	2	0
South Korea vs. Taiwan	6	8	1	0
South Korea vs. Thailand	4	5	1	0
Taiwan vs. Thailand	3	6	1	0
United States vs. Other	7	3	1	0
China vs. Other	4	3	1	0
India vs. Other	4	3	1	0
South Korea vs. Other	5	3	1	0
Taiwan vs. Other	4	3	1	0
Thailand vs. Other	3	3	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 epoxy resins from the United States, subject, or nonsubject countries. As seen in tables II-9 to II-10, *** U.S. producers reported that there were never differences other than price between epoxy resins from the United States, subject countries, and nonsubject countries. Importer responses on the differences other than price between epoxy resins from the United States, subject, and nonsubject countries were mixed. Importer *** reported that quality, availability, product range, and lead times were differences other than price between epoxy resins from different sources. Importer *** reported that automotive and aerospace sectors have qualification processes that are rigorous and lengthy and that firms in those sectors differentiate epoxy resins from different producers and different countries. Importer *** reported that supply, past performance, payment terms, lead times, and ease of contracting were factors other than price between epoxy resins from the United States, subject, and nonsubject countries. Importer *** reported that availability, quality, and compatibility of material for end-use formulations are differences other than price that determine material sourcing decisions. Lastly, importer *** reported that for specialized applications, technical support and product range can be factors other than price between epoxy resins from the United States, subject, and nonsubject countries.

Table II-9**Epoxy resins: Count of U.S. producers reporting the significance of differences other than price between product produced in the United States and in other countries, by country pair**

Country pair	Always	Frequently	Sometimes	Never
United States vs. China	0	0	0	2
United States vs. India	0	0	0	2
United States vs. South Korea	0	0	0	2
United States vs. Taiwan	0	0	0	2
United States vs. Thailand	0	0	0	2
China vs. India	0	0	0	2
China vs. South Korea	0	0	0	2
China vs. Taiwan	0	0	0	2
China vs. Thailand	0	0	0	2
India vs. South Korea	0	0	0	2
India vs. Taiwan	0	0	0	2
India vs. Thailand	0	0	0	2
South Korea vs. Taiwan	0	0	0	2
South Korea vs. Thailand	0	0	0	2
Taiwan vs. Thailand	0	0	0	2
United States vs. Other	0	0	0	2
China vs. Other	0	0	0	2
India vs. Other	0	0	0	2
South Korea vs. Other	0	0	0	2
Taiwan vs. Other	0	0	0	2
Thailand vs. Other	0	0	0	2

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

Table II-10**Epoxy resins: Count of importers reporting the significance of differences between product produced in the United States and in other countries, by country pair**

Country pair	Always	Frequently	Sometimes	Never
United States vs. China	3	2	5	3
United States vs. India	2	2	6	2
United States vs. South Korea	5	4	4	4
United States vs. Taiwan	5	5	5	3
United States vs. Thailand	3	2	4	3
China vs. India	1	2	4	2
China vs. South Korea	1	3	3	4
China vs. Taiwan	2	4	3	3
China vs. Thailand	1	2	2	2
India vs. South Korea	1	3	4	3
India vs. Taiwan	2	3	4	2
India vs. Thailand	1	2	3	2
South Korea vs. Taiwan	2	4	2	4
South Korea vs. Thailand	1	2	2	3
Taiwan vs. Thailand	2	2	2	2
United States vs. Other	2	2	4	3
China vs. Other	1	2	1	2
India vs. Other	1	2	1	2
South Korea vs. Other	1	2	1	3
Taiwan vs. Other	1	2	1	2
Thailand vs. Other	1	2	1	2

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

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

The Commission analyzes a number of factors in making injury determinations (see 19 U.S.C. §§ 1677(7)(B) and 1677(7)(C)). Information on the subsidies and dumping margins was presented in Part I of this report and information on the volume and pricing of imports of the subject merchandise is presented in Part IV and Part V. Information on the other factors specified is presented in this section and/or Part VI and (except as noted) is based on the questionnaire responses of two firms that accounted for the vast majority of U.S. production of epoxy resins in 2023.

U.S. producers

The Commission issued a U.S. producer questionnaire to two firms that were identified as producers in the petitions and both firms provided useable data on their operations.¹ Table III-1 lists U.S. producers of epoxy resins, their production locations, positions on the petitions, and shares of total production.

¹ An additional firm, Huntsman Advanced Materials Americas, LLC (“Huntsman”), submitted a U.S. producer questionnaire. In addition, Huntsman submitted a postconference brief which contained a signed declaration stating that it produces epoxy resin products that are covered by the scope of these preliminary investigations. Huntsman’s postconference brief, April 29, 2024, Attachment E. Petitioners, however, *** and noted that Huntsman may not produce liquid epoxy resins as defined by the scope. Staff conference transcript, p. 56 (Vaughn); Petitioner’s postconference brief, April 29, 2024, p. 11, fn. 48. Moreover, at the staff conference, respondent PPG stated, “The only two producers of epoxy in the U.S. are Olin and Westlake. There are no other producers, and we are buying from both of them.” Staff conference transcript, p. 159 (Camsuzou). Staff reviewed Huntsman’s U.S. producer questionnaire and issued a supplemental questionnaire concerning domestic producers’ production-related activities. Huntsman’s response, as well as Olin and Westlake’s responses, to the supplemental questionnaire can be found in appendix G. Based on all available information, for the purpose of this preliminary report, staff bases its U.S. producers’ analyses and related information, except where noted, on the U.S. producer questionnaire responses of Olin and Westlake. The data Huntsman provided to the Commission in its U.S. producers questionnaire are contained and analyzed in appendix C at table C-2, appendix G, and appendix H.

Table III-1

Epoxy resins: U.S. producers, their position on the petitions, location of production, and share of reported production, 2023

Shares in percent

Firm	Position on petitions	Production location(s)	Share of production
Olin	Petitioner	Freeport, Texas	***
Westlake	Petitioner	Deer Park, Texas Lakeland, Florida Argo, Illinois	***
All firms	Various	Various	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 "---".

Table III-2 presents information on U.S. producers' ownership, related and/or affiliated firms. Olin and Westlake have epoxy resin operations in multiple countries around the world. Outside of the United States, Olin has locations in Brazil, Europe, and East and Southeast Asia.² Westlake also has locations outside the United States in Europe and East and Southeast Asia.³

² Olin Epoxy, "About US, Locations," retrieved May 6, 2024, <https://olinepoxy.com/about-us/locations/>.

³ Westlake Corp., "About Us, Locations," retrieved May 6, 2024, <https://www.westlake.com/locations/>.

**Table III-2
Epoxy resins: U.S. producers' ownership, related and/or affiliated firms**

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

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

Table III-3 presents events in the U.S. industry since January 1, 2021.

Table III-3
Epoxy resins: Important industry events during 2021-23

Item	Firm	Event
Weather	Multiple firms	In February 2021, Winter Storm Uri hit Texas chemical plants, which make up nearly 75 percent of U.S. chemical production, and these chemicals are used as raw material for many other companies' chemical manufacturing processes, including the petitioners. As much as 80 percent of U.S. basic organic chemicals capacity was offline after the storm, and up to 60 percent was still offline in mid-March 2021.
Force majeure	Westlake and Olin	On February 19, 2021, Westlake declared a force majeure on its caustic soda, chlorine, poly vinyl chloride and vinyl chloride plants (base inputs for production of epoxy resin). The Olin Corporation announced on February 16, 2021, that the production of chlorine, caustic soda, dichloroethane, epoxy resin, hydrochloric acid and other products at its Freeport, Texas complex had encountered force majeure. This affected the downstream construction market.
Acquisition	Westlake	On August 19, 2021, North American Pipe Corporation, a subsidiary of Westlake Chemical Corporation, announced that it acquired LASCO Fittings LLC, a Brownsville, Tennessee-based, leading designer, engineer and manufacturer of injected-molded PVC fittings, from Aalberts, NV.
Acquisition	Westlake	In September 2021, Westlake announced its completion of the acquisition of Dimex, a firm that produces a range of consumer and building products, including landscape edging; industrial, home and office matting; marine dock edging; and masonry joint controls.
Closure	Olin	On October 21, 2021, the Olin Corporation announced that it planned to permanently shut down the remaining diaphragm-grade chlor-alkali capacity (approximately 200,000 Electrochemical Unit "ECU" tons) at its McIntosh, Alabama facility.
Acquisition	Westlake	In 2022, Westlake Chemical Corporation completed the acquisition of Hexion Inc.'s global epoxy business for approximately \$1.2 billion in an all-cash transaction.

Table continued.

Table III-3 Continued
Epoxy resins: Public industries event table

Item	Firm	Event
Force Majeure	Olin	From April 20 to June 15, 2022, Olin declared a force majeure on its chlor-alkali and other products after a compressor caught fire and a chlorine leak occurred at the company's Plaquemine chlor-alkali facility.
Force Majeure	Westlake	On June 15, 2022, Westlake declares a force majeure on chlorine and caustic soda (base inputs for production of epoxy resin) in the US due to failures in critical processing equipment. The sites were not specified in the letter to customers.
Closure	Olin	On August 24, 2022, the Olin Corporation announced that it planned to permanently shut down approximately 225,000 ECU tons of diaphragm-grade chlor-alkali capacity at its Freeport, TX facility.
Weather	Multiple firms	In December 2022, multiple chemical plants in Texas shut down due to cold weather. As Texas chemical plants make up a majority of chemical production, various raw materials for downstream companies were affected.
Decreased epoxy resin and upstream capacity	Olin	On June 20, 2023, Olin announced the decision to reduce epoxy resin and upstream capacity at its Freeport, Texas facility as well as to cease all operations at its Gumi, South Korea facility and reduce sales and support staffing across Asia.

Source: Coatings World, "Westlake Completes Acquisition of Hexion's Epoxy Business," February 7, 2022, https://www.coatingsworld.com/issues/2022-03-01/view_breaking-news/westlake-completes-acquisition-of-hexions-epoxy-business/; Paint & Coatings Industry, "Hexion Holdings Completes Sale of Epoxy Businesses to Westlake Chemical," February 8, 2022, <https://www.pcimag.com/articles/109743-hexion-holdings-completes-sale-of-epoxy-businesses-to-westlake-chemical>; Westlake Press Release, "Westlake to Acquire Hexion's Global Epoxy Business," November 24, 2021, <https://www.westlake.com/news/archive?year=2021>; Luke Metzger, "The Texas Freeze: Timeline of Events," Environment Texas, January 31, 2022, <https://environmentamerica.org/texas/center/articles/the-texas-freeze-timeline-of-events/>; S&P Global, "Impact of Winter Storm Uri on Chemical Markets," accessed April 27, 2024, <https://www.spglobal.com/commodityinsights/en/ci/topic/impact-of-winter-storm-uri-on-chemical-markets.html>; Jess Donald, "Winter Storm Uri, 2021: The Economic Impact of the Storm," Comptroller.Texas.Gov, October 2021, <https://comptroller.texas.gov/economy/fiscal-notes/archive/2021/oct/winter-storm-impact.php>; Petitioner's postconference brief, pp. 37-38; Jesse Thompson, "Texas Winter Deep Freeze Broke Refining, Petrochemical Supply Chains," Federal Reserve Bank of Dallas, Southwest Economy, second quarter 2021, <https://www.dallasfed.org/research/swe/2021/swe2102/swe2102c>; Al Greenwood, "More Texas Chem Plants Shut Down Amid Cold Weather," ICIS, December 23, 2023, <https://www.icis.com/explore/resources/news/2022/12/23/10839145/more-texas-chem-plants-shut-down-amid-cold-weather/>; Westlake Press Release, "Westlake Completes the Acquisition of Dimex," September 10, 2021, <https://www.westlake.com/news/westlake-completes-acquisition-dimex>; ECHEMI, "Dow and other manufacturers have a long way to restart their petrochemical equip," February 22, 2021, <https://www.echemi.com/cms/142972.html>;

Table continued.

Table III-3 Continued
Epoxy resins: Important industry events during 2021-23

Source: David Poole, "Force Majeure Hits Construction and Consumer Market Hard," March 10, 2021, <https://www.linkedin.com/pulse/force-majeure-hits-construction-consumer-market-hard-david-pool/>; Westlake Press Release, "NAPCO Pipe & Fittings Announces Completion of Acquisition of LASCO Fittings," August 19, 2021, [NAPCO Pipe & Fittings Announces Completion of Acquisition of LASCO Fittings | Westlake](https://www.westlakeplastics.com/news/2021/08/19/napco-pipe-fittings-announces-completion-of-acquisition-of-lasco-fittings); Everchem, "More Chlor-alkali Woes," June 16, 2022, <https://everchem.com/more-chlor-alkali-woes/>; S&P Global, "Westlake Declares Force Majeure on US Chlor-alkali," June 15, 2022, <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/chemicals/061522-westlake-declares-force-majeure-on-us-chlor-alkali-letter>; Olin Press Release, "Olin Announces \$1 Billion Share Repurchase Program," November 1, 2021, <https://olin.com/investors/events-presentations/press-releases/#b2iLibScrollTo>; Olin Press Release, "Olin to Shut Down Additional Chlor-alkali Capacity," October 21, 2021, <https://olin.com/investors/events-presentations/press-releases/#b2iLibScrollTo>; Olin Press Release, "Olin Announces Chlor-alkali Capacity Reduction," <https://olin.com/investors/events-presentations/press-releases/#b2iLibScrollTo>; Olin Press Release, "Olin Updates Second Quarter 2023 Outlook and Announces Additional Epoxy Restructuring Actions," June 20, 2023, <https://olin.com/investors/events-presentations/press-releases/#b2iLibScrollTo>.

Producers in the United States were asked to report any change in the character of their operations or organization relating to the production of epoxy resins since 2021. Table III-4 presents the changes identified by Olin and Westlake. During 2021-23, U.S. producers reported plant shutdowns and curtailments at their U.S. facilities as a consequence of supply chain issues, unfairly traded imports, and weather-related force majeure.

Table III-4
Epoxy resins: U.S. producers' reported changes in operations, since January 1, 2021

Type of change	Firm name and narrative response on changes in operations
Prolonged shutdowns	***
Production curtailments	***
Production curtailments	***
Relocations	***
Acquisitions	***
Weather-related or force majeure events	***
Weather-related or force majeure events	***
Other	***

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

U.S. production, capacity, and capacity utilization

Table III-5 presents U.S. producers' installed and practical overall capacity and production on the same equipment. Consistent with plant shutdowns and curtailments (as noted above), capacity and production decreased across all metrics during 2021 through 2023. Practical overall capacity decreased by *** percent, from *** pounds in 2021 to *** pounds in 2023. Practical overall production decreased by *** percent, from *** pounds in 2021 to *** pounds in 2023.

Table III-5

Epoxy resins: U.S. producers' installed and practical capacity, production, and utilization on the same equipment as subject production, by period

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

Item	Measure	2021	2022	2023
Installed overall	Capacity	***	***	***
Installed overall	Production	***	***	***
Installed overall	Utilization	***	***	***
Practical overall	Capacity	***	***	***
Practical overall	Production	***	***	***
Practical overall	Utilization	***	***	***
Practical epoxy resins	Capacity	***	***	***
Practical epoxy resins	Production	***	***	***
Practical epoxy resins	Utilization	***	***	***

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 "--".

Constraints on capacity

Table III-6 presents U.S. producers' reported narratives regarding practical capacity constraints. As previously noted, U.S. producers report that unfairly trade imports are impacting their U.S. epoxy resin operations. *** also reports that these imports are putting a constraint on its overall capacity.

Table III-6

Epoxy resins: U.S. producers' reported constraints to practical overall capacity, since January 1, 2021

Type of constraint	Firm name and narrative response on constraints to practical overall capacity
Other constraints	***

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

Operations data

Table III-7 and figure III-1 present U.S. producers' production, capacity, and capacity utilization. Practical epoxy resins capacity, production, and capacity utilization declined in each year during 2021-23. Practical epoxy resins capacity decreased by *** percent from *** pounds in 2021 to *** pounds in 2023. Production decreased by *** percent, from *** pounds in 2021 to *** pounds in 2023. Capacity utilization decreased by *** percentage points from *** percent in 2021 to *** percent in 2023.

Table III-7
Epoxy resins: U.S. producers' output, by firm and period

Practical capacity

Capacity in 1,000 pounds

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

Table continued.

Table III-7 Continued
Epoxy resins: U.S. producers' output, by firm and period

Production

Production in 1,000 pounds

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

Table continued.

Table III-7 Continued
Epoxy resins: U.S. producers' output, by firm and period

Capacity utilization

Capacity utilization ratios in percent

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

Table continued.

Table III-7 Continued
Epoxy resins: U.S. producers' output, by firm and period

Share of production

Share of production in percent

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	100.0	100.0	100.0

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

Note: Capacity utilization ratio represents the ratio of the U.S. producer's production to its production capacity.

Note: 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 "---".

Figure III-1
Epoxy resins: U.S. producers' capacity, production, and capacity utilization, by period

* * * * *

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

Alternative products

*** reported production of co-reactants and other products on the same equipment and machinery used to produce epoxy resins (table III-8). The firm reported that the other products it produced included ***. The share of out-of-scope-products to all products produced on the same equipment ranged between *** percent (in 2021) and *** percent (in 2022).

Table III-8
Epoxy resins: U.S. producers' overall production on the same equipment as subject production, by product type and period

Quantities in 1,000 pounds; share in percent

Product type	Measure	2021	2022	2023
Epoxy resins	Quantity	***	***	***
Co-reactants	Quantity	***	***	***
Other products	Quantity	***	***	***
All out-of-scope products	Quantity	***	***	***
All products	Quantity	***	***	***
Epoxy resins	Share	***	***	***
Co-reactants	Share	***	***	***
Other products	Share	***	***	***
All out-of-scope products	Share	***	***	***
All products	Share	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. producers' U.S. shipments and exports

Table III-9 presents U.S. producers' U.S. shipments, export shipments, and total shipments. The majority of U.S. producers' shipments were U.S. commercial shipments.⁴ Producers' U.S. shipments, by quantity, declined in each period, decreasing by *** percent from *** pounds in 2021 to *** pounds in 2023. U.S. producers' exports, which ranged between *** percent and *** percent as share of total shipments during 2021-23, decreased by *** percent from *** pounds in 2021 to *** pounds in 2023.⁵ Total shipments, consequently, followed the trend of declining U.S. shipments and exports, decreasing by *** percent from *** pounds in 2021 to *** pounds in 2023.

Table III-9
Epoxy resins: U.S. producers' total shipments, by destination and period

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

Item	Measure	2021	2022	2023
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: 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 "---".

⁴ *** reported internal consumption and *** reported transfers to related firms.

⁵ U.S. producers reported exports to ***.

U.S. producers' inventories

Table III-10 presents U.S. producers' end-of-period inventories and the ratio of these inventories to U.S. producers' production, U.S. shipments, and total shipments. Inventories decreased by *** percent from *** pounds in 2021 to *** pounds in 2023. Decreasing inventories combined with decreasing production and total shipments (as noted above) resulted, consequently, in increasing inventory to production and inventory to total shipments ratios during 2021-23.

Table III-10
Epoxy resins: U.S. producers' inventories and their ratio to select items, by period

Quantity in 1,000 pounds; inventory ratios in percent

Item	2021	2022	2023
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: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Zeroes, null values, and undefined calculations are suppressed and shown as "---".

U.S. producers' imports from subject sources

In this proceeding, *** reported imports of epoxy resins from South Korea.⁶ Table III-11 presents ***. Table III-12 presents U.S. producers' reasons for imports.

Table III-11

Epoxy resins: *'s U.S. production, U.S. imports from subject sources, and ratio of subject imports to production, by period**

Quantity in 1,000 pounds; ratios in percent

Item	Measure	2021	2022	2023
U.S. production	Quantity	***	***	***
Imports from South Korea	Quantity	***	***	***
Imports from South Korea to U.S. production	Ratio	***	***	***

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

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

Table III-12

Epoxy resins: U.S. producers' reasons for imports, by firm

Item	Narrative response on reasons for importing
***'s reason for importing	***

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

⁶ *** reported purchases of imports of epoxy resins from subject sources during 2021-23.

U.S. employment, wages, and productivity

Table III-13 presents U.S. producers' employment-related data. The number of production and related workers (PRWs) remained steady at *** personnel in 2022 and 2023, increasing *** from 2021.⁷ During 2021-23, the number of hours worked per PRW and the total hours worked decreased each year. Decreasing hours worked and decreasing U.S. production, as previously noted, resulted in a decline in productivity each year. Wages paid and average hourly wages remained relatively consistent from 2021 to 2022, before decreasing *** percent and *** percent, respectively, from 2022 to 2023.⁸

Table III-13

Epoxy resins: U.S. producers' employment related information, by item and period

Item	2021	2022	2023
Production and related workers (PRWs) (number)	***	***	***
Total hours worked (1,000 hours)	***	***	***
Hours worked per PRW (hours)	***	***	***
Wages paid (\$1,000)	***	***	***
Hourly wages (dollars per hour)	***	***	***
Productivity (pounds per hour)	***	***	***
Unit labor costs (dollars per pound)	***	***	***

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

⁷ Although U.S. production declined during 2021-23 (as noted above), Olin reported that there was "***."

⁸ Westlake reported that in 2023 ***.

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

U.S. importers

The Commission issued importer questionnaires to 96 firms believed to be importers of epoxy resins, as well as to all known U.S. producers of product.¹ The Commission received 29 questionnaire responses from firms which import epoxy resins into the United States.² The responding firms' imports accounted for the majority of epoxy resin imports from subject and nonsubject sources in 2023.³ ⁴ In light of the coverage, U.S. import data and related information are based on the response of U.S. importers and adjusted Commerce official import statistics for HTSUS 3907.30.0000, the primary statistical reporting number for epoxy resins. Table IV-1 lists all responding U.S. importers of epoxy resins from subject and nonsubject sources, their locations, and their shares of U.S. imports, in 2023.

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

² The Commission also received questionnaire responses from 11 firms which certified that they did not import subject epoxy resins into the United States since January 1, 2021. These firms include: ***.

³ Adjusted official U.S. imports statistics for HTSUS statistical reporting number 3907.30.0000 (table IV-2) show that 201,160,000 pounds of epoxy resins from subject sources entered the United States in 2023. Firms responding to the U.S. importer questionnaire reported that they entered a total of *** pounds of epoxy resins from subject sources into the United States in 2023. Consequently, responding importers accounted for *** percent of imports from subject sources in 2023 under HTS statistical reporting number 3907.30.0000. At the subject country-level, using the same coverage calculation methodology as above, in 2023, responding importers accounted for *** percent of imports from China, *** percent from India, *** percent from South Korea, *** percent from Taiwan, and *** percent from Thailand.

⁴ Adjusted official U.S. imports statistics for HTSUS statistical reporting number 3907.30.0000 (table IV-2) show that 70,579,000 pounds of epoxy resins from nonsubject sources entered the United States in 2023. Firms responding to the U.S. importer questionnaire reported that they entered a total of *** pounds of epoxy resins from nonsubject sources into the United States in 2023. Consequently, responding importers accounted for *** percent of imports from nonsubject sources in 2023 under HTS statistical reporting number 3907.30.0000.

Table IV-1
Epoxy resins: U.S. importers, their headquarters, and share of total imports within a given source by firm, 2023

Shares in percent

Firm	Headquarters	China	India	South Korea	Taiwan	Thailand
Aalchem	Grand Rapids, MI	***	***	***	***	***
Aditya USA	Florence, KY	***	***	***	***	***
Atul USA	Charlotte, NC	***	***	***	***	***
BASF	Florham Park, NJ	***	***	***	***	***
Boehle	Auburn Hills, MI	***	***	***	***	***
Cardolite	Bristol, PA	***	***	***	***	***
Chang Chun	Wexford, PA	***	***	***	***	***
Composites One	Schaumburg, IL	***	***	***	***	***
Copps	Mequon, WI	***	***	***	***	***
Dorsett	Los Angeles, CA	***	***	***	***	***
Eldor	Daleville, VA	***	***	***	***	***
EMCO	Pleasant Prarie, WI	***	***	***	***	***
Hempel	Conroe, TX	***	***	***	***	***
Huntsman	The Woodlands, TX	***	***	***	***	***
INEOS	League City, TX	***	***	***	***	***
Innovative Resin	Newark, NJ	***	***	***	***	***
InterAtlas	St. Catharines, ON	***	***	***	***	***
International Ink	Gainesville, GA	***	***	***	***	***
Kaneka	Pasadena, TX	***	***	***	***	***
KPB	Seoul, KO	***	***	***	***	***
Kukdo	Chicago, IL	***	***	***	***	***
Meridian Adhesives	Charlotte, NC	***	***	***	***	***
Olin	Clayton, MO	***	***	***	***	***
PPG	Pittsburgh, PA	***	***	***	***	***
Redox	Lakewood, CA	***	***	***	***	***
Sherwin-Williams	Cleveland, OH	***	***	***	***	***
Trans Western	Fullerton, CA	***	***	***	***	***
Westlake	Houston, TX	***	***	***	***	***
Whitaker	Atlanta, GA	***	***	***	***	***
All firms	Various	100.0	100.0	100.0	100.0	100.0

Table continued.

Table IV-1 Continued

Epoxy resins: U.S. importers, their headquarters, and share of total imports within a given source by firm, 2023

Shares in percent

Firm	Headquarters	Subject sources	Nonsubject sources	All import sources
Aalchem	Grand Rapids, MI	***	***	***
Aditya USA	Florence, KY	***	***	***
Atul USA	Charlotte, NC	***	***	***
BASF	Florham Park, NJ	***	***	***
Boehle	Auburn Hills, MI	***	***	***
Cardolite	Bristol, PA	***	***	***
Chang Chun	Wexford, PA	***	***	***
Composites One	Schaumburg, IL	***	***	***
Copps	Mequon, WI	***	***	***
Dorsett	Los Angeles, CA	***	***	***
Eldor	Daleville, VA	***	***	***
EMCO	Pleasant Prarie, WI	***	***	***
Hempel	Conroe, TX	***	***	***
Huntsman	The Woodlands, TX	***	***	***
INEOS	League City, TX	***	***	***
Innovative Resin	Newark, NJ	***	***	***
InterAtlas	St. Catharines, ON	***	***	***
International Ink	Gainesville, GA	***	***	***
Kaneka	Pasadena, TX	***	***	***
KPB	Seoul, KO	***	***	***
Kukdo	Chicago, IL	***	***	***
Meridian Adhesives	Charlotte, NC	***	***	***
Olin	Clayton, MO	***	***	***
PPG	Pittsburgh, PA	***	***	***
Redox	Lakewood, CA	***	***	***
Sherwin-Williams	Cleveland, OH	***	***	***
Trans Western	Fullerton, CA	***	***	***
Westlake	Houston, TX	***	***	***
Whitaker	Atlanta, GA	***	***	***
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

Table IV-2 and figure IV-1 present data for U.S. imports of epoxy resins from subject and nonsubject sources. U.S. imports of epoxy resins from subject sources decreased irregularly from 207.0 million pounds in 2021 to 251.7 million pounds in 2022 to 201.2 million pounds in 2023. U.S. imports from South Korea were the leading driver in the change, as South Korea's share of total imports accounted for 53.0 percent in 2021, 54.7 percent in 2022, and 46.1 percent in 2023. Although imports from subject India, Taiwan, and Thailand increased from 2021 to 2023, imports from South Korea, as well as imports from China, declined; as a result, imports from all subject sources decreased by 2.9 percent during 2021-23. Imports from nonsubject sources, and consequently imports from all sources, followed a similar trend, decreasing irregularly from 2021 to 2023. Imports from all sources decreased by 6.2 percent during 2021-23.

During 2021-23, the average unit value ("AUV") of each subject country decreased. Subject sources' AUV decreased by 28.0 percent from \$2.35 per pound in 2021 to \$1.69 per pound in 2023. Conversely, nonsubject sources' AUV increased by 34.4 percent from \$3.18 per pound in 2021 to \$4.27 per pound in 2023. The AUV for all import sources decreased irregularly by 8.7 percent during 2021-23, from \$2.59 per pound in 2021 to \$3.07 per pound in 2022 to \$2.36 per pound in 2023.

The ratio of subject imports to U.S. production increased irregularly during 2021-23; it was *** percent in 2021, *** percent in 2022, and *** percent in 2023. The ratio of imports from South Korea to U.S. production was the highest among all subject countries; this ratio was *** percent in 2021, *** percent in 2022, and *** percent in 2023. The ratio of imports from nonsubject sources to U.S. production also increased irregularly during 2021-23; it was *** percent in 2021, *** percent in 2022, and *** percent in 2023. The ratio of imports from all sources to U.S. production followed similar trends and increased irregularly during 2021-23; it was *** percent in 2021, *** percent in 2022, and *** percent in 2023.

Table IV-2
Epoxy resins: U.S. imports, by source and period

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

Source	Measure	2021	2022	2023
China	Quantity	8,574	6,841	4,308
India	Quantity	4,586	7,294	5,602
South Korea	Quantity	153,618	184,752	125,275
Taiwan	Quantity	17,076	34,696	42,155
Thailand	Quantity	23,225	18,132	23,820
Subject sources	Quantity	207,078	251,715	201,160
Subject sources less China and India	Quantity	193,918	237,580	191,250
Nonsubject sources	Quantity	82,661	85,955	70,579
Nonsubject sources plus China and India	Quantity	95,821	100,090	80,490
All import sources	Quantity	289,739	337,669	271,739
China	Value	23,347	17,423	9,133
India	Value	10,971	20,694	9,994
South Korea	Value	363,078	522,326	216,643
Taiwan	Value	40,487	80,292	62,780
Thailand	Value	48,523	49,655	41,468
Subject sources	Value	486,406	690,391	340,017
Subject sources less China and India	Value	452,088	652,274	320,890
Nonsubject sources	Value	262,877	346,688	301,723
Nonsubject sources plus China and India	Value	297,195	384,805	320,849
All import sources	Value	749,283	1,037,079	641,740
China	Unit value	2.72	2.55	2.12
India	Unit value	2.39	2.84	1.78
South Korea	Unit value	2.36	2.83	1.73
Taiwan	Unit value	2.37	2.31	1.49
Thailand	Unit value	2.09	2.74	1.74
Subject sources	Unit value	2.35	2.74	1.69
Subject sources less China and India	Unit value	2.33	2.75	1.68
Nonsubject sources	Unit value	3.18	4.03	4.27
Nonsubject sources plus China and India	Unit value	3.10	3.84	3.99
All import sources	Unit value	2.59	3.07	2.36

Table continued.

Table IV-2 Continued
Epoxy resins: U.S. imports, by source and period

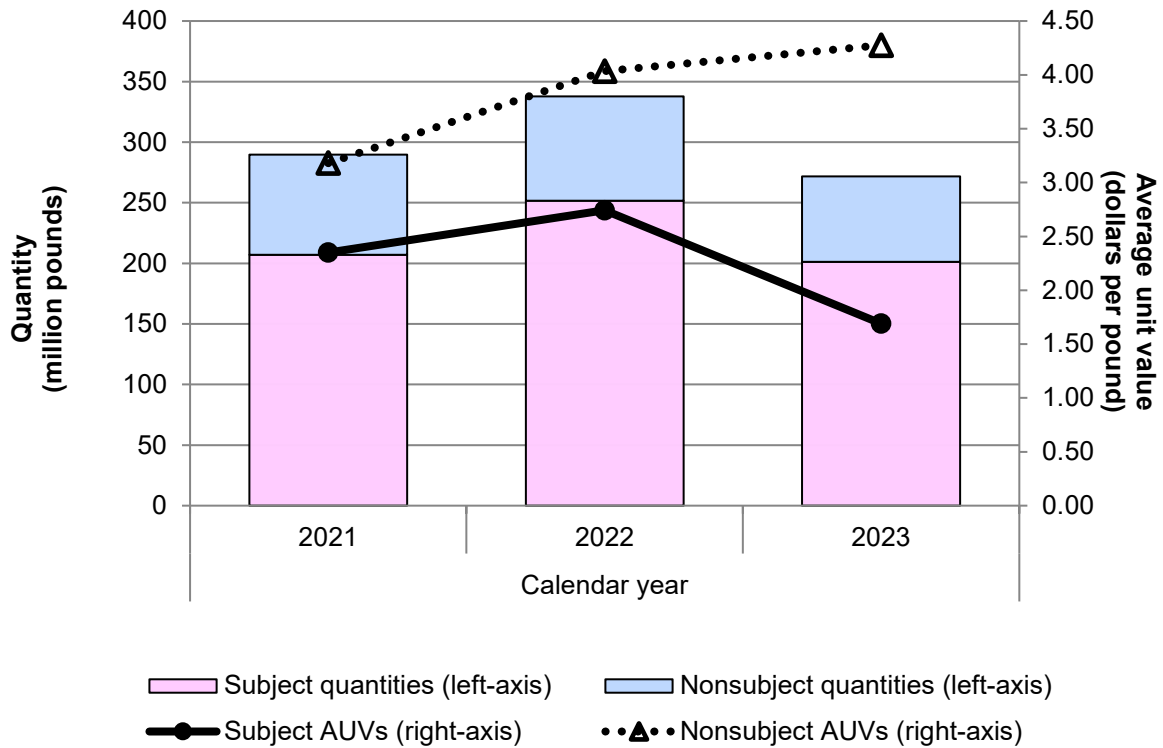
Shares and ratios in percent; ratios represent the ratio to U.S. production

Source	Measure	2021	2022	2023
China	Share of quantity	3.0	2.0	1.6
India	Share of quantity	1.6	2.2	2.1
South Korea	Share of quantity	53.0	54.7	46.1
Taiwan	Share of quantity	5.9	10.3	15.5
Thailand	Share of quantity	8.0	5.4	8.8
Subject sources	Share of quantity	71.5	74.5	74.0
Subject sources less China and India	Share of quantity	66.9	70.4	70.4
Nonsubject sources	Share of quantity	28.5	25.5	26.0
Nonsubject sources plus China and India	Share of quantity	33.1	29.6	29.6
All import sources	Share of quantity	100.0	100.0	100.0
China	Share of value	3.1	1.7	1.4
India	Share of value	1.5	2.0	1.6
South Korea	Share of value	48.5	50.4	33.8
Taiwan	Share of value	5.4	7.7	9.8
Thailand	Share of value	6.5	4.8	6.5
Subject sources	Share of value	64.9	66.6	53.0
Subject sources less China and India	Share of value	60.3	62.9	50.0
Nonsubject sources	Share of value	35.1	33.4	47.0
Nonsubject sources plus China and India	Share of value	39.7	37.1	50.0
All import sources	Share of value	100.0	100.0	100.0
China	Ratio	***	***	***
India	Ratio	***	***	***
South Korea	Ratio	***	***	***
Taiwan	Ratio	***	***	***
Thailand	Ratio	***	***	***
Subject sources	Ratio	***	***	***
Subject sources less China and India	Ratio	***	***	***
Nonsubject sources	Ratio	***	***	***
Nonsubject sources plus China and India	Ratio	***	***	***
All import sources	Ratio	***	***	***

Source: Adjusted official U.S. imports statistics of the U.S. Department of Commerce Census Bureau using HTS statistical reporting number 3907.30.0000, accessed April 23, 2024. Official U.S. imports statistics were adjusted to add in epoxy resins imported under other HTS statistical reporting numbers as reported in responses to Commission questionnaires, as well as to remove out-of-scope products imported under the primary HTS number for epoxy resins as reported as responses to Commission questionnaires. Import data are based on the imports for consumption data series, and values are landed, duty-paid values.

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 "---".

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



Source: Adjusted official U.S. imports statistics of the U.S. Department of Commerce Census Bureau using HTS statistical reporting number 3907.30.0000, accessed April 23, 2024. Official U.S. imports statistics were adjusted to add in epoxy resins imported under other HTS statistical reporting numbers as reported in responses to Commission questionnaires, as well as to remove out-of-scope products imported under the primary HTS number for epoxy resins as reported as responses to Commission questionnaires. Import data are based on the imports for consumption data series, and values are landed, duty-paid values.

As previously noted in Part III of this report, *** reported imports of epoxy resins ***.⁵ Table IV-3 presents U.S. producers' and/or their affiliates' U.S. imports of epoxy resins.

Table IV-3
Epoxy resins: U.S. producers' and/or their affiliates' U.S. imports, by source and period

Quantity in 1,000 pounds; ratios in percent

Source	Measure	2021	2022	2023
China	Quantity	***	***	***
India	Quantity	***	***	***
South Korea	Quantity	***	***	***
Taiwan	Quantity	***	***	***
Thailand	Quantity	***	***	***
Subject sources	Quantity	***	***	***
Nonsubject sources	Quantity	***	***	***
All import sources	Quantity	***	***	***
China	Ratio	***	***	***
India	Ratio	***	***	***
South Korea	Ratio	***	***	***
Taiwan	Ratio	***	***	***
Thailand	Ratio	***	***	***
Subject sources	Ratio	***	***	***
Nonsubject sources	Ratio	***	***	***
All import sources	Ratio	***	***	***

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 "--". Ratio calculated as the quantity controlled by U.S. producers based on questionnaire data relative to adjusted U.S. imports statistics as shown in table IV-2.

⁵ *** also reported ***.

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

Table IV-4 presents U.S. imports in the twelve-month period preceding the filing of the petitions. Imports from aggregated subject sources accounted for 69.6 percent of total imports of epoxy resins by quantity during April 2023 through March 2024. Imports from China and imports from India were each below 3.0 percent during April 2023 through March 2024.

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)).

Table IV-4**Epoxy resins: U.S. imports in the twelve-month period preceding the filing of the petitions, April 2023 through March 2024**

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

Source of imports	Quantity	Share of quantity
China	3,245	1.2
India	6,158	2.4
South Korea	118,847	45.8
Taiwan	37,538	14.5
Thailand	14,857	5.7
All other sources	79,029	30.4
All sources	259,674	100.0

Source: Adjusted official U.S. imports statistics of the U.S. Department of Commerce Census Bureau using HTS statistical reporting number 3907.30.0000, accessed April 23, 2024. Official U.S. imports statistics were adjusted to add in epoxy resins imported under other HTS statistical reporting numbers as reported in responses to Commission questionnaires, as well as to remove out-of-scope products imported under the primary HTS number for epoxy resins as reported as responses to Commission questionnaires. Import data are based on the imports for consumption data series, and values are landed, duty-paid values.

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 "---".

China

Table IV-5 and figure IV-2 presents U.S. imports from China in the twelve months leading up to the petitions and China's share of imports compared with all other sources.

Table IV-5
Epoxy resins: U.S. imports from China and all sources in various twelve-month periods in the lead up to the twelve months immediately prior to the filing of the petitions

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

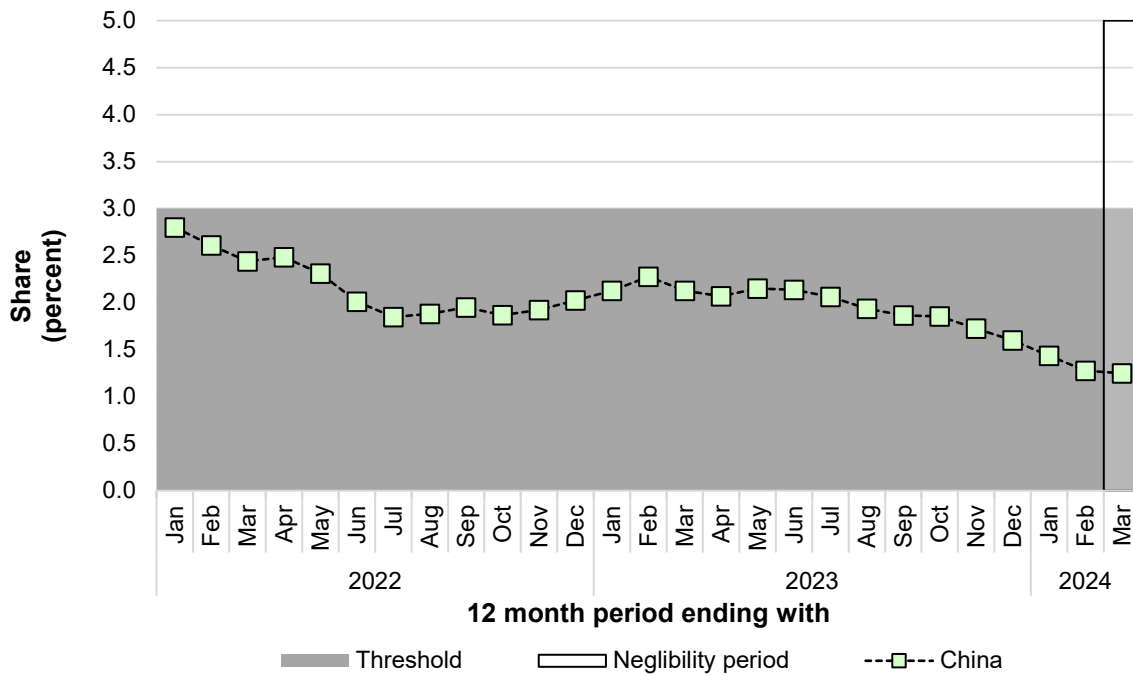
Twelve month period through to and including	China quantity	Other than China quantity	All import sources quantity	China share	Other than China share	All import sources share
January 2022	8,394	291,206	299,600	2.8	97.2	100.0
February 2022	8,194	305,726	313,920	2.6	97.4	100.0
March 2022	7,777	310,853	318,629	2.4	97.6	100.0
April 2022	7,868	308,869	316,737	2.5	97.5	100.0
May 2022	7,460	315,368	322,828	2.3	97.7	100.0
June 2022	6,545	318,763	325,309	2.0	98.0	100.0
July 2022	6,116	325,154	331,270	1.8	98.2	100.0
August 2022	6,260	326,229	332,488	1.9	98.1	100.0
September 2022	6,591	331,718	338,309	1.9	98.1	100.0
October 2022	6,432	338,082	344,514	1.9	98.1	100.0
November 2022	6,615	337,627	344,242	1.9	98.1	100.0
December 2022	6,841	330,829	337,669	2.0	98.0	100.0
January 2023	7,202	331,228	338,430	2.1	97.9	100.0
February 2023	7,436	319,189	326,625	2.3	97.7	100.0
March 2023	6,995	321,843	328,838	2.1	97.9	100.0
April 2023	6,745	319,164	325,909	2.1	97.9	100.0
May 2023	6,905	313,926	320,831	2.2	97.8	100.0
June 2023	6,613	302,627	309,240	2.1	97.9	100.0
July 2023	6,200	294,596	300,796	2.1	97.9	100.0
August 2023	5,699	288,480	294,178	1.9	98.1	100.0
September 2023	5,236	275,367	280,604	1.9	98.1	100.0
October 2023	5,016	265,691	270,707	1.9	98.1	100.0
November 2023	4,605	262,407	267,011	1.7	98.3	100.0
December 2023	4,307	264,945	269,253	1.6	98.4	100.0
January 2024	3,786	260,020	263,806	1.4	98.6	100.0
February 2024	3,437	266,234	269,671	1.3	98.7	100.0
March 2024	3,245	256,429	259,674	1.2	98.8	100.0

Source: Adjusted official U.S. imports statistics of the U.S. Department of Commerce Census Bureau using HTS statistical reporting number 3907.30.0000, accessed April 23, 2024. Official U.S. imports statistics were adjusted to add in epoxy resins imported under other HTS statistical reporting numbers as reported in responses to Commission questionnaires, as well as to remove out-of-scope products imported under the primary HTS number for epoxy resins as reported as responses to Commission questionnaires. Import data are based on the imports for consumption data series, and values are landed, duty-paid values.

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 "---".

Figure IV-2

Epoxy resins: Share of U.S. imports from China out of total imports in the various twelve-month periods in the lead up to the twelve months immediately prior to the filing of the petitions



Source: Adjusted official U.S. imports statistics of the U.S. Department of Commerce Census Bureau using HTS statistical reporting number 3907.30.0000, accessed April 23, 2024. Official U.S. imports statistics were adjusted to add in epoxy resins imported under other HTS statistical reporting numbers as reported in responses to Commission questionnaires, as well as to remove out-of-scope products imported under the primary HTS number for epoxy resins as reported as responses to Commission questionnaires. Import data are based on the imports for consumption data series, and values are landed, duty-paid values.

India

Table IV-6 and figure IV-3 presents U.S. imports from India in the twelve months leading up to the petitions and India's share of imports compared with all other sources.

Table IV-6
Epoxy resins: U.S. imports from India and all sources in various twelve-month periods in the lead up to the twelve months immediately prior to the filing of the petitions

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

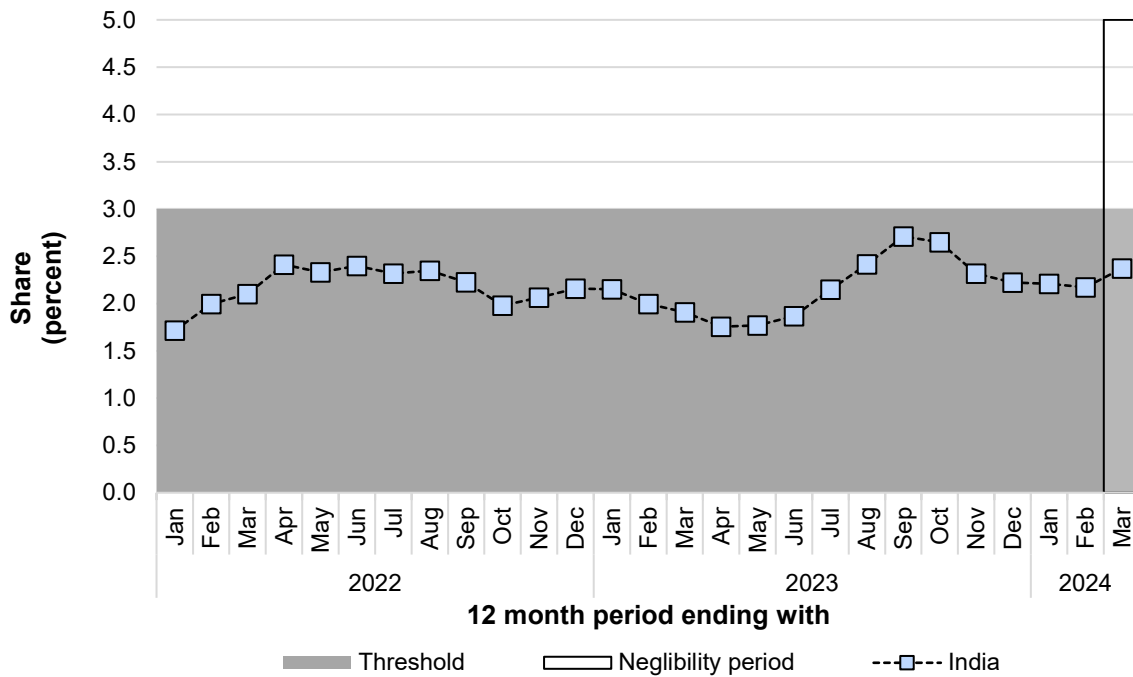
Twelve month period through to and including	India quantity	Other than India quantity	All import sources quantity	India share	Other than India share	All import sources share
January 2022	5,138	294,462	299,600	1.7	98.3	100.0
February 2022	6,267	307,653	313,920	2.0	98.0	100.0
March 2022	6,692	311,937	318,629	2.1	97.9	100.0
April 2022	7,641	309,096	316,737	2.4	97.6	100.0
May 2022	7,522	315,305	322,828	2.3	97.7	100.0
June 2022	7,808	317,501	325,309	2.4	97.6	100.0
July 2022	7,682	323,588	331,270	2.3	97.7	100.0
August 2022	7,807	324,681	332,488	2.3	97.7	100.0
September 2022	7,534	330,775	338,309	2.2	97.8	100.0
October 2022	6,814	337,700	344,514	2.0	98.0	100.0
November 2022	7,109	337,133	344,242	2.1	97.9	100.0
December 2022	7,294	330,375	337,669	2.2	97.8	100.0
January 2023	7,278	331,152	338,430	2.2	97.8	100.0
February 2023	6,524	320,101	326,625	2.0	98.0	100.0
March 2023	6,279	322,559	328,838	1.9	98.1	100.0
April 2023	5,717	320,191	325,909	1.8	98.2	100.0
May 2023	5,672	315,158	320,831	1.8	98.2	100.0
June 2023	5,774	303,466	309,240	1.9	98.1	100.0
July 2023	6,463	294,332	300,796	2.1	97.9	100.0
August 2023	7,102	287,076	294,178	2.4	97.6	100.0
September 2023	7,605	272,999	280,604	2.7	97.3	100.0
October 2023	7,167	263,540	270,707	2.6	97.4	100.0
November 2023	6,192	260,820	267,011	2.3	97.7	100.0
December 2023	5,987	263,265	269,253	2.2	97.8	100.0
January 2024	5,832	257,974	263,806	2.2	97.8	100.0
February 2024	5,858	263,813	269,671	2.2	97.8	100.0
March 2024	6,158	253,516	259,674	2.4	97.6	100.0

Source: Adjusted official U.S. imports statistics of the U.S. Department of Commerce Census Bureau using HTS statistical reporting number 3907.30.0000, accessed April 23, 2024. Official U.S. imports statistics were adjusted to add in epoxy resins imported under other HTS statistical reporting numbers as reported in responses to Commission questionnaires, as well as to remove out-of-scope products imported under the primary HTS number for epoxy resins as reported as responses to Commission questionnaires. Import data are based on the imports for consumption data series, and values are landed, duty-paid values.

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 "---".

Figure IV-3

Epoxy resins: Share of U.S. imports from India out of total imports in the various twelve-month periods in the lead up to the twelve months immediately prior to the filing of the petitions



Source: Adjusted official U.S. imports statistics of the U.S. Department of Commerce Census Bureau using HTS statistical reporting number 3907.30.0000, accessed April 23, 2024. Official U.S. imports statistics were adjusted to add in epoxy resins imported under other HTS statistical reporting numbers as reported in responses to Commission questionnaires, as well as to remove out-of-scope products imported under the primary HTS number for epoxy resins as reported as responses to Commission questionnaires. Import data are based on the imports for consumption data series, and values are landed, duty-paid values.

Cumulation considerations

In assessing whether imports should be cumulated, the Commission determines whether U.S. imports from the subject countries compete with each other and with the domestic like product and has generally considered four factors: (1) fungibility, (2) presence of sales or offers to sell in the same geographical markets, (3) common or similar channels of distribution, and (4) simultaneous presence in the market. Information regarding channels of distribution, market areas, and interchangeability appear in Part II. Additional information concerning fungibility, geographical markets, and simultaneous presence in the market is presented below.

Fungibility

In this proceeding, U.S. producers and importer were asked to report their U.S. shipments of epoxy resins by form, i.e., epoxy resins in a liquid/solution form versus epoxy resins in a solid/semi-solid form. Table IV-7 and figure IV-4 present firms' shipments by form type in 2023.⁸ U.S. producers and importers predominantly or exclusively shipped epoxy resins that are in a liquid/solution form. In 2023, *** percent of U.S. producers' U.S. shipments and 84.5 percent of U.S. importers' total U.S. shipments were of epoxy resins in a liquid/solution form.

Table IV-7
Epoxy resins: U.S. producers' and U.S. importers' U.S. shipments, by source and form, 2023

Quantity in 1,000 pounds

Source	Liquid / solution	Solid / semi-solid	All forms
U.S. producers	***	***	***
China	***	***	***
India	***	***	***
South Korea	***	***	***
Taiwan	***	***	***
Thailand	***	***	***
Subject sources	***	***	***
Subject sources less China and India	***	***	***
Nonsubject sources	***	***	***
Nonsubject sources plus China and India	***	***	***
All import sources	***	***	***
All sources	423,177	77,944	501,121

Table continued.

⁸ Appendix E contains additional data regarding U.S. producers and imports U.S. shipments of epoxy reasons by form type.

Table IV-7 Continued**Epoxy resins: U.S. producers' and U.S. importers' U.S. shipments, by source and form, 2023**

Share across in percent

Source	Liquid / solution	Solid / semi-solid	All forms
U.S. producers	***	***	100.0
China	***	***	100.0
India	***	***	100.0
South Korea	***	***	100.0
Taiwan	***	***	100.0
Thailand	***	***	100.0
Subject sources	***	***	100.0
Subject sources less China and India	***	***	100.0
Nonsubject sources	***	***	100.0
Nonsubject sources plus China and India	***	***	100.0
All import sources	***	***	100.0
All sources	***	***	100.0

Table continued.

Table IV-7 Continued**Epoxy resins: U.S. producers' and U.S. importers' U.S. shipments, by source and form, 2023**

Share down in percent

Source	Liquid / solution	Solid / semi-solid	All forms
U.S. producers	***	***	***
China	***	***	***
India	***	***	***
South Korea	***	***	***
Taiwan	***	***	***
Thailand	***	***	***
Subject sources	***	***	***
Subject sources less China and India	***	***	***
Nonsubject sources	***	***	***
Nonsubject sources plus China and India	***	***	***
All import sources	***	***	***
All sources	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 "---".

Figure IV-4
Epoxy resins: U.S. producers' and U.S. importers' U.S. shipments, by source and form, 2023

* * * * *

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

In this proceeding, U.S. producers and importers were asked to report their U.S. shipments of epoxy resins by the following group types:

- **Group 1.**—BADGE-type epoxy resins;
- **Group 2.**— brominated, novolac, cycloaliphatic and waterborne epoxy resins; and
- **Group 3.**— multifunctional, aliphatic, glycidyl amine, and all other epoxy resins.

Table IV-8 and figure IV-5 present firms' shipments by group type in 2023.⁹ U.S. producers and importers predominantly shipped epoxy resins from Group 1, ***. In 2023, *** percent of U.S. producers' U.S. shipments and *** percent of U.S. importers' total U.S. shipments were of epoxy resins from Group 1.

Table IV-8
Epoxy resins: U.S. producers' and U.S. importers' U.S. shipments, by source and product group, 2023

Quantity in 1,000 pounds

Source	Group 1	Group 2	Group 3	All product groups
U.S. producers	***	***	***	***
China	***	***	***	***
India	***	***	***	***
South Korea	***	***	***	***
Taiwan	***	***	***	***
Thailand	***	***	***	***
Subject sources	***	***	***	***
Subject sources less China and India	***	***	***	***
Nonsubject sources	***	***	***	***
Nonsubject sources plus China and India	***	***	***	***
All import sources	***	***	***	***
All sources	438,890	20,552	41,679	501,121

Table continued.

⁹ Appendix E contains additional data regarding U.S. producers and imports U.S. shipments of epoxy reasons by group type.

Table IV-8 Continued
Epoxy resins: U.S. producers' and U.S. importers' U.S. shipments, by source and product group, 2023

Share across in percent

Source	Group 1	Group 2	Group 3	All product groups
U.S. producers	***	***	***	100.0
China	***	***	***	100.0
India	***	***	***	100.0
South Korea	***	***	***	100.0
Taiwan	***	***	***	100.0
Thailand	***	***	***	100.0
Subject sources	***	***	***	100.0
Subject sources less China and India	***	***	***	100.0
Nonsubject sources	***	***	***	100.0
Nonsubject sources plus China and India	***	***	***	100.0
All import sources	***	***	***	100.0
All sources	***	***	***	100.0

Table continued.

Table IV-8 Continued
Epoxy resins: U.S. producers' and U.S. importers' U.S. shipments, by source and product group, 2023

Share down in percent

Source	Group 1	Group 2	Group 3	All product groups
U.S. producers	***	***	***	***
China	***	***	***	***
India	***	***	***	***
South Korea	***	***	***	***
Taiwan	***	***	***	***
Thailand	***	***	***	***
Subject sources	***	***	***	***
Subject sources less China and India	***	***	***	***
Nonsubject sources	***	***	***	***
Nonsubject sources plus China and India	***	***	***	***
All import sources	***	***	***	***
All sources	100.0	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 "---". Group 1 includes BADGE-type epoxy resins, group 2 includes brominated, novolac, cycloaliphatic and waterborne epoxy resins, and group 3 includes multifunctional, aliphatic, glycidyl amine, and all other epoxy resins.

Figure IV-5
Epoxy resins: U.S. producers' and U.S. importers' U.S. gross epoxy resins shipments, by source and by form, 2023

* * * * *

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

Note: Group 1 includes BADGE-type epoxy resins; group 2 includes brominated, novolac, cycloaliphatic and waterborne epoxy resins; and group 3 includes multifunctional, aliphatic, glycidyl amine, and all other epoxy resins.

Geographical markets

Table IV-9 presents data on U.S. imports of epoxy resins by border of entry in 2023. According to official import statistics, imports of epoxy resins from subject and nonsubject sources entered the United States through Eastern, Northern, Southern, and Western borders of entry during 2023.

Table IV-9
Epoxy resins: U.S. imports, by source and by border of entry, 2023

Quantity in 1,000 pounds

Source	East	North	South	West	All borders
China	1,096	1,178	522	1,287	4,084
India	2,295	1,378	949	99	4,720
South Korea	19,093	66,491	32,248	6,888	124,720
Taiwan	10,840	18,216	5,783	5,187	40,027
Thailand	2,024	5,050	4,701	943	12,719
Subject sources	35,348	92,315	44,204	14,404	186,270
Subject sources less China and India	31,957	89,758	42,733	13,018	177,466
Nonsubject sources	18,722	18,785	30,298	2,733	70,538
Nonsubject sources plus China and India	22,113	21,342	31,768	4,119	79,343
All import sources	54,070	111,100	74,501	17,137	256,808

Table continued.

Table IV-9 Continued
Epoxy resins: U.S. imports, by source and by border of entry, 2023

Share across in percent

Source	East	North	South	West	All borders
China	26.8	28.9	12.8	31.5	100.0
India	48.6	29.2	20.1	2.1	100.0
South Korea	15.3	53.3	25.9	5.5	100.0
Taiwan	27.1	45.5	14.4	13.0	100.0
Thailand	15.9	39.7	37.0	7.4	100.0
Subject sources	19.0	49.6	23.7	7.7	100.0
Subject sources less China and India	18.0	50.6	24.1	7.3	100.0
Nonsubject sources	26.5	26.6	43.0	3.9	100.0
Nonsubject sources plus China and India	27.9	26.9	40.0	5.2	100.0
All import sources	21.1	43.3	29.0	6.7	100.0

Table continued.

Table IV-9 Continued
Epoxy resins: U.S. imports, by source and by border of entry, 2023

Share down in percent

Source	East	North	South	West	All borders
China	2.0	1.1	0.7	7.5	1.6
India	4.2	1.2	1.3	0.6	1.8
South Korea	35.3	59.8	43.3	40.2	48.6
Taiwan	20.0	16.4	7.8	30.3	15.6
Thailand	3.7	4.5	6.3	5.5	5.0
Subject sources	65.4	83.1	59.3	84.1	72.5
Subject sources less China and India	59.1	80.8	57.4	76.0	69.1
Nonsubject sources	34.6	16.9	40.7	15.9	27.5
Nonsubject sources plus China and India	40.9	19.2	42.6	24.0	30.9
All import sources	100.0	100.0	100.0	100.0	100.0

Source: Compiled from official U.S. import statistics of the U.S. Department of Commerce Census Bureau using statistical reporting number 3907.30.0000, accessed April 23, 2024. Imports are based on the imports for consumption data series.

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 "---". Data reflect unadjusted official U.S. import statistics for the primary HTS statistical reporting number and therefore have not been adjusted to exclude out-of-scope data under that primary code.

Presence in the market

Table IV-10 and figures IV-6 and IV-7 present monthly data for U.S. imports of epoxy resins during January 2021—March 2024. Imports of epoxy resins from subject and nonsubject sources entered the United States each month between January 2021 and March 2024.

Table IV-10
Epoxy resins: U.S. imports, by month and source

Quantity in 1,000 pounds

Year	Month	China	India	South Korea	Taiwan	Thailand
2021	January	505	46	5,517	724	691
2021	February	431	20	5,670	582	563
2021	March	1,131	40	12,808	943	413
2021	April	552	45	19,058	1,486	1,271
2021	May	785	144	12,551	1,406	1,350
2021	June	1,520	53	17,756	1,226	933
2021	July	1,075	202	11,609	1,254	1,076
2021	August	732	42	17,222	1,398	1,333
2021	September	451	287	15,498	1,836	1,511
2021	October	570	670	10,611	1,782	1,599
2021	November	458	321	9,820	2,437	1,009
2021	December	213	120	11,693	1,453	606
2022	January	309	404	12,456	1,562	872
2022	February	220	722	15,904	1,499	519
2022	March	679	317	15,200	2,766	679
2022	April	604	647	18,395	1,851	756
2022	May	362	131	19,251	3,541	812
2022	June	585	250	20,653	2,453	923
2022	July	615	208	16,444	2,304	1,242
2022	August	821	136	15,881	3,423	1,356
2022	September	731	239	19,817	3,050	926
2022	October	389	507	16,534	4,043	920
2022	November	601	636	8,784	3,869	938
2022	December	409	284	4,656	2,096	537

Table continued.

Table IV-10 Continued
Epoxy resins: U.S. imports, by month and source

Quantity in 1,000 pounds

Year	Month	China	India	South Korea	Taiwan	Thailand
2023	January	659	540	11,823	3,535	1,045
2023	February	448	355	5,910	3,078	555
2023	March	278	211	17,104	3,715	1,864
2023	April	383	381	13,767	3,763	1,291
2023	May	522	131	13,916	4,379	1,277
2023	June	323	395	8,908	3,978	706
2023	July	239	799	9,669	3,956	645
2023	August	367	668	10,441	4,227	871
2023	September	311	692	9,732	2,460	706
2023	October	190	301	8,816	2,341	1,224
2023	November	226	46	7,329	2,461	1,798
2023	December	137	200	7,305	2,135	737
2024	January	165	377	9,420	1,517	1,421
2024	February	117	347	8,090	3,119	1,752
2024	March	97	444	8,077	2,020	844

Table continued.

Table IV-10 Continued
Epoxy resins: U.S. imports, by month and source

Quantity in 1,000 pounds

Year	Month	Subject sources	Subject sources less China and India	Nonsubject sources	Nonsubject sources plus China and India	All import sources
2021	January	7,483	6,932	5,975	6,526	13,458
2021	February	7,265	6,815	5,474	5,924	12,739
2021	March	15,336	14,165	8,006	9,177	23,342
2021	April	22,411	21,814	8,438	9,036	30,849
2021	May	16,236	15,307	7,991	8,920	24,227
2021	June	21,488	19,916	6,781	8,354	28,270
2021	July	15,216	13,939	7,333	8,610	22,549
2021	August	20,726	19,953	6,728	7,501	27,454
2021	September	19,584	18,845	6,680	7,418	26,264
2021	October	15,232	13,992	7,087	8,327	22,319
2021	November	14,044	13,265	7,026	7,805	21,070
2021	December	14,086	13,752	6,070	6,403	20,156
2022	January	15,602	14,890	7,584	8,297	23,187
2022	February	18,863	17,921	7,984	8,926	26,847
2022	March	19,641	18,645	8,293	9,289	27,934
2022	April	22,253	21,002	7,280	8,531	29,533
2022	May	24,096	23,603	7,013	7,506	31,109
2022	June	24,864	24,029	6,223	7,058	31,087
2022	July	20,813	19,990	8,044	8,868	28,858
2022	August	21,616	20,659	7,424	8,382	29,041
2022	September	24,763	23,793	8,421	9,392	33,185
2022	October	22,393	21,498	7,468	8,363	29,861
2022	November	14,829	13,592	6,238	7,475	21,066
2022	December	7,981	7,288	5,939	6,632	13,920

Table continued.

Table IV-10 Continued
Epoxy resins: U.S. imports, by month and source

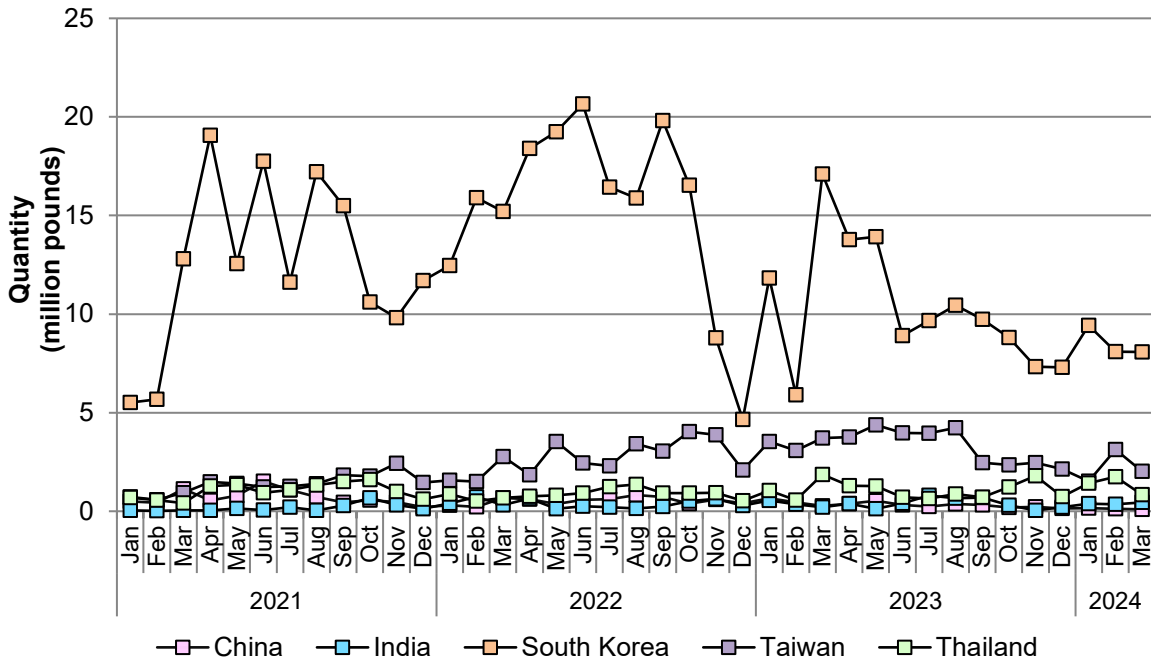
Quantity in 1,000 pounds

Year	Month	Subject sources	Subject sources less China and India	Nonsubject sources	Nonsubject sources plus China and India	All import sources
2023	January	17,603	16,404	5,958	7,157	23,561
2023	February	10,344	9,542	4,773	5,575	15,117
2023	March	23,172	22,682	6,488	6,978	29,660
2023	April	19,586	18,822	6,849	7,613	26,435
2023	May	20,225	19,572	5,579	6,232	25,804
2023	June	14,309	13,591	5,264	5,982	19,573
2023	July	15,307	14,269	5,201	6,239	20,508
2023	August	16,574	15,539	6,011	7,046	22,585
2023	September	13,902	12,898	5,695	6,699	19,597
2023	October	12,871	12,380	7,285	7,776	20,156
2023	November	11,860	11,588	5,920	6,193	17,781
2023	December	10,515	10,177	5,516	5,853	16,030
2024	January	12,901	12,358	5,562	6,105	18,463
2024	February	13,425	12,961	7,239	7,703	20,664
2024	March	11,482	10,941	8,448	8,989	19,930

Source: Compiled from official U.S. import statistics of the U.S. Department of Commerce Census Bureau using statistical reporting number 3907.30.0000, accessed April 23, 2024. Imports are based on the imports for consumption data series.

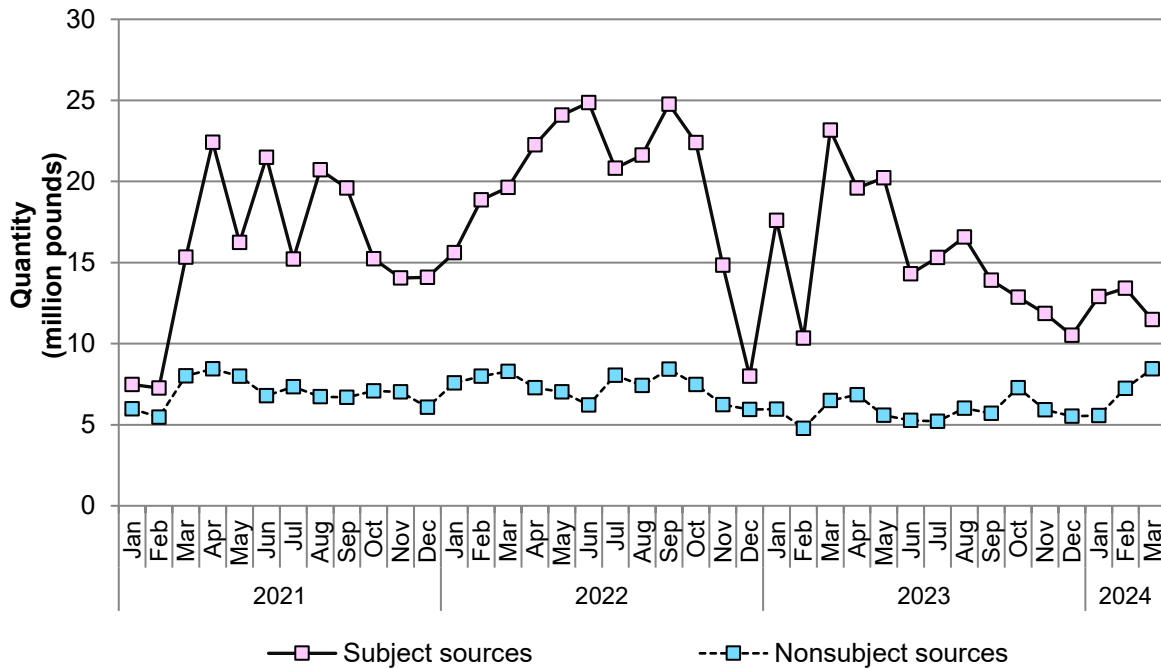
Note: Data reflect unadjusted official U.S. import statistics for the primary HTS statistical reporting number and therefore have not been adjusted to exclude out-of-scope data under that primary code.

Figure IV-6
Epoxy resins: U.S. imports from individual subject sources, by source and by month



Source: Compiled from official U.S. import statistics of the U.S. Department of Commerce Census Bureau using statistical reporting number 3907.30.0000, accessed April 23, 2024. Imports are based on the imports for consumption data series.

Figure IV-7
Epoxy resins: U.S. imports from aggregated subject and nonsubject sources, by month



Source: Compiled from official U.S. import statistics of the U.S. Department of Commerce Census Bureau using statistical reporting number 3907.30.0000, accessed April 23, 2024. Imports are based on the imports for consumption data series.

Apparent U.S. consumption and market shares

Quantity

Table IV-11 and figure IV-8 presents data on apparent U.S. consumption and U.S. market shares by quantity for epoxy resins. The quantity of apparent U.S. consumption declined irregularly from *** pounds in 2021 to *** pounds in 2022 to *** pounds in 2023, decreasing by a total of *** percent from 2021 to 2023. In the same period, U.S producers’ U.S. shipments decrease by *** percent from *** pounds in 2021 to *** pounds in 2023. U.S. importers’ imports of epoxy resins from subject and nonsubject sources also decreased irregularly during 2021-23. Nonsubject imports decreased by 14.6 percent from 82.7 million pounds in 2021 to 86.0 million pounds in 2022 to 70.6 million pounds in 2023. Imports from subject imports, largely driven by South Korea, decrease by 2.9 percent from 207.1 million pounds in 2021 to 251.7 million pounds in 2022 to 201.2 million pounds in 2023.

Table IV-11**Epoxy resins: Apparent U.S. consumption and market shares based on quantity data, by source and period**

Quantity in 1,000 pounds; shares in percent

Source	Measure	2021	2022	2023
U.S. producers	Quantity	***	***	***
China	Quantity	8,574	6,841	4,308
India	Quantity	4,586	7,294	5,602
South Korea	Quantity	153,618	184,752	125,275
Taiwan	Quantity	17,076	34,696	42,155
Thailand	Quantity	23,225	18,132	23,820
Subject sources	Quantity	207,078	251,715	201,160
Subject sources less China and India	Quantity	193,918	237,580	191,250
Nonsubject sources	Quantity	82,661	85,955	70,579
Nonsubject sources plus China and India	Quantity	95,821	100,090	80,490
All import sources	Quantity	289,739	337,669	271,739
All sources	Quantity	***	***	***
U.S. producers	Share	***	***	***
China	Share	***	***	***
India	Share	***	***	***
South Korea	Share	***	***	***
Taiwan	Share	***	***	***
Thailand	Share	***	***	***
Subject sources	Share	***	***	***
Subject sources less China and India	Share	***	***	***
Nonsubject sources	Share	***	***	***
Nonsubject sources plus China and India	Share	***	***	***
All import sources	Share	***	***	***
All sources	Share	100.0	100.0	100.0

Source: Compiled from data submitted to Commission questionnaires and adjusted official U.S. imports statistics of the U.S. Department of Commerce Census Bureau using HTS statistical reporting number 3907.30.0000, accessed April 23, 2024. Official U.S. imports statistics were adjusted to add in epoxy resins imported under other HTS statistical reporting numbers as reported in responses to Commission questionnaires, as well as to remove out-of-scope products imported under the primary HTS number for epoxy resins as reported as responses to Commission questionnaires. Import data are based on the imports for consumption data series.

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 "---".

Figure IV-8
Epoxy resins: Apparent U.S. consumption based on quantity data, by source and period

* * * * *

Source: Compiled from data submitted to Commission questionnaires and adjusted official U.S. imports statistics of the U.S. Department of Commerce Census Bureau using HTS statistical reporting number 3907.30.0000, accessed April 23, 2024. Official U.S. imports statistics were adjusted to add in epoxy resins imported under other HTS statistical reporting numbers as reported in responses to Commission questionnaires, as well as to remove out-of-scope products imported under the primary HTS number for epoxy resins as reported as responses to Commission questionnaires. Import data are based on the imports for consumption data series.

Value

Table IV-12 and figure IV-9 present data on apparent U.S. consumption and U.S. market shares by value for epoxy resins. The value of apparent U.S. consumption followed the same trend as the quantity of apparent U.S. consumption (presented above). The value of U.S. producers' U.S. shipments decreased during 2021-23. The value of imports from subject and nonsubject sources decreased irregularly during 2021-23. The value of apparent U.S. consumption decreased irregularly by *** percent from \$*** in 2021 to \$*** in 2022 to \$*** in 2023.

Table IV-12**Epoxy resins: Apparent U.S. consumption and market shares based on value data, by source and period**

Value in 1,000 dollars; shares in percent

Source	Measure	2021	2022	2023
U.S. producers	Value	***	***	***
China	Value	23,347	17,423	9,133
India	Value	10,971	20,694	9,994
South Korea	Value	363,078	522,326	216,643
Taiwan	Value	40,487	80,292	62,780
Thailand	Value	48,523	49,655	41,468
Subject sources	Value	486,406	690,391	340,017
Subject sources less China and India	Value	452,088	652,274	320,890
Nonsubject sources	Value	262,877	346,688	301,723
Nonsubject sources plus China and India	Value	297,195	384,805	320,849
All import sources	Value	749,283	1,037,079	641,740
All sources	Value	***	***	***
U.S. producers	Share	***	***	***
China	Share	***	***	***
India	Share	***	***	***
South Korea	Share	***	***	***
Taiwan	Share	***	***	***
Thailand	Share	***	***	***
Subject sources	Share	***	***	***
Subject sources less China and India	Share	***	***	***
Nonsubject sources	Share	***	***	***
Nonsubject sources plus China and India	Share	***	***	***
All import sources	Share	***	***	***
All sources	Share	100.0	100.0	100.0

Source: Compiled from data submitted to Commission questionnaires and adjusted official U.S. imports statistics of the U.S. Department of Commerce Census Bureau using HTS statistical reporting number 3907.30.0000, accessed April 23, 2024. Official U.S. imports statistics were adjusted to add in epoxy resins imported under other HTS statistical reporting numbers as reported in responses to Commission questionnaires, as well as to remove out-of-scope products imported under the primary HTS number for epoxy resins as reported as responses to Commission questionnaires. Import data are based on the imports for consumption data series, and values are landed, duty-paid values.

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 "---".

Figure IV-9
Epoxy resins: Apparent U.S. consumption based on value data, by source and period

* * * * *

Source: Compiled from data submitted to Commission questionnaires and adjusted official U.S. imports statistics of the U.S. Department of Commerce Census Bureau using HTS statistical reporting number 3907.30.0000, accessed April 23, 2024. Official U.S. imports statistics were adjusted to add in epoxy resins imported under other HTS statistical reporting numbers as reported in responses to Commission questionnaires, as well as to remove out-of-scope products imported under the primary HTS number for epoxy resins as reported as responses to Commission questionnaires. Import data are based on the imports for consumption data series, and values are landed, duty-paid values.

Part V: Pricing data

Factors affecting prices

Raw material costs

Epoxy resins are generally created using ECH and BPA. There is no public data on the cost of ECH or BPA available. Some U.S. producers, like Olin, have fully integrated production facilities where they manufacture not only epoxy resins but the chemicals that are used to produce epoxy resins.¹

Transportation costs to the U.S. market

Transportation costs for epoxy resins shipped from subject countries to the United States averaged 14.4 percent for China, 5.7 percent for India, 5.7 percent for South Korea, 8.8 percent for Taiwan, and 8.6 percent for Thailand during 2023. These estimates were derived from official import data and represent the transportation and other charges on imports.²

U.S. inland transportation costs

*** responding U.S. producers and the majority importers reported that they typically arrange transportation to their customers. U.S. producers reported that their U.S. inland transportation costs ranged from *** to *** percent while most importers reported costs of 2.0 to 8.0 percent.³

Pricing practices

Pricing methods

U.S. producers and importers reported setting prices using transaction-by-transaction negotiations, contracts, price lists, and other methods (table V-1). U.S. producer *** reported that prices can be set using a reference price published in industry reports and using cost-plus formulas. Importer *** reported using a cost-plus margin pricing model to

¹ Conference transcript, pp. 57-58. (Espinoza).

² The estimated transportation costs were obtained by subtracting the customs value from the c.i.f. value of the imports for 2023 and then dividing by the customs value based on the HTS statistical reporting number 3907.30.0000.

³ Importer *** reported that inland transportation costs were *** percent.

determine prices of epoxy resins. Importer *** reported that it set prices with gross profit targets.

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

Method	U.S. producers	Importers
Transaction-by-transaction	***	17
Contract	***	6
Set price list	***	7
Other	***	5
Responding firms	2	21

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

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

U.S. producers reported selling most of their epoxy resins ***, while importers reported selling the vast majority of epoxy resins in the spot market (table V-2).

Table V-2
Epoxy resins: U.S. producers' and importers' shares of commercial U.S. shipments by type of sale, 2023

Share in percent

Type of sale	U.S. producers	Subject importers
Long-term contracts	***	4.4
Annual contracts	***	6.7
Short-term contracts	***	6.9
Spot sales	***	82.0
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.

*** U.S. producers reported that they did *** during annual contracts and *** for annual contracts. U.S. producer *** reported that it *** for annual contracts. U.S. producer *** reported that it *** renegotiate pricing and indexed prices to raw material costs for long-term contracts. U.S. producer *** reported indexing prices to raw material costs using ***. U.S. producer *** reported indexing prices to raw material costs using the chemical market analytics, ICIS, Tecnon, or OrbiChem indexes.

The majority of importers reported that they do not renegotiate prices for short-term, annual, or long-term contracts. All responding importers that reported selling under short-term

contracts reported fixing quantities and a majority reported fixing prices. The majority of responding importers reported fixing quantities in annual contracts and half of responding importers reported fixing quantities in long-term contracts. Importer *** reported fixing prices in annual and long-term contracts. The majority of importers reported that they did not index prices to raw material costs in short-term contracts, while all responding importers reported indexing prices to raw material costs in annual and long-term contracts. Importers reported indexing prices to raw material costs using the cost of BPA and ECH.

Sales terms and discounts

U.S. producer *** reported that it typically quotes prices on *** while U.S. producer *** typically quotes its prices on an *** basis from its plant, warehouse, or terminal. Importers typically quote prices on a delivered basis. U.S. producers offer quantity and total volume discounts, while the majority of importers reported having no discount policy. Of those importers who reported offering discounts, two importers reported offering quantity discounts, four reported offering total volume discounts, and four reported offering “other” discounts. Importers reported that other discounts include price discounts for products that are about to expire, rebates based on annual volumes, and early payment discounts.

Price data

The Commission requested U.S. producers and importers provide quarterly data for the total quantity and f.o.b. value of the following epoxy resins products shipped to unrelated U.S. customers during January 2021-December 2023.

Product 1.-- Bisphenol A liquid epoxy resin, basic commodity grade (i.e., D.E.R. 331, EPON 828, KER 828, YD 128, NPEL128, BE-188, and SM 828), sold in bulk (ISO Tanks or Tank Truck).

Product 2.-- Bisphenol A liquid epoxy resin, basic commodity grade (i.e., D.E.R. 331, EPON 828, KER 828, YD 128, NPEL128, BE-188, and SM 828), sold in packages (Totes, Intermediate Bulk Containers (“IBC’s”), or drums).

Product 3.-- Bisphenol A solid epoxy resin, Type 3, Epoxy Equivalent Weight (“EEW”) based on solids range between 700-850 g/eq (i.e., D.E.R. 663U, D.E.R. 663UE, EPON 2003, KD 213, KD 243C, KER 3033, NPES 903H, BE 503, YD 903).

Product 4.-- Bisphenol A solid epoxy resin, Type 4, Epoxy Equivalent Weight ("EEW") based on solids range between 800-1,000 g/eq (i.e., D.E.R. 664UE, EPON 2004, KD 214L, NPES 904H, BE 504H).

Two U.S. producers and 12 importers provided usable pricing data for sales of the requested products, although not all firms reported pricing for all products for all quarters.⁴ Pricing data reported by these firms accounted for approximately *** percent of U.S. producers' U.S. shipments of epoxy resins and *** percent of U.S. shipments of subject imports from subject countries in 2023.⁵ Price data for products 1-4 are presented in tables V-3 to V-6 and figures V-1 to V-4.

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

Table V-3

Epoxy resins: Weighted-average f.o.b. prices and quantities of domestic and imported product 1 and margins of underselling/(overselling), by source and quarter

Price in dollars per pound, quantity in 1000 pounds, margin in percent.

Period	U.S. price	U.S. quantity	China price	China quantity	China margin	India price	India quantity	India margin
2021 Q1	***	***	***	***	***	***	***	***
2021 Q2	***	***	***	***	***	***	***	***
2021 Q3	***	***	***	***	***	***	***	***
2021 Q4	***	***	***	***	***	***	***	***
2022 Q1	***	***	***	***	***	***	***	***
2022 Q2	***	***	***	***	***	***	***	***
2022 Q3	***	***	***	***	***	***	***	***
2022 Q4	***	***	***	***	***	***	***	***
2023 Q1	***	***	***	***	***	***	***	***
2023 Q2	***	***	***	***	***	***	***	***
2023 Q3	***	***	***	***	***	***	***	***
2023 Q4	***	***	***	***	***	***	***	***

Period	South Korea price	South Korea quantity	South Korea margin	Taiwan price	Taiwan quantity	Taiwan margin	Thailand price	Thailand quantity	Thailand margin
2021 Q1	***	***	***	***	***	***	***	***	***
2021 Q2	***	***	***	***	***	***	***	***	***
2021 Q3	***	***	***	***	***	***	***	***	***
2021 Q4	***	***	***	***	***	***	***	***	***
2022 Q1	***	***	***	***	***	***	***	***	***
2022 Q2	***	***	***	***	***	***	***	***	***
2022 Q3	***	***	***	***	***	***	***	***	***
2022 Q4	***	***	***	***	***	***	***	***	***
2023 Q1	***	***	***	***	***	***	***	***	***
2023 Q2	***	***	***	***	***	***	***	***	***
2023 Q3	***	***	***	***	***	***	***	***	***
2023 Q4	***	***	***	***	***	***	***	***	***

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

Note: Product 1: Bisphenol A liquid epoxy resin, basic commodity grade (i.e., D.E.R. 331, EPON 828, KER 828, YD 128, NPEL128, BE-188, and SM 828), sold in bulk (ISO Tanks or Tank Truck).

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

Price of product 1

* * * * *

Volume of product 1

* * * * *

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

Note: Product 1: Bisphenol A liquid epoxy resin, basic commodity grade (i.e., D.E.R. 331, EPON 828, KER 828, YD 128, NPEL128, BE-188, and SM 828), sold in bulk (ISO Tanks or Tank Truck).

Table V-4

Epoxy resins: Weighted-average f.o.b. prices and quantities of domestic and imported product 2 and margins of underselling/(overselling), by source and quarter

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

Period	U.S. price	U.S. quantity	China price	China quantity	China margin	India price	India quantity	India margin
2021 Q1	***	***	***	***	***	***	***	***
2021 Q2	***	***	***	***	***	***	***	***
2021 Q3	***	***	***	***	***	***	***	***
2021 Q4	***	***	***	***	***	***	***	***
2022 Q1	***	***	***	***	***	***	***	***
2022 Q2	***	***	***	***	***	***	***	***
2022 Q3	***	***	***	***	***	***	***	***
2022 Q4	***	***	***	***	***	***	***	***
2023 Q1	***	***	***	***	***	***	***	***
2023 Q2	***	***	***	***	***	***	***	***
2023 Q3	***	***	***	***	***	***	***	***
2023 Q4	***	***	***	***	***	***	***	***

Period	South Korea price	South Korea quantity	South Korea margin	Taiwan price	Taiwan quantity	Taiwan margin	Thailand price	Thailand quantity	Thailand margin
2021 Q1	***	***	***	***	***	***	***	***	***
2021 Q2	***	***	***	***	***	***	***	***	***
2021 Q3	***	***	***	***	***	***	***	***	***
2021 Q4	***	***	***	***	***	***	***	***	***
2022 Q1	***	***	***	***	***	***	***	***	***
2022 Q2	***	***	***	***	***	***	***	***	***
2022 Q3	***	***	***	***	***	***	***	***	***
2022 Q4	***	***	***	***	***	***	***	***	***
2023 Q1	***	***	***	***	***	***	***	***	***
2023 Q2	***	***	***	***	***	***	***	***	***
2023 Q3	***	***	***	***	***	***	***	***	***
2023 Q4	***	***	***	***	***	***	***	***	***

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

Note: Product 2: Bisphenol A liquid epoxy resin, basic commodity grade (i.e., D.E.R. 331, EPON 828, KER 828, YD 128, NPEL128, BE-188, and SM 828), sold in packages (Totes, Intermediate Bulk Containers (“IBC’s”), or drums).

Figure V-2

Epoxy resins: Weighted-average f.o.b. prices and quantities of domestic and imported product 2, by source and quarter

Price of product 2

* * * * *

Volume of product 2

* * * * *

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

Note: Product 2: Bisphenol A liquid epoxy resin, basic commodity grade (i.e., D.E.R. 331, EPON 828, KER 828, YD 128, NPEL128, BE-188, and SM 828), sold in packages (Totes, Intermediate Bulk Containers ("IBC's"), or drums).

Table V-5

Epoxy resins: Weighted-average f.o.b. prices and quantities of domestic and imported product 3 and margins of underselling/(overselling), by source and quarter

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

Period	U.S. price	U.S. quantity	China price	China quantity	China margin	India price	India quantity	India margin
2021 Q1	***	***	***	***	***	***	***	***
2021 Q2	***	***	***	***	***	***	***	***
2021 Q3	***	***	***	***	***	***	***	***
2021 Q4	***	***	***	***	***	***	***	***
2022 Q1	***	***	***	***	***	***	***	***
2022 Q2	***	***	***	***	***	***	***	***
2022 Q3	***	***	***	***	***	***	***	***
2022 Q4	***	***	***	***	***	***	***	***
2023 Q1	***	***	***	***	***	***	***	***
2023 Q2	***	***	***	***	***	***	***	***
2023 Q3	***	***	***	***	***	***	***	***
2023 Q4	***	***	***	***	***	***	***	***

Period	South Korea price	South Korea quantity	South Korea margin	Taiwan price	Taiwan quantity	Taiwan margin	Thailand price	Thailand quantity	Thailand margin
2021 Q1	***	***	***	***	***	***	***	***	***
2021 Q2	***	***	***	***	***	***	***	***	***
2021 Q3	***	***	***	***	***	***	***	***	***
2021 Q4	***	***	***	***	***	***	***	***	***
2022 Q1	***	***	***	***	***	***	***	***	***
2022 Q2	***	***	***	***	***	***	***	***	***
2022 Q3	***	***	***	***	***	***	***	***	***
2022 Q4	***	***	***	***	***	***	***	***	***
2023 Q1	***	***	***	***	***	***	***	***	***
2023 Q2	***	***	***	***	***	***	***	***	***
2023 Q3	***	***	***	***	***	***	***	***	***
2023 Q4	***	***	***	***	***	***	***	***	***

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

Note: Product 3: Bisphenol A solid epoxy resin, Type 3, Epoxy Equivalent Weight (“EEW”) based on solids range between 700-850 g/eq (i.e., D.E.R. 663U, D.E.R. 663UE, EPON 2003, KD 213, KD 243C, KER 3033, NPES 903H, BE 503, YD 903).

Figure V-3

Epoxy resins: Weighted-average f.o.b. prices 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: Bisphenol A solid epoxy resin, Type 3, Epoxy Equivalent Weight ("EEW") based on solids range between 700-850 g/eq (i.e., D.E.R. 663U, D.E.R. 663UE, EPON 2003, KD 213, KD 243C, KER 3033, NPES 903H, BE 503, YD 903).

Table V-6

Epoxy resins: Weighted-average f.o.b. prices and quantities of domestic and imported product 4 and margins of underselling/(overselling), by source and quarter

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

Period	U.S. price	U.S. quantity	China price	China quantity	China margin	India price	India quantity	India margin
2021 Q1	***	***	***	***	***	***	***	***
2021 Q2	***	***	***	***	***	***	***	***
2021 Q3	***	***	***	***	***	***	***	***
2021 Q4	***	***	***	***	***	***	***	***
2022 Q1	***	***	***	***	***	***	***	***
2022 Q2	***	***	***	***	***	***	***	***
2022 Q3	***	***	***	***	***	***	***	***
2022 Q4	***	***	***	***	***	***	***	***
2023 Q1	***	***	***	***	***	***	***	***
2023 Q2	***	***	***	***	***	***	***	***
2023 Q3	***	***	***	***	***	***	***	***
2023 Q4	***	***	***	***	***	***	***	***

Period	South Korea price	South Korea quantity	South Korea margin	Taiwan price	Taiwan quantity	Taiwan margin	Thailand price	Thailand quantity	Thailand margin
2021 Q1	***	***	***	***	***	***	***	***	***
2021 Q2	***	***	***	***	***	***	***	***	***
2021 Q3	***	***	***	***	***	***	***	***	***
2021 Q4	***	***	***	***	***	***	***	***	***
2022 Q1	***	***	***	***	***	***	***	***	***
2022 Q2	***	***	***	***	***	***	***	***	***
2022 Q3	***	***	***	***	***	***	***	***	***
2022 Q4	***	***	***	***	***	***	***	***	***
2023 Q1	***	***	***	***	***	***	***	***	***
2023 Q2	***	***	***	***	***	***	***	***	***
2023 Q3	***	***	***	***	***	***	***	***	***
2023 Q4	***	***	***	***	***	***	***	***	***

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

Note: Product 4: Bisphenol A solid epoxy resin, Type 4, Epoxy Equivalent Weight (“EEW”) based on solids range between 800-1,000 g/eq (i.e., D.E.R. 664UE, EPON 2004, KD 214L, NPES 904H, BE 504H).

Figure V-4
Epoxy resins: Weighted-average f.o.b. prices 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: Bisphenol A solid epoxy resin, Type 4, Epoxy Equivalent Weight ("EEW") based on solids range between 800-1,000 g/eq (i.e., D.E.R. 664UE, EPON 2004, KD 214L, NPES 904H, BE 504H).

Price trends

In general, prices increased from the first quarter 2021 to the second quarter of 2022 before decreasing through the fourth quarter of 2023. Table V-7 summarizes the price trends, by country and by product. As shown in the table, domestic and import prices were lower at the end of the period of investigation than they were at the beginning. Domestic price decreases ranged from 2.4 to 58.1 percent while import price decreases ranged from 15.8 to 58.1 percent.

Table V-7
Epoxy resins: Summary of price data, by product and source, January 2021-December 2023

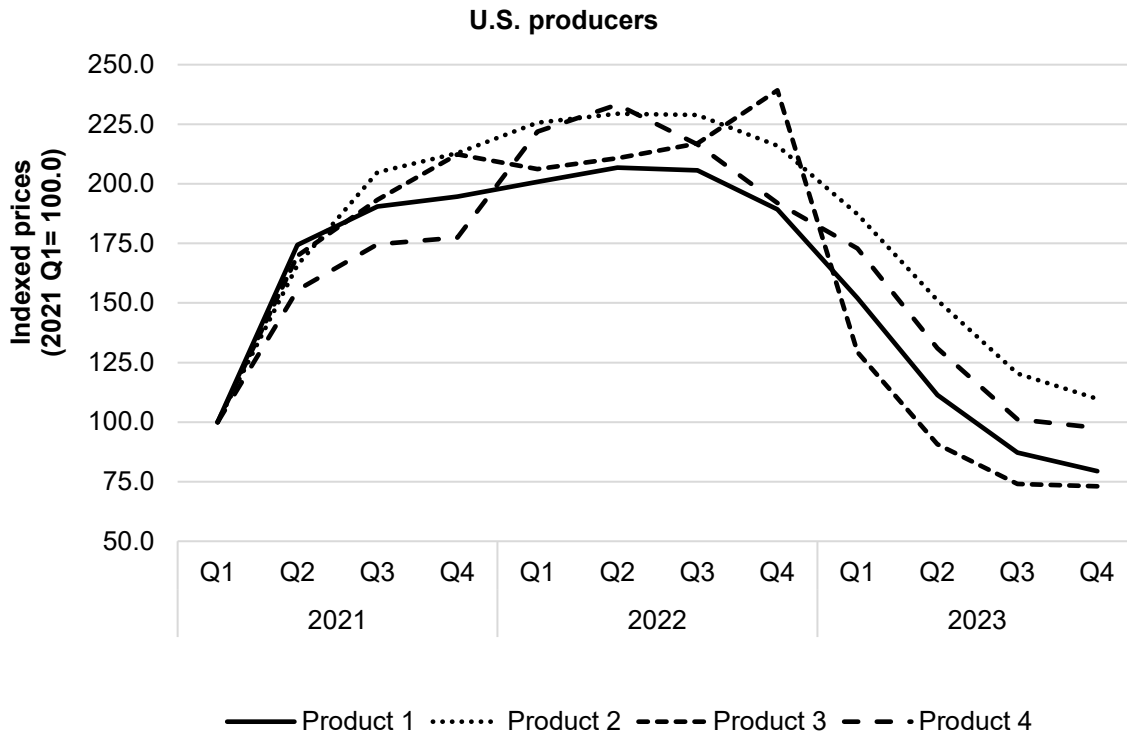
Quantity in 1,000 pounds, price in dollars per pound

Product	Source	Number of quarters	Quantity of shipments	Low price	High price	First quarter price	Last quarter price	Percent change in price over period
Product 1	United States	***	***	***	***	***	***	***
Product 1	China	***	***	***	***	***	***	***
Product 1	India	***	***	***	***	***	***	***
Product 1	South Korea	***	***	***	***	***	***	***
Product 1	Taiwan	***	***	***	***	***	***	***
Product 1	Thailand	***	***	***	***	***	***	***
Product 2	United States	***	***	***	***	***	***	***
Product 2	China	***	***	***	***	***	***	***
Product 2	India	***	***	***	***	***	***	***
Product 2	South Korea	***	***	***	***	***	***	***
Product 2	Taiwan	***	***	***	***	***	***	***
Product 2	Thailand	***	***	***	***	***	***	***
Product 3	United States	***	***	***	***	***	***	***
Product 3	China	***	***	***	***	***	***	***
Product 3	India	***	***	***	***	***	***	***
Product 3	South Korea	***	***	***	***	***	***	***
Product 3	Taiwan	***	***	***	***	***	***	***
Product 3	Thailand	***	***	***	***	***	***	***
Product 4	United States	***	***	***	***	***	***	***
Product 4	China	***	***	***	***	***	***	***
Product 4	India	***	***	***	***	***	***	***
Product 4	South Korea	***	***	***	***	***	***	***
Product 4	Taiwan	***	***	***	***	***	***	***
Product 4	Thailand	***	***	***	***	***	***	***

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

Note: Percent change column is percentage change from the first quarter 2021 to the fourth quarter in 2023.

Figure V-5
Epoxy resins: Indexed U.S. producer prices, by quarter



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

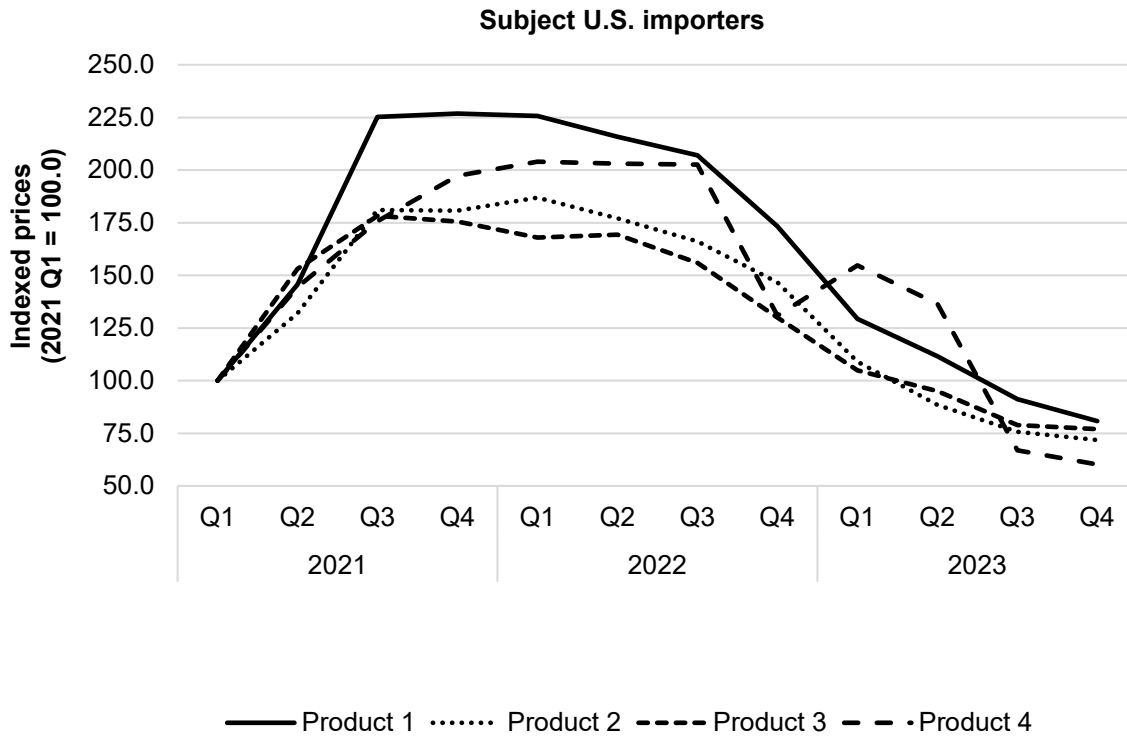
Table V-8
Epoxy resins: Indexed U.S. producer prices, by quarter

Period	Product 1	Product 2	Product 3	Product 4
2021 Q1	100.0	100.0	100.0	100.0
2021 Q2	174.4	166.0	169.8	155.4
2021 Q3	190.5	204.9	193.3	174.6
2021 Q4	194.7	212.9	212.4	177.4
2022 Q1	200.8	225.6	206.1	221.9
2022 Q2	206.8	229.4	210.8	233.2
2022 Q3	205.6	228.9	216.9	216.5
2022 Q4	189.3	215.9	239.2	191.9
2023 Q1	152.1	187.3	129.4	172.9
2023 Q2	111.4	151.1	90.7	131.0
2023 Q3	87.2	120.3	74.1	101.2
2023 Q4	79.4	109.7	73.1	97.6

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 "----".

Figure V-6
Epoxy resins: Indexed importer prices, by quarter



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

Table V-9
Epoxy resins: Indexed importers prices, by quarter

Period	Product 1	Product 2	Product 3	Product 4
2021 Q1	100.0	100.0	100.0	100.0
2021 Q2	145.6	132.0	153.0	144.4
2021 Q3	225.3	181.0	178.2	175.6
2021 Q4	226.8	180.7	175.5	197.3
2022 Q1	225.7	186.9	167.9	204.0
2022 Q2	215.8	177.1	169.3	203.1
2022 Q3	207.0	166.1	155.9	202.6
2022 Q4	173.2	146.7	129.9	130.9
2023 Q1	129.3	109.0	104.9	154.7
2023 Q2	111.5	88.5	95.1	136.5
2023 Q3	91.2	75.7	78.9	66.9
2023 Q4	80.8	71.8	77.0	60.2

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 "----".

Price comparisons

As shown in table V-10, prices for product imported from subject countries were below those for U.S.-produced product in 95 of 164 instances (240.5 million pounds); margins of underselling ranged from 0.5 to 57.0 percent. In the remaining 69 instances (55.2 million pounds), prices for product from subject countries were between 0.0 and 282.8 percent above prices for the domestic product.

Table V-10
Epoxy resins: Instances of underselling and overselling and the range and average of margins, by product

Quantity in 1,000 pounds; margin in percent

Product	Type	Number of quarters	Quantity	Average margin	Min margin	Max margin
Product 1	Underselling	33	***	***	***	***
Product 2	Underselling	25	***	***	***	***
Product 3	Underselling	28	***	***	***	***
Product 4	Underselling	9	***	***	***	***
Total, all products	Underselling	95	240,486	17.5	0.5	57.0
Product 1	Overselling	17	***	***	***	***
Product 2	Overselling	35	***	***	***	***
Product 3	Overselling	7	***	***	***	***
Product 4	Overselling	10	***	***	***	***
Total, all products	Overselling	69	55,191	(35.9)	(0.0)	(282.8)

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.

Excluding China and India, prices for imported products were below those for U.S.-produced product in 83 of 125 instances (***) pounds); margins of underselling ranged from *** to *** percent. In the remaining 42 instances (***) pounds) prices were between *** and *** percent above price of the domestic product (table V-11 and table V-12).

Table V-11**Epoxy resins: Instances and quantities of underselling/overselling and the range and average of margins less China and India, by product**

Product	Type	Number of quarters	Quantity	Average margin	Min margin	Max margin
Product 1	Underselling	28	***	***	***	***
Product 2	Underselling	18	***	***	***	***
Product 3	Underselling	28	***	***	***	***
Product 4	Underselling	9	***	***	***	***
All products	Underselling	83	***	***	***	***
Product 1	Overselling	7	***	***	***	***
Product 2	Overselling	18	***	***	***	***
Product 3	Overselling	7	***	***	***	***
Product 4	Overselling	10	***	***	***	***
All products	Overselling	42	***	***	***	***

Table V-12
Epoxy resins: Instances of underselling and overselling and the range and average of margins, by source

Quantity in 1,000 pounds; margin in percent

Source	Type	Number of quarters	Quantity	Average margin	Min margin	Max margin
China	Underselling	2	***	***	***	***
India	Underselling	10	***	***	***	***
South Korea	Underselling	29	***	***	***	***
Taiwan	Underselling	34	***	***	***	***
Thailand	Underselling	20	***	***	***	***
All subject sources	Underselling	95	***	***	***	***
All subject sources less China and India	Underselling	83	***	***	***	***
China	Overselling	17	***	***	***	***
India	Overselling	10	***	***	***	***
South Korea	Overselling	19	***	***	***	***
Taiwan	Overselling	6	***	***	***	***
Thailand	Overselling	17	***	***	***	***
All subject sources	Overselling	69	***	***	***	***
All subject sources less China and India	Overselling	42	***	***	***	***

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 epoxy resins report purchasers with which they experienced instances of lost sales or revenue due to competition from imports of epoxy resins from subject countries during January 2021-December 2023. *** of the responding U.S. producers reported that they had ***. Both U.S. producers submitted lost sales and lost revenue allegations. Responding U.S. producers identified 20 firms with which they lost sales and revenue.

Staff contacted 32 purchasers and received responses from 26 purchasers. Responding purchasers reported purchasing 530.1 million pounds of epoxy resins during January 2021-December 2023 (table V-13).

During 2023, responding purchasers purchased 61.1 percent of their epoxy resins from U.S. producers, 0.6 percent from China, 0.7 percent from India, 26.7 percent from South Korea, 4.3 percent from Taiwan, 1.0 percent from Thailand, 2.2 percent from nonsubject countries, and 0.2 percent from “unknown sources”. Purchasers were asked about changes in their purchasing patterns from different sources since January 1, 2021 (table V-14). Purchaser responses on the changes to their purchasing pattern from the United States, subject, and nonsubject countries were mixed.

Table V-14
Epoxy resins: Count of changes in purchase patterns from U.S., subject, and nonsubject countries

Source of purchases	Steadily increase	Fluctuate upward	No change	Fluctuate downward	Steadily decrease	Did not purchase
United States	3	3	1	8	10	0
China	1	0	4	1	3	14
India	1	0	2	1	0	20
South Korea	5	7	3	3	2	5
Taiwan	0	8	2	2	4	8
Thailand	2	2	3	3	2	12
Nonsubject sources	1	3	2	0	5	12
Sources unknown	0	1	3	0	1	19

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

Of the 26 responding purchasers, 19 reported that they had purchased epoxy resins from subject countries instead of U.S.-produced product since January 2021. Seventeen of these purchasers reported that subject import prices were lower than U.S.-produced product, and nine of these purchasers reported that price was a primary reason for the decision to purchase imported product rather than U.S.-produced product. Ten purchasers estimated the quantity of epoxy resins from subject countries purchased instead of domestic product; quantities purchasers reported ranged from 1.1 million pounds to 18.0 million pounds (table V-15). The total reported quantity of epoxy resins that purchasers purchased from subject countries instead of domestic product was 53.0 million pounds (table V-16). Purchasers identified product availability and having a diversified supply chain as non-price reasons for purchasing imported rather than U.S.-produced product.

Table V-15

Epoxy resins: Purchasers' responses to purchasing subject imports instead of domestic product, by firm

Quantity in 1,000 pounds

Purchaser	Purchased subject imports instead of domestic	Imports priced lower	Choice based on price	Quantity	Explanation
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***

Purchaser	Purchased subject imports instead of domestic	Imports priced lower	Choice based on price	Quantity	Explanation
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***

Purchaser	Purchased subject imports instead of domestic	Imports priced lower	Choice based on price	Quantity	Explanation
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
All firms--all subject sources	Yes--20; No--6	Yes--18; No--2	Yes--10; No--10	53,001	
All firms--subject sources less China and India	Yes--18; No--8	Yes--17; No--1	Yes--9; No--9	***	

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

Table V-16
Epoxy resins: Purchasers' responses to purchasing subject imports instead of domestic product, by source

Quantity in 1,000 pounds

Source	Count of purchasers reporting subject instead of domestic	Count of purchasers reported that imports were priced lower	Count of purchasers reporting that price was a primary reason for shift	Quantity
China	7	5	2	***
India	1	1	1	***
South Korea	17	16	8	***
Taiwan	13	13	6	***
Thailand	8	5	1	***
Subject sources	20	18	10	53,001
Subject sources less China and India	12	12	7	52,446

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

Of the 26 responding purchasers, 13 reported that U.S. producers had reduced prices in order to compete with lower-priced imports from subject countries; six reported that they did not know (table V-17). In describing the price reductions, purchasers indicated that prices rose for epoxy resins starting in the first quarter of 2021 but that prices as a whole have generally decreased throughout the period. Purchasers noted that although U.S. producers reduced their prices, their price decreases have lagged behind price decreases from subject countries. A

plurality of purchasers reported that U.S. price decreases had been in response to imports from South Korea and Taiwan (table V-17).

Responding purchasers reported estimated price reductions ranged from 5.0 to 68.0 percent (table V-18).

Table V-17
Epoxy resins: Purchasers' responses to U.S. producer price reductions, by firm

Purchaser	Reported producers lowered prices	Estimated percent of U.S. price reduction	Explanation
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***

Table continued.

Table V-17--Continued

Epoxy resins: Purchasers' responses to U.S. producer price reductions, by firm

Purchaser	Reported producers lowered prices	Estimated percent of U.S. price reduction	Explanation
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***

Table continued.

Table V-17--Continued

Epoxy resins: Purchasers' responses to U.S. producer price reductions, by firm

Purchaser	Reported producers lowered prices	Estimated percent of U.S. price reduction	Explanation
***	***	***	***
***	***	***	***
***	***	***	***

Table continued.

Table V-17--Continued

Epoxy resins: Purchasers' responses to U.S. producer price reductions, by firm

Purchaser	Reported producers lowered prices	Estimated percent of U.S. price reduction	Explanation
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
All firms	Yes--13; No--7	36.4	NA

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

Table V-18

Epoxy resins: Purchasers' responses to U.S. producer price reductions, by source

Price reduction in percent

Source	Count of purchasers reporting U.S. producers reduced prices	Average percent of estimated U.S. price reduction	Range of percent of estimated U.S. price reductions
China	5	***	***
India	1	***	***
South Korea	11	***	***
Taiwan	9	***	***
Thailand	3	***	***
Subject sources	13	36.4	***

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

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

Background¹

Olin and Westlake, the two primary U.S. producers of epoxy resins, are both publicly traded companies.² In terms of distinguishing operational features, Olin described the degree to which it is integrated back to basic inputs.³ In addition to noting that its operations are integrated back to the production of BPA, Westlake stated that its Deer Park plant in Texas is ***.⁴ As reported to the Commission by Olin and Westlake, epoxy resins and related financial information are based on information from accounting systems designed to generate/report overall financial results on a U.S. GAAP basis.⁵

As described in more detail in Part III of this report, Olin and Westlake reported various company-specific changes in operations during the period examined such as planned and unplanned production curtailments, plant turnarounds, installation of a new reactor, as well as Westlake's acquisition of Hexion's epoxy resins operations in February 2022.⁶

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

² Olin's epoxy resins operations take place within the company's Epoxy segment. Olin 2023 10-K, pp. 6-7. As described by Olin, "The Epoxy segment produces and sells a full range of epoxy materials and precursors, including aromatics (acetone and phenol), allylics, such as allyl chloride (Allyl) and epichlorohydrin (EPI), resins such as liquid epoxy resins (LER) and solid epoxy resins (SER) and systems and growth platform products such as converted epoxy resins (CER) and additives." Ibid. Westlake's epoxy resins operations take place within that company's Performance and Essential Materials segment. Westlake 2023 10-K, p. 1.

³ ***. Submission from ***, April 29, 2024.

⁴ Submission from ***, April 29, 2024.

⁵ *** U.S. producer questionnaires, section III-2.

⁶ *** U.S. producer questionnaires, section II-2a. Conference transcript, p. 20 (Bellinger). ***. Petitioner's postconference brief, Exhibit 1, p. 41.

Figure VI-1 presents each responding firm's share of the total reported net sales quantity in 2023.

Figure VI-1
Epoxy resins: U.S. producers' share of net sales quantity in 2023, by firm

* * * * *

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

Operations on epoxy resins

Table VI-1 and table VI-2 present income-and-loss data for the U.S. producers' epoxy resins operations and corresponding changes in AUVs, respectively. Table VI-3 presents a variance analysis of the reported financial results.⁷ Appendix F presents selected company-specific financial information (Olin and Westlake).

⁷ The Commission's variance analysis is calculated in three parts: sales variance, COGS variance, and SG&A expenses variance. Each part consists of a price variance (in the case of the sales variance) or a cost or expense variance (in the case of the COGS and SG&A expenses variance), and a volume variance. The sales or cost/expense variance is calculated as the change in unit price or per-unit cost/expense times the new volume, while the volume variance is calculated as the change in volume times the old unit price or per-unit cost/expense. As summarized at the bottom of the variance analysis, the price variance is from sales, the cost/expense variance is the sum of those items from COGS and SG&A variances, respectively, and the volume variance is the sum of the volume components of the net sales, COGS, and SG&A expenses variances. The Commission's variance analysis is more meaningful when product mix remains the same throughout the period. ***, Submission from ***, April 29, 2024. Submission from ***, April 29, 2024.

Table VI-1
Epoxy resins: U.S. producers' results of operations, by item and period

Quantity in 1,000 pounds; value in 1,000 dollars; ratios in percent; shares in percent; unit values in dollars per pound; count in number of firms reporting

Item	Measure	2021	2022	2023
Total net sales	Quantity	***	***	***
Total net sales	Value	***	***	***
COGS: Raw materials	Value	***	***	***
COGS: Direct labor	Value	***	***	***
COGS: Other factory costs	Value	***	***	***
COGS: Total	Value	***	***	***
Gross profit or (loss)	Value	***	***	***
SG&A expenses	Value	***	***	***
Operating income or (loss)	Value	***	***	***
Interest expense	Value	***	***	***
All other expenses	Value	***	***	***
All other income	Value	***	***	***
Net income or (loss)	Value	***	***	***
Depreciation/amortization included above	Value	***	***	***
Estimated cash flow from operations	Value	***	***	***
COGS: Raw materials	Ratio to NS	***	***	***
COGS: Direct labor	Ratio to NS	***	***	***
COGS: Other factory costs	Ratio to NS	***	***	***
COGS: Total	Ratio to NS	***	***	***
Gross profit or (loss)	Ratio to NS	***	***	***
SG&A expenses	Ratio to NS	***	***	***
Operating income or (loss)	Ratio to NS	***	***	***
Net income or (loss)	Ratio to NS	***	***	***
COGS: Raw materials	Share	***	***	***
COGS: Direct labor	Share	***	***	***
COGS: Other factory costs	Share	***	***	***
COGS: Total	Share	***	***	***
Total net sales	Unit value	***	***	***
COGS: Raw materials	Unit value	***	***	***
COGS: Direct labor	Unit value	***	***	***
COGS: Other factory costs	Unit value	***	***	***
COGS: Total	Unit value	***	***	***
Gross profit or (loss)	Unit value	***	***	***
SG&A expenses	Unit value	***	***	***
Operating income or (loss)	Unit value	***	***	***
Net income or (loss)	Unit value	***	***	***
Operating losses	Count	***	***	***
Net losses	Count	***	***	***
Data	Count	2	2	2

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

Note: Shares represent the share of COGS. Zeroes, null values, and undefined calculations are suppressed and shown as "---".

Table VI-2
Epoxy resins: Changes in AUVs between comparison periods

Changes in percent

Item	2021-23	2021-22	2022-23
Total net sales	▼***	▲***	▼***
COGS: Raw materials	▼***	▲***	▼***
COGS: Direct labor	▲***	▲***	▼***
COGS: Other factory costs	▲***	▲***	▲***
COGS: Total	▲***	▲***	▼***

Table continued.

Table VI-2 Continued
Epoxy resins: Changes in AUVs between comparison periods

Changes in dollars per pound

Item	2021-23	2021-22	2022-23
Total net sales	▼***	▲***	▼***
COGS: Raw materials	▼***	▲***	▼***
COGS: Direct labor	▲***	▲***	▼***
COGS: Other factory costs	▲***	▲***	▲***
COGS: Total	▲***	▲***	▼***
Gross profit or (loss)	▼***	▲***	▼***
SG&A expenses	▲***	▲***	▲***
Operating income or (loss)	▼***	▲***	▼***
Net income or (loss)	▼***	▲***	▼***

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

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

Table VI-3
Epoxy resins: Variance analysis on the operations of the U.S. producers between comparison periods

Value in 1,000 dollars

Item	2021-23	2021-22	2022-23
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 VI-1. Unfavorable variances (which are negative) are shown in parentheses, all others are favorable (positive).

Net sales

For the period as a whole commercial sales of epoxy resins accounted for the majority of total sales quantity (***) percent) with transfer sales accounting for the remainder (***) percent).⁸ Given the prevalence of commercial sales, a single line item for sales is presented in the relevant tables above.

Quantity

The U.S. industry's total sales quantity declined in 2022 and 2023 with the largest absolute decline occurring in 2022. ***, which accounted for most of the decline in 2022, noted that safety stock inventory allowed it to continue selling epoxy resins during production

⁸ *** was the *** U.S. producer to report transfer sales, which were described as essentially the ***. Submission from ***, April 29, 2024. While *** U.S. producers reported export sales, *** accounted for the majority throughout the period.

curtailments (planned and unplanned).⁹ In 2023, *** accounted for *** of the sales quantity decline, offset partially by *** modest increase in sales quantity. ***, like ***, noted that inventory allowed it to continue selling epoxy resins during production curtailments.¹⁰

Value

While epoxy resins sales values can include a raw material pass-through, the prevalence of sales inclusive of raw material pass-through reportedly declined during the period.¹¹

On an overall basis the U.S. industry's average per pound net sales value increased to its highest level in 2022 and then declined to its lowest level in 2023. *** reported increasing average net sales values in 2022 followed by declines in 2023. While in a broadly similar range, *** average net sales values were lower compared to *** throughout the period (see table F-1). As noted previously, company-specific epoxy resins product mix did not change substantially during the period (see footnote 7).

⁹ ***. Submission from ***, April 29, 2024.

¹⁰ ***. Submission from ***, April 29, 2024.

¹¹ Conference transcript, pp. 87-88 (Bellinger), p. 88 (Espinosa). ***. Petitioner's postconference brief, Exhibit 1, pp. 35-36. Petitioner's postconference brief, Exhibit 1, pp. 39.

Cost of goods sold and gross profit or loss

Raw materials

Raw material costs represent the largest component of epoxy resins COGS (ranging from a low of *** percent of COGS (2023) to a high of *** percent (2021)). Olin and Westlake reported that BPA and ECH accounted for the largest share of raw material costs with *** identified as an important secondary input.¹² *** U.S. producers reported purchasing inputs from related suppliers.¹³

As noted above, Olin and Westlake are integrated with respect to upstream feedstocks, Westlake producing BPA and Olin producing both BPA and ECH.¹⁴ Each producer ***, in terms of the degree to which upstream feedstocks are dedicated to downstream epoxy resins production: ***.¹⁵

Following the same directional pattern as average per pound net sales value, the U.S. industry's average per pound raw material cost increased in 2022 and then declined in 2023.

¹² ***. *** U.S. producer questionnaires, section III-9c.

¹³ The related supplier inputs reported by *** were ***, respectively, of 2023 COGS. Corresponding valuation basis was reported to be ***. *** U.S. producer questionnaire response, sections III-5-III-7a. The related supplier input reported by *** was *** of 2023 COGS. Corresponding valuation basis was reported to be ***. *** U.S. producer questionnaire response, sections III-5-III-7a. ***. Submission from ***, April 29, 2024.

¹⁴ Conference transcript, p. 67 (Bellinger). With regard to its overall operations, Westlake is a “. . . major producer of bisphenol-A ("BPA") and epichlorohydrin ("ECH") . . .” Westlake 2023 10-K, p. 5. ***. Petitioner's postconference brief, Exhibit 6, p. 2.

¹⁵ Petitioner's postconference brief, Exhibit 1, pp. 8-9. The production of upstream feedstocks are also capital intensive. Since upstream feedstocks have other markets and uses, in addition to epoxy resins production, the connection between their production and epoxy resins production is not necessarily direct. However, in order to enhance cost effectiveness, high overall plant utilization rates, inclusive of the upstream feedstocks, are generally the goal. Conference transcript, pp. 90-91 (Kaufman).

***, reported the lowest average raw material cost throughout the period. The increase in *** 2022 average raw material cost and decline in 2023 were also less pronounced, as compared to ***. Company-specific cost assignments reflect the level of vertical integration and extent to which inputs are produced versus purchased.¹⁶

Direct labor cost and other factory costs

Direct labor cost is the smallest component of epoxy resins COGS (ranging from a low of *** percent of COGS (2021) to a high of *** percent (2023)). While increasing overall during the period, reaching its highest level in 2022 and then declining somewhat in 2023, the U.S. industry's average per pound direct labor cost remained within a relatively narrow range. On a company-specific basis *** reported the lowest average direct labor cost, while *** was somewhat higher.

Other factory costs, consistent with a capital intensive manufacturing process,¹⁷ represent the second largest component of epoxy resins COGS (ranging from a low of *** percent of COGS (2021) to a high of *** percent (2023)). While not overlapping entirely, Olin and Westlake identified broadly similar costs/expenses included in other factory costs: ***,¹⁸ ***.¹⁹

U.S. producers were directionally *** in terms of the pattern of average per pound other factory costs, *** reporting *** increases in

¹⁶ ***. Submission from ***, April 29, 2024. ***. Submission from ***, April 29, 2024.

¹⁷ Conference transcript, p. 27 (Espinosa), p. 30 (Kaufman). As described by a Westlake company official, “. . . epoxy resin production is highly capital-intensive. Thus, any rate of production below full capacity utilization has a direct and significant effect on our per-unit fixed costs of production. Our epoxy resin plants are designed to produce epoxy resins twenty-four hours per day, seven days per week, and they operate most effectively at full capacity. If we are unable to do either of these things, our financial performance suffers.” Ibid.

¹⁸ Submission from ***, April 29, 2024.

¹⁹ Submission from ***, April 29, 2024.

2022 followed by *** increases in 2023. To the extent that Olin and Westlake have epoxy resins operations in Texas, costs/expenses associated with Winter Storm Uri are reflected in their 2021 other factory costs.²⁰

*** attributed increases in its average other factory costs in 2022 and 2023 to ***.²¹ While also noting the impact of lower production volumes as a primary reason explaining higher average other factory costs, as well as general cost increases due to inflation, *** noted additional items: ***.²²

In contrast with average raw material costs noted above, *** reported the highest company-specific average other factory costs throughout the period. At least to some extent, this likely reflects *** lower capacity utilization as compared to *** (see table III-7).

COGS

The U.S. industry's average per pound COGS increased to its highest level in 2022 and then declined somewhat in 2023, remaining above the level reported in 2021. Total COGS, in conjunction with lower sales quantity in 2022 and 2023, declined throughout the period.

The relatively large overall increase in average COGS in 2022 primarily reflects higher average raw material costs and, to a lesser extent, higher average other factory costs. In 2023, the decline in average COGS reflects lower average raw material cost, partially offset by a continued increase in average other factory costs.²³ While overall average direct labor increased in 2022 and declined in 2023, the impact on COGS was minimal.

On a company-specific basis U.S. producers reported the same directional pattern of higher average COGS in 2022 but diverged in 2023: *** reporting a relatively large decline, while *** reported an increase. The increase in *** average COGS reflects a

²⁰ For example Olin attributed a \$21.5 million unfavorable impact on its Epoxy segment operating results due to Winter Storm Uri in the form of unabsorbed fixed manufacturing costs and storm-related maintenance costs. Olin 2023 10-K, pp. 32.

²¹ Submission from ***, April 29, 2024.

²² Submission from ***, April 29, 2024.

²³ *** integrated of the two producers, reported a more pronounced increase in its average raw material costs (2022) and decrease (2023).

smaller relative decline in its average raw material cost and a continued increase in its average other factory costs.

As noted above and in addition to increasing costs in general, the impact of reduced fixed cost absorption was reportedly an important factor explaining the overall increase in average COGS between 2021 and 2023.²⁴

Gross profit or loss

Notwithstanding a decline in total sales quantity, the U.S. industry's total gross profit increased modestly in 2022, reflecting an increase in total net sales value and corresponding gross profit ratio (total gross profit divided by total net sales value). As shown in table VI-2, the expansion in overall gross profit ratio in 2022 reflects a percentage increase in average sales value that exceeded the corresponding percentage increase in average COGS. On a company-specific basis U.S. producers were directionally *** in 2022 with *** reporting increases in total gross profit.

In 2023 overall gross profit declined, reflecting lower total net sales quantity and value, as well as a contraction in gross profit ratio. Table VI-2 shows that the contraction in gross profit ratio in 2023 was due to a percentage decline in average sales value that exceeded the corresponding percentage decline in average COGS. *** reported contractions in their gross profit ratios.

While remaining positive for full-year 2023, the U.S. industry generated a lower level of total gross profit compared to 2021 and 2022. While not specifying the level of financial results (i.e., gross, operating, net), ***.²⁵

SG&A expenses and operating income or loss

The U.S. industry's total SG&A expenses declined somewhat in 2022 and then increased in 2023, remaining below the level reported in 2021. The calculated SG&A expense ratios (total SG&A expenses divided by total net sales value) of Olin and Westlake were *** and directionally uniform: declining in 2022 and increasing in 2023 (see table F-1).

In 2022, the industry's operating income and operating income ratio (total operating income or loss divided by total net sales value) increased to their highest levels of the period,

²⁴ Conference transcript, pp. 83-84 (Bellinger). ***, relevant chemical industry plant costs increased around 34 percent between 2021 and 2023. Petitioner's postconference brief, Exhibit 1, p. 40.

²⁵ Petitioner's postconference brief, Exhibit 1, pp. 39-40.

reflecting the combined effect of increases in total net sales value and gross profit ratio, and a decline in total SG&A expenses. Of the two U.S. producers *** reported an increase in operating income in 2022.

In 2023, in conjunction with declines in net sales value and gross profit ratio, and a corresponding increase in total SG&A expenses, the U.S. industry's overall operating income and operating income ratio declined to their lowest levels. On a company-specific basis *** U.S. producers reported their lowest operating income and operating income ratios in 2023.

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

While the U.S. industry's operating results and net results were positive throughout the period, the presence of interest expense and other expenses yielded lower absolute levels of net income compared to operating income. Directionally, the U.S. industry's operating and net results were the same between 2021 and 2022 (both increasing) and between 2022 and 2023 (both declining).

*** accounted for the substantial majority of reported interest expense and other expenses. *** reported that no non-recurring items were included in their epoxy resins financial results.²⁶

Capital expenditures and R&D expenses, total net assets and ROA

Table VI-4 and table VI-6 present U.S. producers' capital expenditures and R&D expenses related to their epoxy resins operations, respectively, by firm. Table VI-5 and table VI-7 present corresponding narrative descriptions.

²⁶ *** U.S. producer questionnaires, section III-10a-b. Specifically referring to deteriorating financial results in Europe and management's outlook for the Epoxy business in general, Westlake recognized a goodwill impairment charge (\$128 million) for its overall Epoxy business in the fourth quarter of 2023. Unrelated to U.S. operations, Westlake also recognized a long-lived asset impairment charge (\$347 million) related to its Epoxy Netherlands base epoxy resin business in the fourth quarter of 2023. Westlake 2023 10-K, p. 2. In Westlake's consolidated income statement, the above-noted charges were reported below SG&A expenses as a component of operating results. Westlake 2023 10-K, p. 61. ***.

Table VI-4
Epoxy resins: U.S. producers' capital expenditures, by firm and period

Value in 1,000 dollars

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

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

Table VI-5
Epoxy resins: U.S. producers' narrative descriptions of their capital expenditures, by firm

Firm	Narrative on capital expenditures
Olin	***
Westlake	***

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

Table VI-6
Epoxy resins: U.S. producers' R&D expenses, by firm and period

Value in 1,000 dollars

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

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

Table VI-7
Epoxy resins: U.S. producers' narrative descriptions of their R&D expenses, by firm

Firm	Narrative on R&D expenses
Olin	***
Westlake	***

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

The U.S. industry’s total capital expenditures increased to their highest level in 2022 and then declined to their lowest level in 2023. While the capital expenditures of Olin and Westlake reflect *** in 2022, *** accounted for the majority of capital expenditures reported in 2021 and 2023. The relatively large increase in *** capital expenditures in 2022 includes *** (see table VI-12).

Overall R&D expenses, which increased modestly during the period, were less variable as compared to capital expenditures. *** accounted for the majority of reported R&D expenses throughout the period.

Assets and ROA

Table VI-8 presents data on the U.S. producers’ total assets and table VI-9 presents corresponding ROA.²⁷ Table VI-10 presents U.S. producers’ narrative information regarding aspects of reported total asset information.

Table VI-8
Epoxy resins: U.S. producers’ total net assets, by firm and period

Value in 1,000 dollars

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

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

²⁷ ROA is calculated here as operating results divided by total assets. With regard to a company’s overall operations, staff notes that a total asset value (i.e., the bottom line value on the asset side of a company’s balance sheet) reflects an aggregation of a number of current and non-current assets, which, in many instances, are not product specific. The ability of U.S. producers to assign total asset values to discrete product lines affects the meaningfulness of calculated operating return on net assets.

Table VI-9
Epoxy resins: U.S. producers' ROA, by firm and period

Ratios in percent

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

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

Note: ***. USITC auditor preliminary phase notes.

Table VI-10
Epoxy resins: U.S. producers' narrative description of their total net assets, by firm

Firm	Narrative on assets
Olin	***
Westlake	***

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

***, which accounted for the majority of the U.S. industry's net assets, reported *** total asset amounts in 2022 and 2023, which in part reflects ***.²⁸ In contrast, ***, which reported a lower level of total net assets, reported *** total net asset amounts in 2022 and 2023.²⁹ When considering the total net asset amounts reported by U.S. producers, reflecting historical costs and net of relevant accumulated depreciation/amortization, a

²⁸ Submission from ***, April 29, 2024.

²⁹ ***. Submission from ***, April 29, 2024. ***. USITC auditor preliminary phase notes.

greenfield epoxy resins plant, inclusive of upstream feedstock production, would reportedly cost approximately \$8 billion.³⁰

Capital and investment

The Commission requested U.S. producers to describe any actual or potential negative effects of imports of epoxy resins from China, India, South Korea, Taiwan, and Thailand on their growth, investment, ability to raise capital, development and production efforts, or the scale of capital investments. Table VI-11 presents the effects reported and table VI-12 provides the U.S. producers' narrative descriptions.

Table VI-11
Epoxy resins: Count indicating actual and anticipated negative effects of imports from subject sources on investment, growth, and development since January 1, 2021, 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.

³⁰ Conference transcript, p. 86 (Espinosa).

Table VI-12

Epoxy resins: U.S. producers' narratives relating to actual and anticipated negative effects of imports on investment, growth, and development, since January 1, 2021

Item	Firm name and accompanying narrative response
Cancellation, postponement, or rejection of expansion projects	***
Cancellation, postponement, or rejection of expansion projects	***
Other (effects of imports on growth and development)	***
Other (effects of imports on growth and development)	***
Anticipated effects of imports	***
Anticipated effects of imports	***

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

Note: ***. Petitioner's postconference brief, Exhibit 1, p. 41. See also footnote 26.

Part VII: Threat considerations and information on nonsubject countries

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

In determining whether an industry in the United States is threatened with material injury by reason of imports (or sales for importation) of the subject merchandise, the Commission shall consider, among other relevant economic factors¹--

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

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

The industry in the subject countries

The Commission issued a foreign producers/exporters questionnaires to 62 firms believed to produce and/or export epoxy resins from China, India, South Korea, Taiwan, and Thailand.³ The Commission received a response from 11 firms.⁴ Table VII-1 presents a summary of the number of questionnaires responses received from each subject country; these firms' estimated share of in-country production of epoxy resins in 2023; and their estimated share of exports of epoxy resins from subject country to the United States in 2023.

Table VII-1

Epoxy resins: Summary count of foreign producer/exporter questionnaires received, firms' estimated share of in-country production, and firms' estimated share of exports from subject country to the United states, 2023

Subject country	Number of questionnaire responses received from subject country (count)	Firms' estimated share of in-country production of epoxy resins in 2023 (percent)	Firms' estimated share of exports of epoxy resins from subject source country to the United States in 2023 (percent)
China	2	***	***
India	3	***	***
South Korea	4	***	***
Taiwan	1	***	***
Thailand	1	***	***
All firms	11	---	---

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

Note: According to adjusted official U.S. imports statistics for HTSUS statistical reporting number 3907.30.0000 (table IV-2), in 2023 responding Chinese firms accounted *** percent of U.S. imports of product from China; responding Indian firms accounted for *** percent of U.S. imports of product from India; responding South Korean firms accounted for *** percent of U.S. imports of product from South Korea; the responding Taiwanese firm accounted for *** percent of U.S. imports of product from Taiwan; and the responding Thai firm accounted for *** percent of U.S. imports of product from Thailand.

³ These firms were identified through a review of information submitted in the petitions and staff research.

⁴ The Commission also received questionnaire responses from two firms which certified that they did not produce and/or export epoxy resins from subject sources since January 1, 2021. These firms included: ***. The Commission also received a late questionnaire response from Shenzhen Jinhua Electronic Materials Co., Ltd, an epoxy resins producer/exporter from China. The questionnaire was not included in the dataset due to questionnaire reconciliation issues that were not resolved before the issuance of this report.

Table VII-2 presents information on the epoxy resins operations of each responding subject producer and exporter in 2023. In 2023, *** was the largest producer of epoxy resins among the responding 11 firms. The firm's share of production was *** percent and its share of exports to the United States was *** percent.

Table VII-2
Epoxy resins: Summary data for subject foreign producers, by firm, 2023

Producer and (subject foreign industry)	Production (1,000 pounds)	Share of reported production (percent)	Exports to the United States (1,000 pounds)	Share of reported exports to the United States (percent)	Total shipments (1,000 pounds)	Share of firm's total shipments exported to the United States (percent)
Aditya (Thailand)	***	***	***	***	***	***
Atul (India)	***	***	***	***	***	***
Blue Cube China (China)	***	***	***	***	***	***
Blue Cube Korea (South Korea)	***	***	***	***	***	***
Cardolite (India)	***	***	***	***	***	***
Chang Chun (Taiwan)	***	***	***	***	***	***
Grasim (India)	***	***	***	***	***	***
Huntsman (Guangdong) (China)	***	***	***	***	***	***
KPB (South Korea)	***	***	***	***	***	***
Kukdo (South Korea)	***	***	***	***	***	***
Westlake (South Korea)	***	***	***	***	***	***
All subject producers	2,004,530	100.0	209,478	100.0	2,033,868	10.3
All individual producers except China and India producers	1,516,351	75.6	206,093	98.4	1,543,558	13.4

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

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

Table VII-3 presents a summary of reported epoxy resins production in each subject country, exports from each subject country to the United States, and total shipments from each subject country in 2023. In 2023, South Korea accounted for the largest share of epoxy resins production among all subject sources (***) percent). South Korea also accounted for the largest share of exports of epoxy resins to the United States among all subject sources (***) percent).

Table VII-3
Epoxy resins: Summary data for subject foreign producers, by firm, 2023

Subject foreign industry	Production (1,000 pounds)	Share of reported production (percent)	Exports to the United States (1,000 pounds)	Share of reported exports to the United States (percent)	Total shipments (1,000 pounds)	Share of firm's total shipments exported to the United States (percent)
China	***	***	***	***	***	***
India	***	***	***	***	***	***
South Korea	***	***	***	***	***	***
Taiwan	***	***	***	***	***	***
Thailand	***	***	***	***	***	***
All subject foreign industries	2,077,425	100.0	209,478	100.0	2,353,091	8.9
All subject foreign industries less China and India	1,630,628	78.5	206,093	98.4	1,601,337	12.9

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 "---".

Industry events in the subject countries

Table VII-4 presents events in subject countries' industries since January 1, 2021.

Table VII-4

Epoxy resins: Important industry events in the subject countries since 2021

Item	Country	Event
Expansion	Thailand	On April 12, 2021, the ambassador to India visited Thailand to learn more about a technology that will allow for epoxy resins to be recycled, called Recyclamine®. The Aditya Birla Group was in the process of establishing a new manufacturing plant for Recyclamine® with 10,000 tons (20 million pounds, equivalent to 20,000 thousand pounds) per annum capacity, located in Thailand. The plant would subsequently be expanded to 50,000 tons (200 million pounds or 200,000 thousand pounds) per annum capacity. It was stated that in coming years, Thailand will be the pioneer and hub for Recyclamine® the product will be exported all over the world.
Expansion	India	On June 15, 2021, it was announced that Aditya would increase epoxy product capacity by approximately 125 kilo tonnes (275.578 million pounds, equivalent to 275,578 thousand pounds) per annum through a brown field expansion at its Vilayat, Gujarat, India location. It will include standard & specialty epoxy products along with curing agents.
Expansion	China	On January 6, 2022, it was announced that Yangnong was scheduled to start a new 180 kilo tonnes (396.832 million pounds, equivalent to 396,832 thousand pounds) per annum epoxy resin plant in December 2021. Though not designated for full operation immediately, it was set to increase supply to the market early in 2022. A further 280 kilo tonnes (617.294 million pounds, equivalent to 617,294 thousand pounds) per annum capacity was planned to come online in 2022, followed by an extra 1,160 kilo tonnes (2.557 billion pounds, equivalent to 2,557,362 thousand pounds) per annum epoxy resins capacity in the next two to three years.
Expansion	South Korea	On April 13, 2022, it was announced that KPB said it will continue to expand the annual production capacity of its epoxy resin while focusing on developing high-value epoxy using its own technologies. In addition, the company is aiming to secure a stable supply of raw materials for epoxy resins through joint investments.
Expansion	South Korea	On August 8, 2022, KPB announced that it had entered into a partnership with OCIM to produce 100 kilo tonnes (220.462 million pounds, equivalent to 220,462 thousand pounds) per annum of epichlorohydrin (a raw material for epoxy resin) in Malaysia.

Table continued.

Table VII-4 Continued

Epoxy resins: Important industry events in the subject countries since 2021

Item	Country	Event
Ceased operations	South Korea	On March 21, 2023, Olin Corp. announced that it made the decision to cease operations at its Cumene facility in Terneuzen, Netherlands (nonsubject) and solid epoxy resin production at its facilities in Gumi, South Korea and Guaruja, Brazil. Olin's first quarter 2023 results were forecast to include approximately \$57 million of restructuring charges associated with these plans of which approximately \$15 million of these restructuring charges represent non-cash asset impairment charges.
Expansion	South Korea	On April 15, 2023, it was announced in the Korea Times that KPB aims to solidify its position in the global market by constructing an additional plant to produce 60,000 tons (120 million pounds, equivalent to 120,000 thousand pounds) of epoxy resin by the fourth quarter of 2023.
Expansion	China	On May 11, 2023, it was announced the new development of electronic grade epoxy resin and special resin new materials, with a capacity of 200,000 tons (400 million pounds, equivalent to 400,000 thousand pounds) per year.

Source: Kim Jae-heun, "Kumho Petrochemical Group Invests in New Growth Engines," The Korea Times, April 13, 2022, https://www.koreatimes.co.kr/www/tech/2024/05/129_327281.html; The Korea Times, "Kumho Petrochemical to overcome economic slowdown with strategic agility," April 16, 2023 Update, https://www.koreatimes.co.kr/www/tech/2024/05/129_349066.html; Jeong Seong Wook, "OCIM and Kumho P&B Venture to Produce Epichlorohydrin (ECH) In Sarawak, The First ECH Project in Malaysia," MIDA, August 8, 2022, <https://www.mida.gov.my/media-release/ocim-and-kumho-pb-venture-to-produce-epichlorohydrin-ech-in-sarawak-the-first-ech-project-in-malaysia/>; Coatings World, "Aditya Birla Advanced Materials Invests in Epoxy Resins, Curing Agents Business," June 15, 2021, https://www.coatingsworld.com/contents/view_breaking-news/2021-06-15/aditya-birla-advanced-materials-invests-in-epoxy-resins-curing-agents-business/; The Bangkok Post, "Ambassador of India to Thailand visits Aditya Birla Group's Chemical Business's Advanced Materials Plant," April 12, 2021, <https://www.bangkokpost.com/thailand/pr/2098879/ambassador-of-india-to-thailand-visits-aditya-birla-groups-chemical-businesss-advanced-materials-plant>; Sunny Zhang, "How Will New Capacities Reshape the Epoxy Resin Market in China?" January 6, 2022, <https://www.orbichem.com/blog/how-will-new-capacities-reshape-the-epoxy-resin-market-in-china>; Patricia Jose Perez, "Largest Electronic Grade Epoxy Resin Project Announces Production of 200,000 Tons/Year," ChemAnalyst, May 11, 2023, <https://www.chemanalyst.com/NewsAndDeals/NewsDetails/largest-electronic-grade-epoxy-resin-project-announces-production-of-200000-tons-year-17269>.

Changes in operations

Subject producers were asked to report any change in the character of their operations or organization relating to the production of epoxy resins since January 1, 2021. Nine out of the 11 firms indicated in their questionnaires that they had experienced such changes. One firm reported a plant closing and three firms reported prolonged shutdowns. Six firms reported expansions, one firm reported a relocation, and one firm reported an acquisition. Table VII-5 and table VII-6 present the changes identified by these producers.

Table VII-5
Epoxy resins: Count of reported changes in operations since January 1, 2021, by subject foreign producing country and type of change in operation

Count in number of firms reporting

Item	China	India	South Korea	Taiwan	Thailand	Subject producers
Plant openings	***	***	***	***	***	0
Plant closings	***	***	***	***	***	1
Prolonged shutdowns	***	***	***	***	***	3
Production curtailments	***	***	***	***	***	0
Relocations	***	***	***	***	***	1
Expansions	***	***	***	***	***	6
Acquisitions	***	***	***	***	***	1
Consolidations	***	***	***	***	***	0
Weather-related or force majeure events	***	***	***	***	***	0
Other	***	***	***	***	***	0
Any change	***	***	***	***	***	9

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

Table VII-6

Epoxy resins: Reported changes in operations in subject foreign industries since January 1, 2021, by reported change category and firm

Item	Firm name (subject foreign industry) and accompanying narrative response regarding changes in operations
Plant closings	***
Prolonged shutdowns	***
Prolonged shutdowns	***
Prolonged shutdowns	***
Relocations	***
Expansions	***
Expansions	***
Expansions	***
Expansions	***
Expansions	***

Table continued.

Table VII-6 Continued

Epoxy resins: Reported changes in operations in subject foreign industries since January 1, 2021, by reported change category and firm

Item	Firm name (subject foreign industry) and accompanying narrative response regarding changes in operations
Expansions	***
Acquisitions	***

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

Operations on epoxy resins

Table VII-7 presents information on the epoxy resins operations of the responding subject producers/exporters. Foreign producers' capacity, across all three capacity metrics, increased by 6.0 percent during 2021-23. Conversely, production, across all three production metrics, decreased by 3.4 percent during 2021-23. Decreasing production, consequently, resulted in lower capacity utilization rates in 2023 as compared with 2021. Both practical overall utilization and practical epoxy resins utilization were 7.0 percentage points lower in 2023 compared with 2021.

Table VII-7
Epoxy resins: Producers' in subject foreign industries installed and practical capacity and production on the same equipment as subject production, by period

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

Item	Measure	2021	2022	2023
Installed overall	Capacity	3,284,514	3,308,899	3,482,333
Installed overall	Production	2,103,459	1,958,887	2,031,968
Installed overall	Utilization	64.0	59.2	58.4
Practical overall	Capacity	2,686,824	2,721,467	2,847,944
Practical overall	Production	2,103,459	1,958,887	2,031,968
Practical overall	Utilization	78.3	72.0	71.3
Practical epoxy resins	Capacity	2,649,006	2,684,377	2,808,559
Practical epoxy resins	Production	2,077,425	1,935,700	2,004,530
Practical epoxy resins	Utilization	78.4	72.1	71.4

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

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

Table VII-8 presents subject foreign producers/exporters' reported narratives regarding practical capacity constraints. Firms reported constraints with production bottlenecks, labor, and other factors such as shutdowns for maintenance/repairs and the demands to maintain environmental and safety standards.

Table VII-8
Epoxy resins: Producers' in subject foreign industries reported constraints to practical overall capacity, since January 1, 2021

Item	Firm name (subject foreign industry) and narrative response on constraints to practical overall capacity
Production bottlenecks	***
Existing labor force	***
Existing labor force	***
Supply of material inputs	***
Other constraints	***
Other constraints	***
Other constraints	***
Other constraints	***
Other constraints	***
Other constraints	***
Other constraints	***

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

Tables VII-9 presents information on the epoxy resins operations of the responding producers/exporters. Subject producers' practical capacity increased by 6.0 percent during 2021-23; it is projected to increased from 2023 to 2024, and further projected to increase from 2024 to 2025. Conversely, subject producers' production decreased by 3.4 percent during 2021-23; it is, however, projected to increase from 2023 to 2024, and further projected to increase from 2024 to 2025.

Subject producers' exports to the United States increased by 24.2 percent during 2021-23. These exports are projected to be higher in 2024 compared with 2023; however, they are projected to be lower in 2025 compared with 2024 and 2023. Subject producers' exports to the United States as a share of total shipments ranged from 8.4 percent in 2021 to 10.3 percent in 2023. The majority of subject producers' shipments consisted of home market shipments.

Table VII-9
Epoxy resins: Data on subject foreign industries, by item and period

Quantity in 1,000 pounds

Item	2021	2022	2023	Projection 2024	Projection 2025
Capacity	2,649,006	2,684,377	2,808,559	3,174,841	3,228,552
Production	2,077,425	1,935,700	2,004,530	2,173,865	2,359,063
End-of-period inventories	181,417	212,793	183,453	177,273	189,293
Internal consumption	398,905	403,887	438,598	481,274	532,221
Commercial home market shipments	634,069	615,364	623,212	701,867	782,527
Home market shipments	1,032,974	1,019,251	1,061,810	1,183,141	1,314,748
Exports to the United States	168,686	183,670	209,478	212,191	205,436
Exports to all other markets	805,579	701,753	762,580	788,036	832,907
Export shipments	974,265	885,423	972,058	1,000,227	1,038,343
Total shipments	2,007,239	1,904,674	2,033,868	2,183,368	2,353,091
Resales exported to the United States	***	***	***	***	***
Total exports to the United States	***	***	***	***	***

Table continued.

Table VII-9 Continued
Epoxy resins: Data on subject foreign industries, by item and period

Shares and ratios in percent

Item	2021	2022	2023	Projection 2024	Projection 2025
Capacity utilization ratio	78.4	72.1	71.4	68.5	73.1
Inventory ratio to production	8.7	11.0	9.2	8.2	8.0
Inventory ratio to total shipments	9.0	11.2	9.0	8.1	8.0
Internal consumption share	19.9	21.2	21.6	22.0	22.6
Commercial home market shipments share	31.6	32.3	30.6	32.1	33.3
Home market shipments share	51.5	53.5	52.2	54.2	55.9
Exports to the United States share	8.4	9.6	10.3	9.7	8.7
Exports to all other markets share	40.1	36.8	37.5	36.1	35.4
Export shipments share	48.5	46.5	47.8	45.8	44.1
Total shipments share	100.0	100.0	100.0	100.0	100.0
Share of total exports to the United States by producers	***	***	***	***	***
Share of total exports to the United States by resellers	***	***	***	***	***
Adjusted share of total shipments exported to the United States	***	***	***	***	***

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

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

Table VII-10 presents information on the epoxy resins operations of the responding producers/exporters less China and India.

Table VII-10
Epoxy resins: Data on subject foreign industries less China and India, by item and period

Quantity in 1,000 pounds

Item	2021	2022	2023	Projection 2024	Projection 2025
Capacity	2,032,593	2,046,076	2,143,173	2,250,991	2,257,459
Production	1,630,628	1,481,141	1,516,351	1,560,977	1,611,044
End-of-period inventories	145,531	176,931	149,724	142,498	152,634
Internal consumption	322,219	318,995	325,262	342,019	352,388
Commercial home market shipments	343,171	315,227	303,240	309,815	314,288
Home market shipments	665,390	634,222	628,502	651,834	666,676
Exports to the United States	163,584	177,221	206,093	208,852	202,084
Exports to all other markets	739,335	638,297	708,963	705,416	732,577
Export shipments	902,919	815,518	915,056	914,268	934,661
Total shipments	1,568,309	1,449,740	1,543,558	1,566,102	1,601,337

Table continued.

Table VII-10 Continued
Epoxy resins: Data on subject foreign industries less China and India, by item and period

Shares and ratios in percent

Item	2021	2022	2023	Projection 2024	Projection 2025
Capacity utilization ratio	80.2	72.4	70.8	69.3	71.4
Inventory ratio to production	8.9	11.9	9.9	9.1	9.5
Inventory ratio to total shipments	9.3	12.2	9.7	9.1	9.5
Internal consumption share	20.5	22.0	21.1	21.8	22.0
Commercial home market shipments share	21.9	21.7	19.6	19.8	19.6
Home market shipments share	42.4	43.7	40.7	41.6	41.6
Exports to the United States share	10.4	12.2	13.4	13.3	12.6
Exports to all other markets share	47.1	44.0	45.9	45.0	45.7
Export shipments share	57.6	56.3	59.3	58.4	58.4
Total shipments share	100.0	100.0	100.0	100.0	100.0

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

Note: Foreign producer *** reported resales exported to the United States. ***.

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

Table VII-11 presents information on the epoxy resin operations of the responding producers/exporters by subject country. Trends in practical capacity from each subject country were mixed. During 2021-23, China, India, and South Korea capacity increased, for Taiwan it decreased, and for Thailand it stayed the same in each period. Production trends were also mixed. During 2021-23, India and Thailand production increased and for China, South Korea, and Taiwan it decreased. Each subject country's capacity and production, with the exception of Taiwan, are projected to be higher in 2025 as compared with 2023.

Table VII-11
Epoxy resins: Subject foreign producers' output, by subject foreign industry and period

Practical capacity

Capacity in 1,000 pounds

Subject foreign industry	2021	2022	2023	Projection 2024	Projection 2025
China	***	***	***	***	***
India	***	***	***	***	***
South Korea	***	***	***	***	***
Taiwan	***	***	***	***	***
Thailand	***	***	***	***	***
All subject foreign industries	2,649,006	2,684,377	2,808,559	3,174,841	3,228,552
All subject foreign industries less China and India	***	***	***	***	***

Table continued.

Table VII-11 Continued
Epoxy resins: Subject foreign producers' output, by subject foreign industry and period

Production

Production in 1,000 pounds

Subject foreign industry	2021	2022	2023	Projection 2024	Projection 2025
China	***	***	***	***	***
India	***	***	***	***	***
South Korea	***	***	***	***	***
Taiwan	***	***	***	***	***
Thailand	***	***	***	***	***
All subject foreign industries	2,077,425	1,935,700	2,004,530	2,173,865	2,359,063
All subject foreign industries less China and India	***	***	***	***	***

Table continued.

Table VII-11 Continued

Epoxy resins: Subject foreign producers' output, by subject foreign industry and period

Capacity utilization ratio

Ratios in percent

Subject foreign industry	2021	2022	2023	Projection 2024	Projection 2025
China	***	***	***	***	***
India	***	***	***	***	***
South Korea	***	***	***	***	***
Taiwan	***	***	***	***	***
Thailand	***	***	***	***	***
All subject foreign industries	78.4	72.1	71.4	68.5	73.1
All subject foreign industries less China and India	***	***	***	***	***

Table continued.

Table VII-11 Continued

Epoxy resins: Subject foreign producers' output, by subject foreign industry and period

Share of production

Shares in percent

Subject foreign industry	2021	2022	2023	Projection 2024	Projection 2025
China	***	***	***	***	***
India	***	***	***	***	***
South Korea	***	***	***	***	***
Taiwan	***	***	***	***	***
Thailand	***	***	***	***	***
All subject foreign industries	100.0	100.0	100.0	100.0	100.0
All subject foreign industries less China and India	***	***	***	***	***

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

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

Subject foreign producers' exports

Table VII-12 present presents information on subject producers' exports of epoxy resins by subject country. Subject producers' exports to the United States increased by 24.2 percent during 2021-23. Exports are projected to be higher in 2024 compared with 2023; however, they are also projected to be lower in 2025 compared with 2024 and 2023.

Table VII-12
Epoxy resins: Subject foreign producers' exports, by subject foreign industry and period

Exports to the United States

Quantity in 1,000 pounds

Subject foreign industry	2021	2022	2023	Projection 2024	Projection 2025
China	***	***	***	***	***
India	***	***	***	***	***
South Korea	***	***	***	***	***
Taiwan	***	***	***	***	***
Thailand	***	***	***	***	***
All subject foreign industries	168,686	183,670	209,478	212,191	205,436
All subject foreign industries less China and India	***	***	***	***	***

Table continued.

Table VII-12 Continued
Epoxy resins: Subject foreign producers' exports, by subject foreign industry and period

Share of total shipments exported to the United States

Share in percent

Subject foreign industry	2021	2022	2023	Projection 2024	Projection 2025
China	***	***	***	***	***
India	***	***	***	***	***
South Korea	***	***	***	***	***
Taiwan	***	***	***	***	***
Thailand	***	***	***	***	***
All subject foreign industries	8.4	9.6	10.3	9.7	8.7
All subject foreign industries less China and India	***	***	***	***	***

Table continued.

Table VII-12 Continued
Epoxy resins: Subject foreign producers' exports, by subject foreign industry and period

Total exports

Quantity in 1,000 pounds

Subject foreign industry	2021	2022	2023	Projection 2024	Projection 2025
China	***	***	***	***	***
India	***	***	***	***	***
South Korea	***	***	***	***	***
Taiwan	***	***	***	***	***
Thailand	***	***	***	***	***
All subject foreign industries	2,007,239	1,904,674	2,033,868	2,183,368	2,353,091
All subject foreign industries less China and India	***	***	***	***	***

Table continued.

Table VII-12 Continued
Epoxy resins: Subject foreign producers' exports, by subject foreign industry and period

Share of total shipments exported

Share in percent

Subject foreign industry	2021	2022	2023	Projection 2024	Projection 2025
China	***	***	***	***	***
India	***	***	***	***	***
South Korea	***	***	***	***	***
Taiwan	***	***	***	***	***
Thailand	***	***	***	***	***
All subject foreign industries	48.5	46.5	47.8	45.8	44.1
All subject foreign industries	***	***	***	***	***

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 "---".

Alternative products

*** reported production of out-of-scope merchandise on the same equipment and machinery used to produce epoxy resins (table VII-13). In addition to producing co-reactants, these firms reported production of other merchandise such as ***.

Table VII-13
Epoxy resins: Producers' in subject foreign industries overall production on the same equipment as subject production, by product type and period

Quantities in 1,000 pounds; shares in percent

Product type	Measure	2021	2022	2023
Epoxy resins	Quantity	2,077,425	1,935,700	2,004,530
Co-reactants	Quantity	***	***	***
Other products	Quantity	***	***	***
All out-of-scope products	Quantity	***	***	***
All products	Quantity	***	***	***
Epoxy resins	Share	***	***	***
Co-reactants	Share	***	***	***
Other products	Share	***	***	***
All out-of-scope products	Share	***	***	***
All products	Share	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 "---".

Table VII-14 presents subject producer's production of out-of-scope products on the same equipment used to produce epoxy resins less producers from China and India.

Table VII-14
Epoxy resins: Producers' in subject foreign industries overall production on the same equipment as subject production less China and India, by product type and period

Quantities in 1,000 pounds; shares in percent

Product type	Measure	2021	2022	2023
Epoxy resins	Quantity	1,630,628	1,481,141	1,516,351
Co-reactants	Quantity	***	***	***
Other products	Quantity	***	***	***
All out-of-scope products	Quantity	***	***	***
All products	Quantity	***	***	***
Epoxy resins	Share	***	***	***
Co-reactants	Share	***	***	***
Other products	Share	***	***	***
All out-of-scope products	Share	***	***	***
All products	Share	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 "---".

Exports

Table VII-15 presents Global Trade Atlas (“GTA”) data for exports of epoxy resins from subject countries to the United States and to all destination markets. According to GTA, the majority of exports of epoxy resins from each subject country were to markets other than the United States during 2021-23.

Table VII-15
Epoxy resins: Global exports from subject exporters: Exports to the United States, by exporter and period

Quantity in 1,000 pounds

Exporter	Measure	Destination Market	2021	2022	2023
China	Quantity	United States	12,918	11,907	7,915
India	Quantity	United States	2,372	4,287	4,119
South Korea	Quantity	United States	167,489	180,429	154,105
Taiwan	Quantity	United States	19,763	36,025	40,805
Thailand	Quantity	United States	13,144	10,520	14,425
Subject exporters	Quantity	United States	215,685	243,168	221,369
Subject exporters less China and India	Quantity	United States	200,395	226,974	209,335
China	Quantity	All destination markets	223,307	276,496	381,039
India	Quantity	All destination markets	57,159	66,305	54,247
South Korea	Quantity	All destination markets	822,681	684,962	685,207
Taiwan	Quantity	All destination markets	566,939	510,093	451,521
Thailand	Quantity	All destination markets	139,929	111,405	139,929
Subject exporters	Quantity	All destination markets	1,810,016	1,649,261	1,711,943
China	Share of quantity	United States	6.0	4.9	3.6
India	Share of quantity	United States	1.1	1.8	1.9
South Korea	Share of quantity	United States	77.7	74.2	69.6
Taiwan	Share of quantity	United States	9.2	14.8	18.4
Thailand	Share of quantity	United States	6.1	4.3	6.5
Subject exporters	Share of quantity	United States	100.0	100.0	100.0
Subject exporters less China and India	Share of quantity	United States	92.9	93.3	94.6

Source: Official exports statistics and official global imports statistics from Global Trade Atlas under HS subheadings 3907.30 as reported by various national statistical authorities in the Global Trade Atlas Suite database, accessed April 23, 2024.

Note: Shares represent the shares of value exported to the United States out of all destination markets. 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 "---". World reporting quantity has unknown units from certain countries and is not shown here.

U.S. inventories of imported merchandise

Table VII-16 presents data on U.S. importers' reported inventories of epoxy resins. During 2021-23, importers' inventories from each subject country increased and were higher as a ratio to U.S. shipments of importer and to total shipments of imports. Inventories from China increased by *** percent, inventories from South Korea increased by *** percent, and inventories from India, Taiwan, and Thailand increased *** percent. In total, importers' held inventories from subject countries increased by *** percent from *** pounds in 2021 to *** pounds in 2023. The held inventories of epoxy resins from nonsubject source, by comparison, decreased by *** percent from *** pounds in 2021 to *** pounds in 2023.

Table VII-16
Epoxy resins: U.S. importers' inventories and their ratio to select items, by source and period

Quantity in 1,000 pounds; ratios in percent

Measure	Source	2021	2022	2023
Inventories quantity	China	***	***	***
Ratio to imports	China	***	***	***
Ratio to U.S. shipments of imports	China	***	***	***
Ratio to total shipments of imports	China	***	***	***
Inventories quantity	India	***	***	***
Ratio to imports	India	***	***	***
Ratio to U.S. shipments of imports	India	***	***	***
Ratio to total shipments of imports	India	***	***	***
Inventories quantity	South Korea	***	***	***
Ratio to imports	South Korea	***	***	***
Ratio to U.S. shipments of imports	South Korea	***	***	***
Ratio to total shipments of imports	South Korea	***	***	***
Inventories quantity	Taiwan	***	***	***
Ratio to imports	Taiwan	***	***	***
Ratio to U.S. shipments of imports	Taiwan	***	***	***
Ratio to total shipments of imports	Taiwan	***	***	***
Inventories quantity	Thailand	***	***	***
Ratio to imports	Thailand	***	***	***
Ratio to U.S. shipments of imports	Thailand	***	***	***
Ratio to total shipments of imports	Thailand	***	***	***

Table continued.

Table VII-16 Continued
Epoxy resins: U.S. importers' inventories and their ratio to select items, by source and period

Quantity in 1,000 pounds; ratios in percent

Measure	Source	2021	2022	2023
Inventories quantity	Subject	***	***	***
Ratio to imports	Subject	***	***	***
Ratio to U.S. shipments of imports	Subject	***	***	***
Ratio to total shipments of imports	Subject	***	***	***
Inventories quantity	Subject less China and India	***	***	***
Ratio to imports	Subject less China and India	***	***	***
Ratio to U.S. shipments of imports	Subject less China and India	***	***	***
Ratio to total shipments of imports	Subject less China and India	***	***	***
Inventories quantity	Nonsubject	***	***	***
Ratio to imports	Nonsubject	***	***	***
Ratio to U.S. shipments of imports	Nonsubject	***	***	***
Ratio to total shipments of imports	Nonsubject	***	***	***
Inventories quantity	Nonsubject plus China and India	***	***	***
Ratio to imports	Nonsubject plus China and India	***	***	***
Ratio to U.S. shipments of imports	Nonsubject plus China and India	***	***	***
Ratio to total shipments of imports	Nonsubject plus China and India	***	***	***
Inventories quantity	All imports	***	***	***
Ratio to imports	All imports	***	***	***
Ratio to U.S. shipments of imports	All imports	***	***	***
Ratio to total shipments of imports	All imports	***	***	***

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. importers' outstanding orders

The Commission requested importers to indicate whether they imported or arranged for the importation of epoxy resins after December 31, 2023. Their reported data is presented in table VII-17. In total, 109.2 million pounds of epoxy resins have been arranged to be imported during January 2024–December 2024. Imports from South Korea account for the largest share of arranged imports at *** percent.

Table VII-17
Epoxy resins: Arranged imports, by source and by period

Quantity in 1,000 pounds

Source	Jan-Mar 2024	Apr-Jun 2024	Jul-Sep 2024	Oct-Dec 2024	Total
China	***	***	***	***	***
India	***	***	***	***	***
South Korea	***	***	***	***	***
Taiwan	***	***	***	***	***
Thailand	***	***	***	***	***
Subject sources	48,282	20,622	6,485	3,823	79,211
Subject sources less China and India	***	***	***	***	***
Nonsubject sources	10,468	8,080	8,359	3,041	29,948
Nonsubject sources plus China and India	***	***	***	***	***
All import sources	58,750	28,702	14,844	6,864	109,159

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

Third-country trade actions

There are no known trade remedy actions on epoxy resins in third-country markets.⁵

Information on nonsubject countries

Global supply and demand for epoxy resins (most recent available) is shown in table VII-18. The largest nonsubject producers were Western Europe and Japan, and they had the greatest consumption in 2021.

The largest global exporters of epoxy resins were South Korea, Taiwan, and Germany in 2023, shown in table VII-19.⁶ For the three largest nonsubject countries, Germany had a 12.3 percent share of quantity (404.3 million pounds), followed by the Netherlands with a 5.9 percent share (193.5 million pounds), followed by the Czech Republic with a 3.1 percent share (103.2 million pounds).

Canada's largest global imports were from the United States (70.5 percent share of quantity), followed by China (12.9 percent share of quantity), followed by South Korea (5.7 percent share of quantity), as shown in table VII-20.

Canada's largest global exports were to the United States (87.0 percent share of quantity), followed by Australia (3.1 percent share of quantity), followed by the United Arab Emirates (1.5 percent share of quantity), as shown in table VII-21.

⁵ Counsel for both the petitioners and the respondents stated they are not aware of any third-country orders on epoxy resins. Conference transcript, p. 127 (Orava), 183 (Jacobsen), 183 (Craven).

⁶ At the 6-digit level, the HS term is "epoxide" resins, and the term is epoxy resins for industry terminology. In this case, the HTS 10-digit level (statistical reporting number 3907.30.0000) is the same products as the HS 6-digit level (HS 3707.30). The term epoxy is used for both levels.

Table VII-18
Epoxy resins: Global supply and demand

Quantity in thousands of metric tons

Country	Annual capacity as of July 2021	2020 Production	2020 Net exports
United States	***	***	***
Canada	***	***	***
Mexico	***	***	***
Central and South America	***	***	***
Total Americas	***	***	***
Western Europe	***	***	***
Central and Eastern Europe	***	***	***
Middle East	***	***	***
Africa	***	***	***
Total Europe, Middle East, and Africa	***	***	***
Mainland China	***	***	***
Indian Subcontinent	***	***	***
Japan	***	***	***
South Korea	***	***	***
Taiwan	***	***	***
Thailand	***	***	***
Other Asia and Oceania	***	***	***
Total Asia Pacific	***	***	***
All sources	***	***	***

Table continued.

Table VII-18 Continued
Epoxy resins: Global supply and demand

Quantity in thousands of metric tons; average annual growth in percent

Country	Consumption, 2020	Consumption, 2021	Consumption, 2026 (Forecast)	Average annual growth rate, 2021-26
United States	***	***	***	***
Canada	***	***	***	***
Mexico	***	***	***	***
Central and South America	***	***	***	***
Total Americas	***	***	***	***
Western Europe	***	***	***	***
Central and Eastern Europe	***	***	***	***
Middle East	***	***	***	***
Africa	***	***	***	***
Total EMEA	***	***	***	***
Mainland China	***	***	***	***
Indian Subcontinent	***	***	***	***
Japan	***	***	***	***
South Korea	***	***	***	***
Taiwan	***	***	***	***
Thailand	***	***	***	***
Other Asia and Oceania	***	***	***	***
Total Asia Pacific	***	***	***	***
All sources	***	***	***	***

Source: ***, August 2021 (Revised April 2022), p. 8.

Table VII-19
Epoxy resins: Global exports by exporter and period

Quantity in 1,000 pounds; shares in percent

Exporting country	Measure	2021	2022	2023
United States	Quantity	328,083	289,714	281,358
China	Quantity	223,307	276,495	381,038
India	Quantity	57,158	66,305	54,247
South Korea	Quantity	822,680	684,961	685,206
Taiwan	Quantity	566,939	510,092	451,521
Thailand	Quantity	139,929	111,405	139,929
Subject exporters	Quantity	1,810,014	1,649,259	1,711,941
Subject exporters less China and India	Quantity	1,529,548	1,306,459	1,276,656
Germany	Quantity	638,408	461,059	404,294
Netherlands	Quantity	239,563	197,349	193,504
Czech Republic	Quantity	128,459	119,794	103,225
Japan	Quantity	110,217	104,341	84,797
Switzerland	Quantity	114,159	98,269	80,992
Italy	Quantity	91,983	93,395	73,099
All other exporters	Quantity	888,845	760,254	629,861
Nonsubject exporters	Quantity	2,211,634	1,834,459	1,569,772
Nonsubject exporters plus China and India	Quantity	2,492,100	2,177,259	2,005,057
All reporting exporters	Quantity	4,021,648	3,483,718	3,281,713
United States	Share of quantity	8.2	8.3	8.6
China	Share of quantity	5.6	7.9	11.6
India	Share of quantity	1.4	1.9	1.7
South Korea	Share of quantity	20.5	19.7	20.9
Taiwan	Share of quantity	14.1	14.6	13.8
Thailand	Share of quantity	3.5	3.2	4.3
Subject exporters	Share of quantity	45.0	47.3	52.2
Subject exporters less China and India	Share of quantity	38.0	37.5	38.9
Germany	Share of quantity	15.9	13.2	12.3
Netherlands	Share of quantity	6.0	5.7	5.9
Czech Republic	Share of quantity	3.2	3.4	3.1
Japan	Share of quantity	2.7	3.0	2.6
Switzerland	Share of quantity	2.8	2.8	2.5
Italy	Share of quantity	2.3	2.7	2.2
All other exporters	Share of quantity	22.1	21.8	19.2
Nonsubject exporters	Share of quantity	55.0	52.7	47.8
Nonsubject exporters plus China and India	Share of quantity	62.0	62.5	61.1
All reporting exporters	Share of quantity	100.0	100.0	100.0

Source: Official exports statistics and official global imports statistics from Global Trade Atlas under HS subheading 3907.30 as reported by various national statistical authorities in the Global Trade Atlas Suite database, accessed April 23, 2024. Chile and Cote d'Ivoire were excluded because they provided no unit of measure.

Note: The United States is shown at the top followed by the countries under investigation, all remaining top exporting countries in descending order of 2023 data.

Table VII-20
Epoxy resins: Canada imports by source and period

Quantity in 1,000 pounds; shares in percent

Source	Measure	2021	2022	2023
United States	Quantity	50,107	45,863	44,368
China	Quantity	3,987	5,942	8,134
South Korea	Quantity	7,695	6,476	3,570
Taiwan	Quantity	4,450	3,269	3,086
India	Quantity	607	1,147	761
South Africa	Quantity	9	304	691
Saudi Arabia	Quantity	6	462	595
Thailand	Quantity	1,239	380	351
Switzerland	Quantity	58	274	320
Germany	Quantity	562	286	251
All other sources	Quantity	1,183	1,471	778
All sources	Quantity	69,903	65,873	62,905
United States	Share of quantity	71.7	69.6	70.5
China	Share of quantity	5.7	9.0	12.9
South Korea	Share of quantity	11.0	9.8	5.7
Taiwan	Share of quantity	6.4	5.0	4.9
India	Share of quantity	0.9	1.7	1.2
South Africa	Share of quantity	0.0	0.5	1.1
Saudi Arabia	Share of quantity	0.0	0.7	0.9
Thailand	Share of quantity	1.8	0.6	0.6
Switzerland	Share of quantity	0.1	0.4	0.5
Germany	Share of quantity	0.8	0.4	0.4
All other sources	Share of quantity	1.7	2.2	1.2
All sources	Share of quantity	100.0	100.0	100.0

Source: Official imports statistics from Global Trade Atlas under HS subheading 3907.30 as reported by Statistics Canada in the Global Trade Atlas Suite database, accessed April 25, 2024.

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 top import sources in descending order of 2023.

Table VII-21
Epoxy resins: Canada exports by destination market and period

Quantity in 1,000 pounds; shares in percent

Destination market	Measure	2021	2022	2023
United States	Quantity	14,060	12,819	11,634
Australia	Quantity	106	251	410
United Arab Emirates	Quantity	282	115	205
China	Quantity	70	110	110
Nigeria	Quantity	51	4	104
Argentina	Quantity	5	17	95
United Kingdom	Quantity	77	118	79
Qatar	Quantity	1	3	66
Romania	Quantity	1	3	57
Algeria	Quantity	70	36	50
All other destination markets	Quantity	1,078	1,374	562
All destination markets	Quantity	15,799	14,850	13,371
United States	Share of quantity	89.0	86.3	87.0
Australia	Share of quantity	0.7	1.7	3.1
United Arab Emirates	Share of quantity	1.8	0.8	1.5
China	Share of quantity	0.4	0.7	0.8
Nigeria	Share of quantity	0.3	0.0	0.8
Argentina	Share of quantity	0.0	0.1	0.7
United Kingdom	Share of quantity	0.5	0.8	0.6
Qatar	Share of quantity	0.0	0.0	0.5
Romania	Share of quantity	0.0	0.0	0.4
Algeria	Share of quantity	0.4	0.2	0.4
All other destination markets	Share of quantity	6.8	9.3	4.2
All destination markets	Share of quantity	100.0	100.0	100.0

Source: Official exports statistics from Global Trade Atlas under HS subheading 3907.30 as reported by Statistics Canada in the Global Trade Atlas Suite database, accessed April 25, 2024.

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 2020 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
89 FR 24860, April 9, 2024	<i>Epoxy Resins From China, India, South Korea, Taiwan, and Thailand; Institution of Antidumping and Countervailing Duty Investigations and Scheduling of Preliminary Phase Investigations</i>	https://www.govinfo.gov/content/pkg/FR-2024-04-09/pdf/2024-07458.pdf
89 FR 33319, April 29, 2024	<i>Certain Epoxy Resins From the People's Republic of China, India, the Republic of Korea, and Taiwan: Initiation of Countervailing Duty Investigations</i>	https://www.govinfo.gov/content/pkg/FR-2024-04-29/pdf/2024-09159.pdf
89 FR 33324, April 29, 2024	<i>Certain Epoxy Resins From the People's Republic of China, India, the Republic of Korea, Taiwan, and Thailand: Initiation of Less-Than-Fair-Value Investigations</i>	https://www.govinfo.gov/content/pkg/FR-2024-04-29/pdf/2024-09161.pdf
89 FR 45925, May 24, 2024	<i>Epoxy Resins From China, India, South Korea, Taiwan, and Thailand; Determinations</i>	https://www.govinfo.gov/content/pkg/FR-2024-05-24/pdf/2024-11401.pdf

APPENDIX B

LIST OF STAFF CONFERENCE WITNESSES

CALENDAR OF PUBLIC PRELIMINARY CONFERENCE

Those listed below appeared in the United States International Trade Commission's Preliminary Conference:

Subject: Epoxy Resins from China, India, South Korea, Taiwan, and Thailand
Inv. Nos.: 701-TA-716-719 and 731-TA-1683-1687 (Preliminary)
Date and Time: April 24, 2024 - 9:30 a.m.

Sessions were held in connection with these preliminary phase investigations in the Main Hearing Room (Room 101), 500 E Street, SW., Washington, DC.

OPENING REMARKS:

In Support of Imposition (**Stephen J. Orava**, King & Spalding LLP)
In Opposition to Imposition (**Jared R. Wessel**, Hogan Lovells US LLP)

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

King & Spalding LLP
Washington, DC
on behalf of

U.S. Epoxy Resin Producers *Ad Hoc* Coalition

Florian Kohl, President, Epoxy Division, Olin Corporation

Omar Espinosa Hernandez, Global Business Director for Epoxy Allylics, Aromatics, and Epoxy Resins, Olin Corporation

James Bellinger, Business Director, Epoxy Americas, Westlake Epoxy Inc.

Kyle Kaufman, Business Finance Leader - Americas, Westlake Epoxy Inc.

Daniel Weinmann, Market Development Manager, Westlake Epoxy Inc.

Stephen J. Orava)
Stephen P. Vaughn) – OF COUNSEL
Barbara Medrado)

**In Opposition to the Imposition of the
Antidumping and Countervailing Duty Orders:**

Hogan Lovells US LLP
Washington, DC
on behalf of

Aditya Birla Chemicals (Thailand) Ltd. (“Aditya Birla”)
Grasim Industries (“Grasim”)

Jonathan T. Stoel)
) – OF COUNSEL
Meghan Anand)

Hogan Lovells US LLP
Washington, DC
on behalf of

PPG Industries, Inc. (“PPG”)

Christine Camsuzou, Vice President,
Procurement and Chief Procurement Officer, PPG

William Pierce, Global Director, Raw Materials, PPG

Christina Marlier, Director of Raw Materials Procurement,
Americas Region, PPG

Jared R. Wessel)
Michael G. Jacobson) – OF COUNSEL
Lyric E. Galvin)

**In Opposition to the Imposition of the
Antidumping and Countervailing Duty Orders (continued):**

Craven Trade Law LLC
Chicago, IL
on behalf of

Atul Limited
Atul USA Inc.
Polymers-Performance Materials Team

A K Gupta (remote witness), Managing Partner, TPM Solicitors and Consultants

Namrita Raghuvanshi (remote witness), Joint Partner,
TPM Solicitors and Consultants

Sarika Bharti (remote witness), Associate, TPM Solicitors and Consultants

Vivek Gadre (remote witness), President (Corporate Strategy), Atul Limited

Praveen Shankar (remote witness), President, Atul Limited

Satyanarayan Mundra (remote witness), Vice-President, Finance, Atul Limited

Prasad Joshi (remote witness), General Manager, Product Management,
Atul Limited

Shweta Pai (remote witness), Product Manager, Atul Limited

David J. Craven) – OF COUNSEL

REBUTTAL/CLOSING REMARKS:

In Support of Imposition (**Stephen P. Vaughn**, King & Spalding LLP)

In Opposition to Imposition (**Michael G. Jacobson** and **Jonathan T. Stoel**, Hogan Lovells US LLP)

APPENDIX C
SUMMARY DATA

Contents

Page

Table C-1: Epoxy resins: Summary data concerning the U.S. market,
by item and period..... C-3

Table C-2: Epoxy resins: Summary data concerning the U.S. market
including U.S. processors, by item and period C-6

U.S. producers

Table C-1

Epoxy resins: Summary data concerning the U.S. market, by item and period

Quantity=1,000 pounds; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per pound; Period changes=percent--exceptions noted

Item	Reported data			Period changes		
	2021	2022	2023	2021-23	2021-22	2022-23
U.S. consumption quantity:						
Amount.....	***	***	***	▼***	▲***	▼***
Producers' share (fn1).....	***	***	***	▼***	▼***	▲***
Importers' share (fn1):						
China.....	***	***	***	▼***	▼***	▼***
India.....	***	***	***	▲***	▲***	▼***
South Korea.....	***	***	***	▼***	▲***	▼***
Taiwan.....	***	***	***	▲***	▲***	▲***
Thailand.....	***	***	***	▲***	▼***	▲***
Subject sources.....	***	***	***	▲***	▲***	▼***
Subject sources less China and India.....	***	***	***	▲***	▲***	▼***
Nonsubject sources.....	***	***	***	▲***	▲***	▼***
Nonsubject sources plus China and India...	***	***	***	▼***	▲***	▼***
All import sources.....	***	***	***	▲***	▲***	▼***
U.S. consumption value:						
Amount.....	***	***	***	▼***	▲***	▼***
Producers' share (fn1).....	***	***	***	▼***	▼***	▼***
Importers' share (fn1):						
China.....	***	***	***	▼***	▼***	▼***
India.....	***	***	***	▲***	▲***	▼***
South Korea.....	***	***	***	▼***	▲***	▼***
Taiwan.....	***	***	***	▲***	▲***	▲***
Thailand.....	***	***	***	▲***	▼***	▲***
Subject sources.....	***	***	***	▼***	▲***	▼***
Subject sources less China and India.....	***	***	***	▼***	▲***	▼***
Nonsubject sources.....	***	***	***	▲***	▲***	▲***
Nonsubject sources plus China and India...	***	***	***	▲***	▲***	▲***
All import sources.....	***	***	***	▲***	▲***	▲***
U.S. imports from:						
China:						
Quantity.....	8,574	6,841	4,308	▼(49.8)	▼(20.2)	▼(37.0)
Value.....	23,347	17,423	9,133	▼(60.9)	▼(25.4)	▼(47.6)
Unit value.....	\$2.72	\$2.55	\$2.12	▼(22.2)	▼(6.5)	▼(16.8)
Ending inventory quantity.....	***	***	***	▲***	▲***	▼***
India						
Quantity.....	4,586	7,294	5,602	▲22.2	▲59.0	▼(23.2)
Value.....	10,971	20,694	9,994	▼(8.9)	▲88.6	▼(51.7)
Unit value.....	\$2.39	\$2.84	\$1.78	▼(25.4)	▲18.6	▼(37.1)
Ending inventory quantity.....	***	***	***	▲***	▲***	▼***
South Korea:						
Quantity.....	153,618	184,752	125,275	▼(18.5)	▲20.3	▼(32.2)
Value.....	363,078	522,326	216,643	▼(40.3)	▲43.9	▼(58.5)
Unit value.....	\$2.36	\$2.83	\$1.73	▼(26.8)	▲19.6	▼(38.8)
Ending inventory quantity.....	***	***	***	▲***	▲***	▲***
Taiwan:						
Quantity.....	17,076	34,696	42,155	▲146.9	▲103.2	▲21.5
Value.....	40,487	80,292	62,780	▲55.1	▲98.3	▼(21.8)
Unit value.....	\$2.37	\$2.31	\$1.49	▼(37.2)	▼(2.4)	▼(35.6)
Ending inventory quantity.....	***	***	***	▲***	▲***	▲***
Thailand:						
Quantity.....	23,225	18,132	23,820	▲2.6	▼(21.9)	▲31.4
Value.....	48,523	49,655	41,468	▼(14.5)	▲2.3	▼(16.5)
Unit value.....	\$2.09	\$2.74	\$1.74	▼(16.7)	▲31.1	▼(36.4)
Ending inventory quantity.....	***	***	***	▲***	▲***	▲***

Table continued.

Table C-1 Continued

Epoxy resins: Summary data concerning the U.S. market, by item and period

Quantity=1,000 pounds; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per pound; Period changes=percent--exceptions noted

Item	Reported data			Period changes		
	2021	2022	2023	2021-23	2021-22	2022-23
U.S. imports from: Continued						
Subject sources:						
Quantity.....	207,078	251,715	201,160	▼(2.9)	▲21.6	▼(20.1)
Value.....	486,406	690,391	340,017	▼(30.1)	▲41.9	▼(50.8)
Unit value.....	\$2.35	\$2.74	\$1.69	▼(28.0)	▲16.8	▼(38.4)
Ending inventory quantity.....	***	***	***	▲***	▲***	▲***
Subject sources less China and India:						
Quantity.....	193,918	237,580	191,250	▼(1.4)	▲22.5	▼(19.5)
Value.....	452,088	652,274	320,890	▼(29.0)	▲44.3	▼(50.8)
Unit value.....	\$2.33	\$2.75	\$1.68	▼(28.0)	▲17.8	▼(38.9)
Ending inventory quantity.....	***	***	***	▲***	▲***	▲***
Nonsubject sources:						
Quantity.....	82,661	85,955	70,579	▼(14.6)	▲4.0	▼(17.9)
Value.....	262,877	346,688	301,723	▲14.8	▲31.9	▼(13.0)
Unit value.....	\$3.18	\$4.03	\$4.27	▲34.4	▲26.8	▲6.0
Ending inventory quantity.....	***	***	***	▼***	▲***	▼***
Nonsubject sources plus China and India:						
Quantity.....	95,821	100,090	80,490	▼(16.0)	▲4.5	▼(19.6)
Value.....	297,195	384,805	320,849	▲8.0	▲29.5	▼(16.6)
Unit value.....	\$3.10	\$3.84	\$3.99	▲28.5	▲24.0	▲3.7
Ending inventory quantity.....	***	***	***	▲***	▲***	▼***
All import sources:						
Quantity.....	289,739	337,669	271,739	▼(6.2)	▲16.5	▼(19.5)
Value.....	749,283	1,037,079	641,740	▼(14.4)	▲38.4	▼(38.1)
Unit value.....	\$2.59	\$3.07	\$2.36	▼(8.7)	▲18.8	▼(23.1)
Ending inventory quantity.....	***	***	***	▲***	▲***	▲***
U.S. producers':						
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).....	***	***	***	▲***	▲***	▲***
Production workers.....	***	***	***	▲***	▲***	***
Hours worked (1,000s).....	***	***	***	▼***	▲***	▼***
Wages paid (\$1,000).....	***	***	***	▼***	▲***	▼***
Hourly wages (dollars per hour).....	***	***	***	▼***	▼***	▼***
Productivity (pounds per hour).....	***	***	***	▼***	▼***	▼***
Unit labor costs.....	***	***	***	▲***	▲***	▼***

Table continued.

Table C-1 Continued

Epoxy resins: Summary data concerning the U.S. market, by item and period

Quantity=1,000 pounds; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per pound; Period changes=percent--exceptions noted

Item	Reported data			Period changes		
	2021	2022	2023	2021-23	2021-22	2022-23
U.S. producers': Continued						
Net sales:						
Quantity.....	***	***	***	▼***	▼***	▼***
Value.....	***	***	***	▼***	▲***	▼***
Unit value.....	***	***	***	▼***	▲***	▼***
Cost of goods sold (COGS).....	***	***	***	▼***	▼***	▼***
Gross profit or (loss) (fn2).....	***	***	***	▼***	▲***	▼***
SG&A expenses.....	***	***	***	▼***	▼***	▲***
Operating income or (loss) (fn2).....	***	***	***	▼***	▲***	▼***
Net income or (loss) (fn2).....	***	***	***	▼***	▲***	▼***
Unit COGS.....	***	***	***	▲***	▲***	▼***
Unit SG&A expenses.....	***	***	***	▲***	▲***	▲***
Unit operating income or (loss) (fn2).....	***	***	***	▼***	▲***	▼***
Unit net income or (loss) (fn2).....	***	***	***	▼***	▲***	▼***
COGS/sales (fn1).....	***	***	***	▲***	▼***	▲***
Operating income or (loss)/sales (fn1).....	***	***	***	▼***	▲***	▼***
Net income or (loss)/sales (fn1).....	***	***	***	▼***	▲***	▼***
Capital expenditures.....	***	***	***	▼***	▲***	▼***
Research and development expenses.....	***	***	***	▲***	▲***	▲***
Total assets.....	***	***	***	▲***	▲***	▲***

Source: Compiled from data submitted in response to Commission questionnaires and adjusted official U.S. imports statistics of the U.S. Department of Commerce Census Bureau using HTS statistical reporting number 3907.30.0000, accessed April 23, 2024. Official U.S. imports statistics were adjusted to add in epoxy resins imported under other HTS statistical reporting numbers as reported in responses to Commission questionnaires, as well as to remove out-of-scope products imported under the primary HTS number for epoxy resins as reported as responses to Commission questionnaires. Imports are based on the imports for consumption data series. Value data reflect landed duty-paid values. 508-compliant tables containing these data are contained in parts III, IV, VI, and VII of this report.

Note.--Shares and ratios shown as "0.0" percent represent non-zero values less than "0.05" percent (if positive) and greater than "(0.05)" percent (if negative). Zeroes, null values, and undefined calculations are suppressed and shown as "--". Period changes preceded by a "▲" represent an increase, while period changes preceded by a "▼" represent a decrease.

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.

U.S. producers and processors

Table C-2

Epoxy resins: Summary data concerning the U.S. market including U.S. processors, by item and period

Quantity=1,000 pounds; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per pound; Period changes=percent--exceptions noted

Item	Reported data			Period changes		
	2021	2022	2023	2021-23	2021-22	2022-23
U.S. consumption quantity:						
Amount.....	***	***	***	▼***	▲***	▼***
Producers' share (fn1).....	***	***	***	▼***	▼***	▲***
Importers' share (fn1):						
China.....	***	***	***	▼***	▼***	▼***
India.....	***	***	***	▲***	▲***	▼***
South Korea.....	***	***	***	▼***	▲***	▼***
Taiwan.....	***	***	***	▲***	▲***	▲***
Thailand.....	***	***	***	▲***	▼***	▲***
Subject sources.....	***	***	***	▲***	▲***	▼***
Subject sources less China and India.....	***	***	***	▲***	▲***	▼***
Nonsubject sources.....	***	***	***	▲***	▲***	▼***
Nonsubject sources plus China and India...	***	***	***	▼***	▲***	▼***
All import sources.....	***	***	***	▲***	▲***	▼***
U.S. consumption value:						
Amount.....	***	***	***	▼***	▲***	▼***
Producers' share (fn1):						
Fully domestic value.....	***	***	***	▼***	▼***	▼***
Value added to imports.....	***	***	***	▲***	▲***	▲***
Overall value for U.S. producers.....	***	***	***	▼***	▼***	▼***
Importers' share (fn1):						
China.....	***	***	***	▼***	▼***	▼***
India.....	***	***	***	▲***	▲***	▼***
South Korea.....	***	***	***	▼***	▲***	▼***
Taiwan.....	***	***	***	▲***	▲***	▲***
Thailand.....	***	***	***	▲***	▼***	▲***
Subject sources.....	***	***	***	▼***	▲***	▼***
Subject sources less China and India.....	***	***	***	▼***	▲***	▼***
Nonsubject sources.....	***	***	***	▲***	▲***	▲***
Nonsubject sources plus China and India...	***	***	***	▲***	▲***	▲***
All import sources.....	***	***	***	▲***	▲***	▲***
U.S. imports from:						
China:						
Quantity.....	8,574	6,841	4,308	▼(49.8)	▼(20.2)	▼(37.0)
Value.....	23,347	17,423	9,133	▼(60.9)	▼(25.4)	▼(47.6)
Unit value.....	\$2.72	\$2.55	\$2.12	▼(22.2)	▼(6.5)	▼(16.8)
Ending inventory quantity.....	***	***	***	▲***	▲***	▼***
India:						
Quantity.....	4,586	7,294	5,602	▲22.2	▲59.0	▼(23.2)
Value.....	10,971	20,694	9,994	▼(8.9)	▲88.6	▼(51.7)
Unit value.....	\$2.39	\$2.84	\$1.78	▼(25.4)	▲18.6	▼(37.1)
Ending inventory quantity.....	***	***	***	▲***	▲***	▼***
South Korea:						
Quantity.....	153,618	184,752	125,275	▼(18.5)	▲20.3	▼(32.2)
Value.....	363,078	522,326	216,643	▼(40.3)	▲43.9	▼(58.5)
Unit value.....	\$2.36	\$2.83	\$1.73	▼(26.8)	▲19.6	▼(38.8)
Ending inventory quantity.....	***	***	***	▲***	▲***	▲***
Taiwan:						
Quantity.....	17,076	34,696	42,155	▲146.9	▲103.2	▲21.5
Value.....	40,487	80,292	62,780	▲55.1	▲98.3	▼(21.8)
Unit value.....	\$2.37	\$2.31	\$1.49	▼(37.2)	▼(2.4)	▼(35.6)
Ending inventory quantity.....	***	***	***	▲***	▲***	▲***

Table continued.

Table C-2 Continued

Epoxy resins: Summary data concerning the U.S. market including U.S. processors, by item and period

Quantity=1,000 pounds; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per pound; Period changes=percent--exceptions noted

Item	Reported data			Period changes		
	2021	2022	2023	2021-23	2021-22	2022-23
U.S. imports from: Continued						
Thailand:						
Quantity.....	23,225	18,132	23,820	▲2.6	▼(21.9)	▲31.4
Value.....	48,523	49,655	41,468	▼(14.5)	▲2.3	▼(16.5)
Unit value.....	\$2.09	\$2.74	\$1.74	▼(16.7)	▲31.1	▼(36.4)
Ending inventory quantity.....	***	***	***	▲***	▲***	▲***
Subject sources:						
Quantity.....	207,078	251,715	201,160	▼(2.9)	▲21.6	▼(20.1)
Value.....	486,406	690,391	340,017	▼(30.1)	▲41.9	▼(50.8)
Unit value.....	\$2.35	\$2.74	\$1.69	▼(28.0)	▲16.8	▼(38.4)
Ending inventory quantity.....	***	***	***	▲***	▲***	▲***
Subject sources less China and India:						
Quantity.....	193,918	237,580	191,250	▼(1.4)	▲22.5	▼(19.5)
Value.....	452,088	652,274	320,890	▼(29.0)	▲44.3	▼(50.8)
Unit value.....	\$2.33	\$2.75	\$1.68	▼(28.0)	▲17.8	▼(38.9)
Ending inventory quantity.....	***	***	***	▲***	▲***	▲***
Nonsubject sources:						
Quantity.....	82,661	85,955	70,579	▼(14.6)	▲4.0	▼(17.9)
Value.....	262,877	346,688	301,723	▲14.8	▲31.9	▼(13.0)
Unit value.....	\$3.18	\$4.03	\$4.27	▲34.4	▲26.8	▲6.0
Ending inventory quantity.....	***	***	***	▼***	▲***	▼***
Nonsubject sources plus China and India:						
Quantity.....	95,821	100,090	80,490	▼(16.0)	▲4.5	▼(19.6)
Value.....	297,195	384,805	320,849	▲8.0	▲29.5	▼(16.6)
Unit value.....	\$3.10	\$3.84	\$3.99	▲28.5	▲24.0	▲3.7
Ending inventory quantity.....	***	***	***	▲***	▲***	▼***
All import sources:						
Quantity.....	289,739	337,669	271,739	▼(6.2)	▲16.5	▼(19.5)
Value.....	749,283	1,037,079	641,740	▼(14.4)	▲38.4	▼(38.1)
Unit value.....	\$2.59	\$3.07	\$2.36	▼(8.7)	▲18.8	▼(23.1)
Ending inventory quantity.....	***	***	***	▲***	▲***	▲***
U.S. producers' and processors':						
Practical capacity quantity.....	***	***	***	▼***	▼***	▼***
Production quantity.....	***	***	***	▼***	▼***	▼***
Capacity utilization (fn1).....	***	***	***	▼***	▼***	▲***
U.S. shipments (fn2):						
Quantity.....	***	***	***	▼***	▼***	▼***
Value:						
Fully domestic value.....	***	***	***	▼***	▲***	▼***
Value added to imports.....	***	***	***	▲***	▲***	▼***
Overall value for U.S. producers.....	***	***	***	▼***	▲***	▼***
Unit value.....	***	***	***	▼***	▲***	▼***
Export shipments:						
Quantity.....	***	***	***	▼***	▼***	▲***
Value.....	***	***	***	▼***	▼***	▼***
Unit value.....	***	***	***	▼***	▲***	▼***
Ending inventory quantity.....	***	***	***	▼***	▼***	▼***
Inventories/total shipments (fn1).....	***	***	***	▲***	▲***	▲***
Production workers.....	***	***	***	▼***	▼***	▼***
Hours worked (1,000s).....	***	***	***	▼***	▼***	▼***
Wages paid (\$1,000).....	***	***	***	▲***	▲***	▼***
Hourly wages (dollars per hour).....	***	***	***	▲***	▲***	▲***
Productivity (pounds per hour).....	***	***	***	▼***	▼***	▲***
Unit labor costs.....	***	***	***	▲***	▲***	▼***

Table continued.

Table C-2 Continued

Epoxy resins: Summary data concerning the U.S. market including U.S. processors, by item and period

Quantity=1,000 pounds; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per pound; Period changes=percent--exceptions noted

Item	Reported data			Period changes		
	2021	2022	2023	2021-23	2021-22	2022-23
U.S. producers' and processors': Continued						
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 and adjusted official U.S. imports statistics of the U.S. Department of Commerce Census Bureau using HTS statistical reporting number 3907.30.0000, accessed April 23, 2024. Official U.S. imports statistics were adjusted to add in epoxy resins imported under other HTS statistical reporting numbers as reported in responses to Commission questionnaires, as well as to remove out-of-scope products imported under the primary HTS number for epoxy resins as reported as responses to Commission questionnaires. Imports are based on the imports for consumption data series. Value data reflect landed duty-paid values. 508-compliant tables containing these data are contained in appendix parts G and H of this report.

Note.--Shares and ratios shown as "0.0" percent represent non-zero values less than "0.05" percent (if positive) and greater than "(0.05)" percent (if negative). Zeroes, null values, and undefined calculations are suppressed and shown as "---". Period changes preceded by a "▲" represent an increase, while period changes preceded by a "▼" represent a decrease.

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

fn2.--Quantity data reflect U.S. producers Olin's and Westlake's U.S. shipment quantities (which are primarily made into epoxy resins domestically) and excludes U.S. processor Huntsman's U.S. shipments (which are primarily imported epoxy resins processed with some value added in the United States). The U.S. producers' U.S. shipment quantities (i.e., Olin and Westlake) do contain some volumes of processed imports from *** sources for which there is insufficient information in the preliminary to effectively remove from the domestic producers' side of the ledger in this analysis, and likewise U.S. processor Huntsman does ***. Value data reflect both U.S. producers Olin's and Westlake's U.S. shipment values as well as the additional value added by U.S. processor Huntsman to either domestic or imported epoxy resins. In measuring consumption and market share this methodology avoids reclassifying and/or double counting merchandise already reported as a domestic shipment or an import. Unit value reflects the fully domestic value.
 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.

APPENDIX D

DOMESTIC LIKE PRODUCT NARRATIVES

Table D-1

Epoxy resins: U.S. producers' narratives regarding the domestic like product factors comparing epoxy resins that are part of a system/kit with separate co-reactant(s) to epoxy resins sold by themselves

Factor	Producer name and narrative on the domestic like product factors
Physical characteristics	***
Physical characteristics	***
Interchangeability	***
Interchangeability	***
Channels	***
Channels	***
Manufacturing	***
Manufacturing	***
Perceptions	***
Perceptions	***
Price	***
Price	***

Table D-2

Epoxy resins: U.S. importers' narratives regarding the domestic like product factors comparing epoxy resins that are part of a system/kit with separate co-reactant(s) to epoxy resins sold by themselves

Factor	Importer name and narrative on the domestic like product factors
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Interchangeability	***
Interchangeability	***
Interchangeability	***

Factor	Importer name and narrative on the domestic like product factors
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***

Factor	Importer name and narrative on the domestic like product factors
Channels	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***

Factor	Importer name and narrative on the domestic like product factors
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***

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

APPENDIX E

U.S. SHIPMENTS OF EPOXY RESINS BY PRODUCT FORM AND GROUP TYPE

Table E-1
Epoxy resins: U.S. producers' U.S. shipments in 2023, by product group and form

Quantities in 1,000 pounds; values in 1,000 dollars; shares in percent

Product group	Measure	Liquid / solution	Solid / semi-solid	All forms
Group 1: BADGE-type	Quantity, gross	***	***	***
Group 2: Brominated, etc.	Quantity, gross	***	***	***
Group 3: Multifunctional, etc.	Quantity, gross	***	***	***
All product groups	Quantity, gross	***	***	***
Group 1: BADGE-type	Quantity, contained	***	***	***
Group 2: Brominated, etc.	Quantity, contained	***	***	***
Group 3: Multifunctional, etc.	Quantity, contained	***	***	***
All product groups	Quantity, contained	***	***	***
Group 1: BADGE-type	Value	***	***	***
Group 2: Brominated, etc.	Value	***	***	***
Group 3: Multifunctional, etc.	Value	***	***	***
All product groups	Value	***	***	***
Group 1: BADGE-type	Share of quantity, gross	***	***	***
Group 2: Brominated, etc.	Share of quantity, gross	***	***	***
Group 3: Multifunctional, etc.	Share of quantity, gross	***	***	***
All product groups	Share of quantity, gross	***	***	***
Group 1: BADGE-type	Share of quantity, contained	***	***	***
Group 2: Brominated, etc.	Share of quantity, contained	***	***	***
Group 3: Multifunctional, etc.	Share of quantity, contained	***	***	***
All product groups	Share of quantity, contained	***	***	***
Group 1: BADGE-type	Share of value	***	***	***
Group 2: Brominated, etc.	Share of value	***	***	***
Group 3: Multifunctional, etc.	Share of value	***	***	***
All product groups	Share of value	***	***	***

Table continued.

Table E-1 Continued
Epoxy resins: U.S. producers' U.S. shipments in 2023, by product group and form

Unit values in dollars per pound; ratios in percent

Product group	Measure	Liquid / solution	Solid / semi-solid	All forms
Group 1: BADGE-type	Unit value, gross	***	***	***
Group 2: Brominated, etc.	Unit value, gross	***	***	***
Group 3: Multifunctional, etc.	Unit value, gross	***	***	***
All product groups	Unit value, gross	***	***	***
Group 1: BADGE-type	Unit value, contained	***	***	***
Group 2: Brominated, etc.	Unit value, contained	***	***	***
Group 3: Multifunctional, etc.	Unit value, contained	***	***	***
All product groups	Unit value, contained	***	***	***
Group 1: BADGE-type	Ratio, contained to gross	***	***	***
Group 2: Brominated, etc.	Ratio, contained to gross	***	***	***
Group 3: Multifunctional, etc.	Ratio, contained to gross	***	***	***
All product groups	Ratio, contained to gross	***	***	***

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 "---". Group 1 includes BADGE-type epoxy resins, group 2 includes brominated, novolac, cycloaliphatic and waterborne epoxy resins, and group 3 includes multifunctional, aliphatic, glycidyl amine, and all other epoxy resins.

Table E-2
Epoxy resins: U.S. importers' U.S. shipments from China in 2023, by product group and form

Quantities in 1,000 pounds; values in 1,000 dollars; shares in percent

Product group	Measure	Liquid / solution	Solid / semi-solid	All forms
Group 1: BADGE-type	Quantity, gross	***	***	***
Group 2: Brominated, etc.	Quantity, gross	***	***	***
Group 3: Multifunctional, etc.	Quantity, gross	***	***	***
All product groups	Quantity, gross	***	***	***
Group 1: BADGE-type	Quantity, contained	***	***	***
Group 2: Brominated, etc.	Quantity, contained	***	***	***
Group 3: Multifunctional, etc.	Quantity, contained	***	***	***
All product groups	Quantity, contained	***	***	***
Group 1: BADGE-type	Value	***	***	***
Group 2: Brominated, etc.	Value	***	***	***
Group 3: Multifunctional, etc.	Value	***	***	***
All product groups	Value	***	***	***
Group 1: BADGE-type	Share of quantity, gross	***	***	***
Group 2: Brominated, etc.	Share of quantity, gross	***	***	***
Group 3: Multifunctional, etc.	Share of quantity, gross	***	***	***
All product groups	Share of quantity, gross	***	***	***
Group 1: BADGE-type	Share of quantity, contained	***	***	***
Group 2: Brominated, etc.	Share of quantity, contained	***	***	***
Group 3: Multifunctional, etc.	Share of quantity, contained	***	***	***
All product groups	Share of quantity, contained	***	***	***
Group 1: BADGE-type	Share of value	***	***	***
Group 2: Brominated, etc.	Share of value	***	***	***
Group 3: Multifunctional, etc.	Share of value	***	***	***
All product groups	Share of value	***	***	***

Table continued.

Table E-2 Continued**Epoxy resins: U.S. importers' U.S. shipments from China in 2023, by product group and form**

Unit values in dollars per pound; ratios in percent

Product group	Measure	Liquid / solution	Solid / semi-solid	All forms
Group 1: BADGE-type	Unit value, gross	***	***	***
Group 2: Brominated, etc.	Unit value, gross	***	***	***
Group 3: Multifunctional, etc.	Unit value, gross	***	***	***
All product groups	Unit value, gross	***	***	***
Group 1: BADGE-type	Unit value, contained	***	***	***
Group 2: Brominated, etc.	Unit value, contained	***	***	***
Group 3: Multifunctional, etc.	Unit value, contained	***	***	***
All product groups	Unit value, contained	***	***	***
Group 1: BADGE-type	Ratio, contained to gross	***	***	***
Group 2: Brominated, etc.	Ratio, contained to gross	***	***	***
Group 3: Multifunctional, etc.	Ratio, contained to gross	***	***	***
All product groups	Ratio, contained to gross	***	***	***

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 "---". Group 1 includes BADGE-type epoxy resins, group 2 includes brominated, novolac, cycloaliphatic and waterborne epoxy resins, and group 3 includes multifunctional, aliphatic, glycidyl amine, and all other epoxy resins.

Table E-3
Epoxy resins: U.S. importers' U.S. shipments from India in 2023, by product group and form

Quantities in 1,000 pounds; values in 1,000 dollars; shares in percent

Product group	Measure	Liquid / solution	Solid / semi-solid	All forms
Group 1: BADGE-type	Quantity, gross	***	***	***
Group 2: Brominated, etc.	Quantity, gross	***	***	***
Group 3: Multifunctional, etc.	Quantity, gross	***	***	***
All product groups	Quantity, gross	***	***	***
Group 1: BADGE-type	Quantity, contained	***	***	***
Group 2: Brominated, etc.	Quantity, contained	***	***	***
Group 3: Multifunctional, etc.	Quantity, contained	***	***	***
All product groups	Quantity, contained	***	***	***
Group 1: BADGE-type	Value	***	***	***
Group 2: Brominated, etc.	Value	***	***	***
Group 3: Multifunctional, etc.	Value	***	***	***
All product groups	Value	***	***	***
Group 1: BADGE-type	Share of quantity, gross	***	***	***
Group 2: Brominated, etc.	Share of quantity, gross	***	***	***
Group 3: Multifunctional, etc.	Share of quantity, gross	***	***	***
All product groups	Share of quantity, gross	***	***	***
Group 1: BADGE-type	Share of quantity, contained	***	***	***
Group 2: Brominated, etc.	Share of quantity, contained	***	***	***
Group 3: Multifunctional, etc.	Share of quantity, contained	***	***	***
All product groups	Share of quantity, contained	***	***	***
Group 1: BADGE-type	Share of value	***	***	***
Group 2: Brominated, etc.	Share of value	***	***	***
Group 3: Multifunctional, etc.	Share of value	***	***	***
All product groups	Share of value	***	***	***

Table continued.

Table E-3 Continued**Epoxy resins: U.S. importers' U.S. shipments from India in 2023, by product group and form**

Unit values in dollars per pound; ratios in percent

Product group	Measure	Liquid / solution	Solid / semi-solid	All forms
Group 1: BADGE-type	Unit value, gross	***	***	***
Group 2: Brominated, etc.	Unit value, gross	***	***	***
Group 3: Multifunctional, etc.	Unit value, gross	***	***	***
All product groups	Unit value, gross	***	***	***
Group 1: BADGE-type	Unit value, contained	***	***	***
Group 2: Brominated, etc.	Unit value, contained	***	***	***
Group 3: Multifunctional, etc.	Unit value, contained	***	***	***
All product groups	Unit value, contained	***	***	***
Group 1: BADGE-type	Ratio, contained to gross	***	***	***
Group 2: Brominated, etc.	Ratio, contained to gross	***	***	***
Group 3: Multifunctional, etc.	Ratio, contained to gross	***	***	***
All product groups	Ratio, contained to gross	***	***	***

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 "---". Group 1 includes BADGE-type epoxy resins, group 2 includes brominated, novolac, cycloaliphatic and waterborne epoxy resins, and group 3 includes multifunctional, aliphatic, glycidyl amine, and all other epoxy resins.

Table E-4
Epoxy resins: U.S. importers' U.S. shipments from South Korea in 2023, by product group and form

Quantities in 1,000 pounds; values in 1,000 dollars; shares in percent

Product group	Measure	Liquid / solution	Solid / semi-solid	All forms
Group 1: BADGE-type	Quantity, gross	***	***	***
Group 2: Brominated, etc.	Quantity, gross	***	***	***
Group 3: Multifunctional, etc.	Quantity, gross	***	***	***
All product groups	Quantity, gross	***	***	***
Group 1: BADGE-type	Quantity, contained	***	***	***
Group 2: Brominated, etc.	Quantity, contained	***	***	***
Group 3: Multifunctional, etc.	Quantity, contained	***	***	***
All product groups	Quantity, contained	***	***	***
Group 1: BADGE-type	Value	***	***	***
Group 2: Brominated, etc.	Value	***	***	***
Group 3: Multifunctional, etc.	Value	***	***	***
All product groups	Value	***	***	***
Group 1: BADGE-type	Share of quantity, gross	***	***	***
Group 2: Brominated, etc.	Share of quantity, gross	***	***	***
Group 3: Multifunctional, etc.	Share of quantity, gross	***	***	***
All product groups	Share of quantity, gross	***	***	***
Group 1: BADGE-type	Share of quantity, contained	***	***	***
Group 2: Brominated, etc.	Share of quantity, contained	***	***	***
Group 3: Multifunctional, etc.	Share of quantity, contained	***	***	***
All product groups	Share of quantity, contained	***	***	***
Group 1: BADGE-type	Share of value	***	***	***
Group 2: Brominated, etc.	Share of value	***	***	***
Group 3: Multifunctional, etc.	Share of value	***	***	***
All product groups	Share of value	***	***	***

Table continued.

Table E-4 Continued**Epoxy resins: U.S. importers' U.S. shipments from South Korea in 2023, by product group and form**

Unit values in dollars per pound; ratios in percent

Product group	Measure	Liquid / solution	Solid / semi-solid	All forms
Group 1: BADGE-type	Unit value, gross	***	***	***
Group 2: Brominated, etc.	Unit value, gross	***	***	***
Group 3: Multifunctional, etc.	Unit value, gross	***	***	***
All product groups	Unit value, gross	***	***	***
Group 1: BADGE-type	Unit value, contained	***	***	***
Group 2: Brominated, etc.	Unit value, contained	***	***	***
Group 3: Multifunctional, etc.	Unit value, contained	***	***	***
All product groups	Unit value, contained	***	***	***
Group 1: BADGE-type	Ratio, contained to gross	***	***	***
Group 2: Brominated, etc.	Ratio, contained to gross	***	***	***
Group 3: Multifunctional, etc.	Ratio, contained to gross	***	***	***
All product groups	Ratio, contained to gross	***	***	***

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 "--". Group 1 includes BADGE-type epoxy resins, group 2 includes brominated, novolac, cycloaliphatic and waterborne epoxy resins, and group 3 includes multifunctional, aliphatic, glycidyl amine, and all other epoxy resins.

Table E-5
Epoxy resins: U.S. importers' U.S. shipments from Taiwan in 2023, by product group and form

Quantities in 1,000 pounds; values in 1,000 dollars; shares in percent

Product group	Measure	Liquid / solution	Solid / semi-solid	All forms
Group 1: BADGE-type	Quantity, gross	***	***	***
Group 2: Brominated, etc.	Quantity, gross	***	***	***
Group 3: Multifunctional, etc.	Quantity, gross	***	***	***
All product groups	Quantity, gross	***	***	***
Group 1: BADGE-type	Quantity, contained	***	***	***
Group 2: Brominated, etc.	Quantity, contained	***	***	***
Group 3: Multifunctional, etc.	Quantity, contained	***	***	***
All product groups	Quantity, contained	***	***	***
Group 1: BADGE-type	Value	***	***	***
Group 2: Brominated, etc.	Value	***	***	***
Group 3: Multifunctional, etc.	Value	***	***	***
All product groups	Value	***	***	***
Group 1: BADGE-type	Share of quantity, gross	***	***	***
Group 2: Brominated, etc.	Share of quantity, gross	***	***	***
Group 3: Multifunctional, etc.	Share of quantity, gross	***	***	***
All product groups	Share of quantity, gross	***	***	***
Group 1: BADGE-type	Share of quantity, contained	***	***	***
Group 2: Brominated, etc.	Share of quantity, contained	***	***	***
Group 3: Multifunctional, etc.	Share of quantity, contained	***	***	***
All product groups	Share of quantity, contained	***	***	***
Group 1: BADGE-type	Share of value	***	***	***
Group 2: Brominated, etc.	Share of value	***	***	***
Group 3: Multifunctional, etc.	Share of value	***	***	***
All product groups	Share of value	***	***	***

Table continued.

Table E-5 Continued**Epoxy resins: U.S. importers' U.S. shipments from Taiwan in 2023, by product group and form**

Unit values in dollars per pound; ratios in percent

Product group	Measure	Liquid / solution	Solid / semi-solid	All forms
Group 1: BADGE-type	Unit value, gross	***	***	***
Group 2: Brominated, etc.	Unit value, gross	***	***	***
Group 3: Multifunctional, etc.	Unit value, gross	***	***	***
All product groups	Unit value, gross	***	***	***
Group 1: BADGE-type	Unit value, contained	***	***	***
Group 2: Brominated, etc.	Unit value, contained	***	***	***
Group 3: Multifunctional, etc.	Unit value, contained	***	***	***
All product groups	Unit value, contained	***	***	***
Group 1: BADGE-type	Ratio, contained to gross	***	***	***
Group 2: Brominated, etc.	Ratio, contained to gross	***	***	***
Group 3: Multifunctional, etc.	Ratio, contained to gross	***	***	***
All product groups	Ratio, contained to gross	***	***	***

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 "---". Group 1 includes BADGE-type epoxy resins, group 2 includes brominated, novolac, cycloaliphatic and waterborne epoxy resins, and group 3 includes multifunctional, aliphatic, glycidyl amine, and all other epoxy resins.

Table E-6
Epoxy resins: U.S. importers' U.S. shipments from Thailand in 2023, by product group and form

Quantities in 1,000 pounds; values in 1,000 dollars; shares in percent

Product group	Measure	Liquid / solution	Solid / semi-solid	All forms
Group 1: BADGE-type	Quantity, gross	***	***	***
Group 2: Brominated, etc.	Quantity, gross	***	***	***
Group 3: Multifunctional, etc.	Quantity, gross	***	***	***
All product groups	Quantity, gross	***	***	***
Group 1: BADGE-type	Quantity, contained	***	***	***
Group 2: Brominated, etc.	Quantity, contained	***	***	***
Group 3: Multifunctional, etc.	Quantity, contained	***	***	***
All product groups	Quantity, contained	***	***	***
Group 1: BADGE-type	Value	***	***	***
Group 2: Brominated, etc.	Value	***	***	***
Group 3: Multifunctional, etc.	Value	***	***	***
All product groups	Value	***	***	***
Group 1: BADGE-type	Share of quantity, gross	***	***	***
Group 2: Brominated, etc.	Share of quantity, gross	***	***	***
Group 3: Multifunctional, etc.	Share of quantity, gross	***	***	***
All product groups	Share of quantity, gross	***	***	***
Group 1: BADGE-type	Share of quantity, contained	***	***	***
Group 2: Brominated, etc.	Share of quantity, contained	***	***	***
Group 3: Multifunctional, etc.	Share of quantity, contained	***	***	***
All product groups	Share of quantity, contained	***	***	***
Group 1: BADGE-type	Share of value	***	***	***
Group 2: Brominated, etc.	Share of value	***	***	***
Group 3: Multifunctional, etc.	Share of value	***	***	***
All product groups	Share of value	***	***	***

Table continued.

Table E-6 Continued**Epoxy resins: U.S. importers' U.S. shipments from Thailand in 2023, by product group and form**

Unit values in dollars per pound; ratios in percent

Product group	Measure	Liquid / solution	Solid / semi-solid	All forms
Group 1: BADGE-type	Unit value, gross	***	***	***
Group 2: Brominated, etc.	Unit value, gross	***	***	***
Group 3: Multifunctional, etc.	Unit value, gross	***	***	***
All product groups	Unit value, gross	***	***	***
Group 1: BADGE-type	Unit value, contained	***	***	***
Group 2: Brominated, etc.	Unit value, contained	***	***	***
Group 3: Multifunctional, etc.	Unit value, contained	***	***	***
All product groups	Unit value, contained	***	***	***
Group 1: BADGE-type	Ratio, contained to gross	***	***	***
Group 2: Brominated, etc.	Ratio, contained to gross	***	***	***
Group 3: Multifunctional, etc.	Ratio, contained to gross	***	***	***
All product groups	Ratio, contained to gross	***	***	***

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 "---". Group 1 includes BADGE-type epoxy resins, group 2 includes brominated, novolac, cycloaliphatic and waterborne epoxy resins, and group 3 includes multifunctional, aliphatic, glycidyl amine, and all other epoxy resins.

Table E-7
Epoxy resins: U.S. importers' U.S. shipments from subject sources in 2023, by product group and form

Quantities in 1,000 pounds; values in 1,000 dollars; shares in percent

Product group	Measure	Liquid / solution	Solid / semi-solid	All forms
Group 1: BADGE-type	Quantity, gross	***	***	***
Group 2: Brominated, etc.	Quantity, gross	***	***	***
Group 3: Multifunctional, etc.	Quantity, gross	***	***	***
All product groups	Quantity, gross	***	***	***
Group 1: BADGE-type	Quantity, contained	***	***	***
Group 2: Brominated, etc.	Quantity, contained	***	***	***
Group 3: Multifunctional, etc.	Quantity, contained	***	***	***
All product groups	Quantity, contained	***	***	***
Group 1: BADGE-type	Value	***	***	***
Group 2: Brominated, etc.	Value	***	***	***
Group 3: Multifunctional, etc.	Value	***	***	***
All product groups	Value	***	***	***
Group 1: BADGE-type	Share of quantity, gross	***	***	***
Group 2: Brominated, etc.	Share of quantity, gross	***	***	***
Group 3: Multifunctional, etc.	Share of quantity, gross	***	***	***
All product groups	Share of quantity, gross	***	***	***
Group 1: BADGE-type	Share of quantity, contained	***	***	***
Group 2: Brominated, etc.	Share of quantity, contained	***	***	***
Group 3: Multifunctional, etc.	Share of quantity, contained	***	***	***
All product groups	Share of quantity, contained	***	***	***
Group 1: BADGE-type	Share of value	***	***	***
Group 2: Brominated, etc.	Share of value	***	***	***
Group 3: Multifunctional, etc.	Share of value	***	***	***
All product groups	Share of value	***	***	***

Table continued.

Table E-7 Continued**Epoxy resins: U.S. importers' U.S. shipments from subject sources in 2023, by product group and form**

Unit values in dollars per pound; ratios in percent

Product group	Measure	Liquid / solution	Solid / semi-solid	All forms
Group 1: BADGE-type	Unit value, gross	***	***	***
Group 2: Brominated, etc.	Unit value, gross	***	***	***
Group 3: Multifunctional, etc.	Unit value, gross	***	***	***
All product groups	Unit value, gross	***	***	***
Group 1: BADGE-type	Unit value, contained	***	***	***
Group 2: Brominated, etc.	Unit value, contained	***	***	***
Group 3: Multifunctional, etc.	Unit value, contained	***	***	***
All product groups	Unit value, contained	***	***	***
Group 1: BADGE-type	Ratio, contained to gross	***	***	***
Group 2: Brominated, etc.	Ratio, contained to gross	***	***	***
Group 3: Multifunctional, etc.	Ratio, contained to gross	***	***	***
All product groups	Ratio, contained to gross	***	***	***

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 "--". Group 1 includes BADGE-type epoxy resins, group 2 includes brominated, novolac, cycloaliphatic and waterborne epoxy resins, and group 3 includes multifunctional, aliphatic, glycidyl amine, and all other epoxy resins.

Table E-8
Epoxy resins: U.S. importers' U.S. shipments from subject countries less China and India in 2023,
by product group and form

Quantities in 1,000 pounds; values in 1,000 dollars; shares in percent

Product group	Measure	Liquid / solution	Solid / semi-solid	All forms
Group 1: BADGE-type	Quantity, gross	***	***	***
Group 2: Brominated, etc.	Quantity, gross	***	***	***
Group 3: Multifunctional, etc.	Quantity, gross	***	***	***
All product groups	Quantity, gross	***	***	***
Group 1: BADGE-type	Quantity, contained	***	***	***
Group 2: Brominated, etc.	Quantity, contained	***	***	***
Group 3: Multifunctional, etc.	Quantity, contained	***	***	***
All product groups	Quantity, contained	***	***	***
Group 1: BADGE-type	Value	***	***	***
Group 2: Brominated, etc.	Value	***	***	***
Group 3: Multifunctional, etc.	Value	***	***	***
All product groups	Value	***	***	***
Group 1: BADGE-type	Share of quantity, gross	***	***	***
Group 2: Brominated, etc.	Share of quantity, gross	***	***	***
Group 3: Multifunctional, etc.	Share of quantity, gross	***	***	***
All product groups	Share of quantity, gross	***	***	***
Group 1: BADGE-type	Share of quantity, contained	***	***	***
Group 2: Brominated, etc.	Share of quantity, contained	***	***	***
Group 3: Multifunctional, etc.	Share of quantity, contained	***	***	***
All product groups	Share of quantity, contained	***	***	***
Group 1: BADGE-type	Share of value	***	***	***
Group 2: Brominated, etc.	Share of value	***	***	***
Group 3: Multifunctional, etc.	Share of value	***	***	***
All product groups	Share of value	***	***	***

Table continued.

Table E-8 Continued
Epoxy resins: U.S. importers' U.S. shipments from subject countries less China and India in 2023,
by product group and form

Unit values in dollars per pound; ratios in percent

Product group	Measure	Liquid / solution	Solid / semi-solid	All forms
Group 1: BADGE-type	Unit value, gross	***	***	***
Group 2: Brominated, etc.	Unit value, gross	***	***	***
Group 3: Multifunctional, etc.	Unit value, gross	***	***	***
All product groups	Unit value, gross	***	***	***
Group 1: BADGE-type	Unit value, contained	***	***	***
Group 2: Brominated, etc.	Unit value, contained	***	***	***
Group 3: Multifunctional, etc.	Unit value, contained	***	***	***
All product groups	Unit value, contained	***	***	***
Group 1: BADGE-type	Ratio, contained to gross	***	***	***
Group 2: Brominated, etc.	Ratio, contained to gross	***	***	***
Group 3: Multifunctional, etc.	Ratio, contained to gross	***	***	***
All product groups	Ratio, contained to gross	***	***	***

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 "--". Group 1 includes BADGE-type epoxy resins, group 2 includes brominated, novolac, cycloaliphatic and waterborne epoxy resins, and group 3 includes multifunctional, aliphatic, glycidyl amine, and all other epoxy resins.

Table E-9**Epoxy resins: U.S. importers' U.S. shipments from nonsubject sources in 2023, by product group and form**

Quantities in 1,000 pounds; values in 1,000 dollars; shares in percent

Product group	Measure	Liquid / solution	Solid / semi-solid	All forms
Group 1: BADGE-type	Quantity, gross	***	***	***
Group 2: Brominated, etc.	Quantity, gross	***	***	***
Group 3: Multifunctional, etc.	Quantity, gross	***	***	***
All product groups	Quantity, gross	***	***	***
Group 1: BADGE-type	Quantity, contained	***	***	***
Group 2: Brominated, etc.	Quantity, contained	***	***	***
Group 3: Multifunctional, etc.	Quantity, contained	***	***	***
All product groups	Quantity, contained	***	***	***
Group 1: BADGE-type	Value	***	***	***
Group 2: Brominated, etc.	Value	***	***	***
Group 3: Multifunctional, etc.	Value	***	***	***
All product groups	Value	***	***	***
Group 1: BADGE-type	Share of quantity, gross	***	***	***
Group 2: Brominated, etc.	Share of quantity, gross	***	***	***
Group 3: Multifunctional, etc.	Share of quantity, gross	***	***	***
All product groups	Share of quantity, gross	***	***	***
Group 1: BADGE-type	Share of quantity, contained	***	***	***
Group 2: Brominated, etc.	Share of quantity, contained	***	***	***
Group 3: Multifunctional, etc.	Share of quantity, contained	***	***	***
All product groups	Share of quantity, contained	***	***	***
Group 1: BADGE-type	Share of value	***	***	***
Group 2: Brominated, etc.	Share of value	***	***	***
Group 3: Multifunctional, etc.	Share of value	***	***	***
All product groups	Share of value	***	***	***

Table continued.

Table E-9 Continued**Epoxy resins: U.S. importers' U.S. shipments from nonsubject sources in 2023, by product group and form**

Unit values in dollars per pound; ratios in percent

Product group	Measure	Liquid / solution	Solid / semi-solid	All forms
Group 1: BADGE-type	Unit value, gross	***	***	***
Group 2: Brominated, etc.	Unit value, gross	***	***	***
Group 3: Multifunctional, etc.	Unit value, gross	***	***	***
All product groups	Unit value, gross	***	***	***
Group 1: BADGE-type	Unit value, contained	***	***	***
Group 2: Brominated, etc.	Unit value, contained	***	***	***
Group 3: Multifunctional, etc.	Unit value, contained	***	***	***
All product groups	Unit value, contained	***	***	***
Group 1: BADGE-type	Ratio, contained to gross	***	***	***
Group 2: Brominated, etc.	Ratio, contained to gross	***	***	***
Group 3: Multifunctional, etc.	Ratio, contained to gross	***	***	***
All product groups	Ratio, contained to gross	***	***	***

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 "--". Group 1 includes BADGE-type epoxy resins, group 2 includes brominated, novolac, cycloaliphatic and waterborne epoxy resins, and group 3 includes multifunctional, aliphatic, glycidyl amine, and all other epoxy resins.

Table E-10**Epoxy resins: U.S. importers' U.S. shipments from nonsubject sources plus China and India in 2023, by product group and form**

Quantities in 1,000 pounds; values in 1,000 dollars; shares in percent

Product group	Measure	Liquid / solution	Solid / semi-solid	All forms
Group 1: BADGE-type	Quantity, gross	***	***	***
Group 2: Brominated, etc.	Quantity, gross	***	***	***
Group 3: Multifunctional, etc.	Quantity, gross	***	***	***
All product groups	Quantity, gross	***	***	***
Group 1: BADGE-type	Quantity, contained	***	***	***
Group 2: Brominated, etc.	Quantity, contained	***	***	***
Group 3: Multifunctional, etc.	Quantity, contained	***	***	***
All product groups	Quantity, contained	***	***	***
Group 1: BADGE-type	Value	***	***	***
Group 2: Brominated, etc.	Value	***	***	***
Group 3: Multifunctional, etc.	Value	***	***	***
All product groups	Value	***	***	***
Group 1: BADGE-type	Share of quantity, gross	***	***	***
Group 2: Brominated, etc.	Share of quantity, gross	***	***	***
Group 3: Multifunctional, etc.	Share of quantity, gross	***	***	***
All product groups	Share of quantity, gross	***	***	***
Group 1: BADGE-type	Share of quantity, contained	***	***	***
Group 2: Brominated, etc.	Share of quantity, contained	***	***	***
Group 3: Multifunctional, etc.	Share of quantity, contained	***	***	***
All product groups	Share of quantity, contained	***	***	***
Group 1: BADGE-type	Share of value	***	***	***
Group 2: Brominated, etc.	Share of value	***	***	***
Group 3: Multifunctional, etc.	Share of value	***	***	***
All product groups	Share of value	***	***	***

Table continued.

Table E-10 Continued
Epoxy resins: U.S. importers' U.S. shipments from nonsubject sources plus China and India in 2023, by product group and form

Unit values in dollars per pound; ratios in percent

Product group	Measure	Liquid / solution	Solid / semi-solid	All forms
Group 1: BADGE-type	Unit value, gross	***	***	***
Group 2: Brominated, etc.	Unit value, gross	***	***	***
Group 3: Multifunctional, etc.	Unit value, gross	***	***	***
All product groups	Unit value, gross	***	***	***
Group 1: BADGE-type	Unit value, contained	***	***	***
Group 2: Brominated, etc.	Unit value, contained	***	***	***
Group 3: Multifunctional, etc.	Unit value, contained	***	***	***
All product groups	Unit value, contained	***	***	***
Group 1: BADGE-type	Ratio, contained to gross	***	***	***
Group 2: Brominated, etc.	Ratio, contained to gross	***	***	***
Group 3: Multifunctional, etc.	Ratio, contained to gross	***	***	***
All product groups	Ratio, contained to gross	***	***	***

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 "--". Group 1 includes BADGE-type epoxy resins, group 2 includes brominated, novolac, cycloaliphatic and waterborne epoxy resins, and group 3 includes multifunctional, aliphatic, glycidyl amine, and all other epoxy resins.

Table E-11
Epoxy resins: U.S. importers' U.S. shipments from all sources in 2023, by product group and form

Quantities in 1,000 pounds; values in 1,000 dollars; shares in percent

Product group	Measure	Liquid / solution	Solid / semi-solid	All forms
Group 1: BADGE-type	Quantity, gross	***	***	***
Group 2: Brominated, etc.	Quantity, gross	***	***	***
Group 3: Multifunctional, etc.	Quantity, gross	***	***	***
All product groups	Quantity, gross	***	***	***
Group 1: BADGE-type	Quantity, contained	***	***	***
Group 2: Brominated, etc.	Quantity, contained	***	***	***
Group 3: Multifunctional, etc.	Quantity, contained	***	***	***
All product groups	Quantity, contained	***	***	***
Group 1: BADGE-type	Value	***	***	***
Group 2: Brominated, etc.	Value	***	***	***
Group 3: Multifunctional, etc.	Value	***	***	***
All product groups	Value	***	***	***
Group 1: BADGE-type	Share of quantity, gross	***	***	***
Group 2: Brominated, etc.	Share of quantity, gross	***	***	***
Group 3: Multifunctional, etc.	Share of quantity, gross	***	***	***
All product groups	Share of quantity, gross	***	***	***
Group 1: BADGE-type	Share of quantity, contained	***	***	***
Group 2: Brominated, etc.	Share of quantity, contained	***	***	***
Group 3: Multifunctional, etc.	Share of quantity, contained	***	***	***
All product groups	Share of quantity, contained	***	***	***
Group 1: BADGE-type	Share of value	***	***	***
Group 2: Brominated, etc.	Share of value	***	***	***
Group 3: Multifunctional, etc.	Share of value	***	***	***
All product groups	Share of value	***	***	***

Table continued.

Table E-11 Continued**Epoxy resins: U.S. importers' U.S. shipments from all sources in 2023, by product group and form**

Unit values in dollars per pound; ratios in percent

Product group	Measure	Liquid / solution	Solid / semi-solid	All forms
Group 1: BADGE-type	Unit value, gross	***	***	***
Group 2: Brominated, etc.	Unit value, gross	***	***	***
Group 3: Multifunctional, etc.	Unit value, gross	***	***	***
All product groups	Unit value, gross	***	***	***
Group 1: BADGE-type	Unit value, contained	***	***	***
Group 2: Brominated, etc.	Unit value, contained	***	***	***
Group 3: Multifunctional, etc.	Unit value, contained	***	***	***
All product groups	Unit value, contained	***	***	***
Group 1: BADGE-type	Ratio, contained to gross	***	***	***
Group 2: Brominated, etc.	Ratio, contained to gross	***	***	***
Group 3: Multifunctional, etc.	Ratio, contained to gross	***	***	***
All product groups	Ratio, contained to gross	***	***	***

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 "---". Group 1 includes BADGE-type epoxy resins, group 2 includes brominated, novolac, cycloaliphatic and waterborne epoxy resins, and group 3 includes multifunctional, aliphatic, glycidyl amine, and all other epoxy resins.

Table E-12**Epoxy resins: U.S. producers' and U.S. importers' U.S. shipments combined in 2023, by product group and form**

Quantities in 1,000 pounds; values in 1,000 dollars; shares in percent

Product group	Measure	Liquid / solution	Solid / semi-solid	All forms
Group 1: BADGE-type	Quantity, gross	***	***	***
Group 2: Brominated, etc.	Quantity, gross	***	***	***
Group 3: Multifunctional, etc.	Quantity, gross	***	***	***
All product groups	Quantity, gross	***	***	***
Group 1: BADGE-type	Quantity, contained	***	***	***
Group 2: Brominated, etc.	Quantity, contained	***	***	***
Group 3: Multifunctional, etc.	Quantity, contained	***	***	***
All product groups	Quantity, contained	***	***	***
Group 1: BADGE-type	Value	***	***	***
Group 2: Brominated, etc.	Value	***	***	***
Group 3: Multifunctional, etc.	Value	***	***	***
All product groups	Value	***	***	***
Group 1: BADGE-type	Share of quantity, gross	***	***	***
Group 2: Brominated, etc.	Share of quantity, gross	***	***	***
Group 3: Multifunctional, etc.	Share of quantity, gross	***	***	***
All product groups	Share of quantity, gross	***	***	***
Group 1: BADGE-type	Share of quantity, contained	***	***	***
Group 2: Brominated, etc.	Share of quantity, contained	***	***	***
Group 3: Multifunctional, etc.	Share of quantity, contained	***	***	***
All product groups	Share of quantity, contained	***	***	***
Group 1: BADGE-type	Share of value	***	***	***
Group 2: Brominated, etc.	Share of value	***	***	***
Group 3: Multifunctional, etc.	Share of value	***	***	***
All product groups	Share of value	***	***	***

Table continued.

Table E-12 Continued**Epoxy resins: U.S. producers' and U.S. importers' U.S. shipments combined in 2023, by product group and form**

Unit values in dollars per pound; ratios in percent

Product group	Measure	Liquid / solution	Solid / semi-solid	All forms
Group 1: BADGE-type	Unit value, gross	***	***	***
Group 2: Brominated, etc.	Unit value, gross	***	***	***
Group 3: Multifunctional, etc.	Unit value, gross	***	***	***
All product groups	Unit value, gross	***	***	***
Group 1: BADGE-type	Unit value, contained	***	***	***
Group 2: Brominated, etc.	Unit value, contained	***	***	***
Group 3: Multifunctional, etc.	Unit value, contained	***	***	***
All product groups	Unit value, contained	***	***	***
Group 1: BADGE-type	Ratio, contained to gross	***	***	***
Group 2: Brominated, etc.	Ratio, contained to gross	***	***	***
Group 3: Multifunctional, etc.	Ratio, contained to gross	***	***	***
All product groups	Ratio, contained to gross	***	***	***

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 "--". Group 1 includes BADGE-type epoxy resins, group 2 includes brominated, novolac, cycloaliphatic and waterborne epoxy resins, and group 3 includes multifunctional, aliphatic, glycidyl amine, and all other epoxy resins.

APPENDIX F

COMPANY-SPECIFIC FINANCIAL DATA (OLIN AND WESTLAKE)

Table F-1
Epoxy resins: U.S. producers' sales, costs/expenses, and profitability, by firm and period

Net sales quantity

Quantity in 1,000 pounds

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

Table continued.

Table F-1 Continued
Epoxy resins: U.S. producers' sales, costs/expenses, and profitability, by firm and period

Net sales value

Value in 1,000 dollars

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

Table continued.

Table F-1 Continued
Epoxy resins: U.S. producers' sales, costs/expenses, and profitability, by firm and period

COGS

Value in 1,000 dollars

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

Table continued.

Table F-1 Continued
Epoxy resins: U.S. producers' sales, costs/expenses, and profitability, by firm and period

Gross profit or (loss)

Value in 1,000 dollars

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

Table continued.

Table F-1 Continued**Epoxy resins: U.S. producers' sales, costs/expenses, and profitability, by firm and period****SG&A expenses**

Value in 1,000 dollars

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

Table continued.

Table F-1 Continued**Epoxy resins: U.S. producers' sales, costs/expenses, and profitability, by firm and period****Operating income or (loss)**

Value in 1,000 dollars

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

Table continued.

Table F-1 Continued**Epoxy resins: U.S. producers' sales, costs/expenses, and profitability, by firm and period****Net income or (loss)**

Value in 1,000 dollars

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

Table continued.

Table F-1 Continued**Epoxy resins: U.S. producers' sales, costs/expenses, and profitability, by firm and period****COGS to net sales ratio**

Ratio in percent

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

Table continued.

Table F-1 Continued**Epoxy resins: U.S. producers' sales, costs/expenses, and profitability, by firm and period****Gross profit or (loss) to net sales ratio**

Ratio in percent

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

Table continued.

Table F-1 Continued**Epoxy resins: U.S. producers' sales, costs/expenses, and profitability, by firm and period****SG&A expenses to net sales ratio**

Ratio in percent

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

Table continued.

Table F-1 Continued**Epoxy resins: U.S. producers' sales, costs/expenses, and profitability, by firm and period****Operating income or (loss) to net sales ratio**

Ratio in percent

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

Table continued.

Table F-1 Continued**Epoxy resins: U.S. producers' sales, costs/expenses, and profitability, by firm and period****Net income or (loss) to net sales ratio**

Ratio in percent

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

Table continued.

Table F-1 Continued**Epoxy resins: U.S. producers' sales, costs/expenses, and profitability, by firm and period****Unit net sales value**

Unit value in dollars per pound

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

Table continued.

Table F-1 Continued**Epoxy resins: U.S. producers' sales, costs/expenses, and profitability, by firm and period****Unit total raw materials cost**

Unit value in dollars per pound

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

Table continued.

Table F-1 Continued**Epoxy resins: U.S. producers' sales, costs/expenses, and profitability, by firm and period****Unit direct labor cost**

Unit value in dollars per pound

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

Table continued.

Table F-1 Continued**Epoxy resins: U.S. producers' sales, costs/expenses, and profitability, by firm and period****Unit other factory costs**

Unit value in dollars per pound

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

Table continued.

Table F-1 Continued**Epoxy resins: U.S. producers' sales, costs/expenses, and profitability, by firm and period****Unit COGS**

Unit value in dollars per pound

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

Table continued.

Table F-1 Continued**Epoxy resins: U.S. producers' sales, costs/expenses, and profitability, by firm and period****Unit gross profit or (loss)**

Unit value in dollars per pound

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

Table continued.

Table F-1 Continued**Epoxy resins: U.S. producers' sales, costs/expenses, and profitability, by firm and period****Unit SG&A expenses**

Unit value in dollars per pound

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

Table continued.

Table F-1 Continued**Epoxy resins: U.S. producers' sales, costs/expenses, and profitability, by firm and period****Unit operating income or (loss)**

Unit value in dollars per pound

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

Table continued.

Table F-1 Continued
Epoxy resins: U.S. producers' sales, costs/expenses, and profitability, by firm and period

Unit net income or (loss)

Unit value in dollars per pound

Firm	2021	2022	2023
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

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

APPENDIX G

U.S. INDUSTRY SUMMARY DATA INCLUDING PROCESSORS

Table G-1
Epoxy resins: U.S. producers and processors, their position on the petitions, location of production, and share of reported production, 2023

Shares in percent

Firm	Position on petitions	Production location(s)	Share of production
Huntsman	***	McIntosh, Alabama East Lansing, Michigan Los Angeles, California Maple Shade, New Jersey	***
Olin	Petitioner	Freeport, Texas	***
Westlake	Petitioner	Deer Park, Texas Lakeland, Florida Argo, Illinois	***
All firms	Various	Various	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 "---".

Table G-2
Epoxy resins: U.S. producers' and U.S. processors' reported domestic production operations

Firm	Narrative response on domestic production operations
Huntsman	***
Olin	***

Firm	Narrative response on domestic production operations
Westlake	***

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

Table G-3
Epoxy resins: U.S. producers' and U.S. processors' reported domestic production operations, by factor

Item	Firm name and narrative response on domestic production operations
Capital investments	***
Capital investments	***
Capital investments	***
Technical expertise	***
Technical expertise	***

Item	Firm name and narrative response on domestic production operations
Technical expertise	***
Value added	***
Value added	***
Value added	***
Employment	***

Item	Firm name and narrative response on domestic production operations
Employment	***
Employment	***
Quantity, type, and source of parts	***
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 G-4
Epoxy resins: U.S. producers' and U.S. processors' reported domestic production operations, by factor

Value in 1,000 dollars; value added in percent; employment in average number of PRWs

Item	Huntsman	Olin	Westlake
Capital investments: Greenfield	\$***	\$***	\$***
Capital investments: Assets	\$*** to \$***	\$*** to \$***	\$*** to \$***
Capital investments: Capital expenditures	\$*** to \$***	\$*** to \$***	\$*** to \$***
Technical expertise: R & D expenses	\$*** to \$***	\$*** to \$***	\$*** to \$***
Value added	*** percent to *** percent	*** percent to *** percent	*** percent to *** percent
Employment	*** PRWs to *** PRWs	*** PRWs to *** PRWs	*** PRWs to *** PRWs

Table continued.

Table G-4 Continued
Epoxy resins: U.S. producers' and U.S. processors' reported domestic production operations, by factor

Value in 1,000 dollars; value added in percent; employment in average number of PRWs

Item	Huntsman	Olin	Westlake
Quantity, type, and source of parts	***	***	***

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

Note: Value added is calculated as the share conversion costs (direct labor and other factory costs) out of cost of goods sold (COGS).

Table G-5
Epoxy resins: U.S. producers', including U.S. processors, reported complexity and importance of operations

Ratings of 1 are minimally complex, intense, or important; Ratings of 5 are extremely complex, intense, or important

Firm	Rating	Narrative response on complexity and importance rating
Huntsman	5	***

Firm	Rating	Narrative response on complexity and importance rating
Olin	5 ***	
Westlake	5 ***	

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

Table G-6
Epoxy resins: U.S. producers' and U.S. processors' practical capacity, production, and capacity utilization, by period

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

Item	Measure	2021	2022	2023
Practical epoxy resin	Capacity	***	***	***
Practical epoxy resin	Production	***	***	***
Practical epoxy resin	Utilization	***	***	***

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 "---".

Figure G-1
Epoxy resins: U.S. producers', including U.S. processors, capacity, production, and capacity utilization, by period

* * * * *

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

Table G-7
Epoxy resins: U.S. producers' and U.S. processors' total shipments, by destination and period

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

Item	Measure	2021	2022	2023
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: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Zeroes, null values, and undefined calculations are suppressed and shown as "---".

Table G-8
Epoxy resins: U.S. producers' and U.S. processors' U.S. shipments for use in apparent consumption, by period

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

Item	Measure	2021	2022	2023
U.S. shipments	Quantity	***	***	***
U.S. shipments integrated	Value	***	***	***
U.S. shipments value added to domestic	Value	***	***	***
U.S. shipments fully domestic	Value	***	***	***
U.S. shipments value added to imports	Value	***	***	***
U.S. shipments total	Value	***	***	***

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

Note: Quantity data reflect U.S. producers Olin's and Westlake's U.S. shipment quantities (which are primarily made into epoxy resins domestically) and excludes U.S. processor Huntsman's U.S. shipments (which are primarily imported epoxy resins processed with some value added in the United States). The U.S. producers' U.S. shipment quantities (i.e., Olin and Westlake) do contain some volumes of processed imports from *** sources for which there is insufficient information in the preliminary to effectively remove from the domestic producers' side of the ledger in this analysis, and likewise U.S. processor Huntsman does ***. Value data reflect both U.S. producers Olin's and Westlake's U.S. shipment values as well as the additional value added by U.S. processor Huntsman to either domestic or imported epoxy resins. In measuring consumption and market share this methodology avoids reclassifying and/or double counting merchandise already reported as an domestic shipment or an import.

Table G-9
Epoxy resins: U.S. producers' and U.S. processors' inventories and their ratio to select items, by period

Quantity in 1,000 pounds; inventory ratios in percent

Item	2021	2022	2023
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: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Zeroes, null values, and undefined calculations are suppressed and shown as "---".

Table G-10**Epoxy resins: ***'s business model for U.S. production of converted epoxy resin products, by sources of epoxy resin input into production and period**

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

Source of epoxy resin in domestic processing	Measure	2021	2022	2023
Domestic	Quantity	***	***	***
Subject	Quantity	***	***	***
Nonsubject	Quantity	***	***	***
All sources into domestic synthesizing	Quantity	***	***	***
Domestic	Value	***	***	***
Subject	Value	***	***	***
Nonsubject	Value	***	***	***
All sources into domestic synthesizing	Value	***	***	***
Domestic	Unit value	***	***	***
Subject	Unit value	***	***	***
Nonsubject	Unit value	***	***	***
All sources into domestic synthesizing	Unit value	***	***	***
Domestic	Share	***	***	***
Subject	Share	***	***	***
Nonsubject	Share	***	***	***
All sources into domestic synthesizing	Share	***	***	***
***'s commercial U.S. shipments of epoxy resins	Unit value	***	***	***
***'s U.S. imports of epoxy resins	Unit value	***	***	***

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

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

Table G-11**Epoxy resins: ***'s U.S. production, U.S. imports from subject sources, and ratio of subject imports to production, by period**

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

Item	Measure	2021	2022	2023
U.S. production	Quantity	***	***	***
Imports from China	Quantity	***	***	***
Imports from India	Quantity	***	***	***
Imports from Taiwan	Quantity	***	***	***
Imports from Thailand	Quantity	***	***	***
Imports from subject sources	Quantity	***	***	***
Imports from China to U.S. production	Ratio	***	***	***
Imports from India to U.S. production	Ratio	***	***	***
Imports from Taiwan to U.S. production	Ratio	***	***	***
Imports from Thailand to U.S. production	Ratio	***	***	***
Imports from subject sources to U.S. production	Ratio	***	***	***

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

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

Table G-12**Epoxy resins: ***'s U.S. production, purchases of U.S. imports from Taiwan, related details and select ratios, by period**

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

Item	Measure	2021	2022	2023
***'s U.S. production	Quantity	***	***	***
***'s purchases of imports from Taiwan imported by ***	Quantity	***	***	***
***'s U.S. imports from Taiwan	Quantity	***	***	***
Overall U.S. imports from Taiwan	Quantity	***	***	***
***'s purchases of imports from Taiwan from *** relative to ***'s U.S. imports from Taiwan	Ratio	***	***	***
*** U.S. imports from Taiwan relative to overall U.S. imports from Taiwan	Ratio	***	***	***
***'s U.S. imports from Taiwan relative to ***'s U.S. production	Ratio	***	***	***

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

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

Table G-13**Epoxy resins: ***'s U.S. production, purchases of U.S. imports from Taiwan, related details and select ratios, by period**

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

Item	Measure	2021	2022	2023
***'s U.S. production	Quantity	***	***	***
***'s purchases of imports from Thailand imported by ***	Quantity	***	***	***
***'s U.S. imports from Taiwan	Quantity	***	***	***
Overall U.S. imports from Thailand	Quantity	***	***	***
***'s purchases of imports from Thailand from *** relative to ***'s U.S. imports from Thailand	Ratio	***	***	***
***'s U.S. imports from Thailand relative to overall U.S. imports from Thailand	Ratio	***	***	***
***'s U.S. imports from Thailand relative to ***'s U.S. production	Ratio	***	***	***

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

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

Table G-14**Epoxy resins: U.S. producers', including U.S. processors, employment related information, by item and period**

Item	2021	2022	2023
Production and related workers (PRWs) (number)	***	***	***
Total hours worked (1,000 hours)	***	***	***
Hours worked per PRW (hours)	***	***	***
Wages paid (\$1,000)	***	***	***
Hourly wages (dollars per hour)	***	***	***
Productivity (pounds per hour)	***	***	***
Unit labor costs (dollars per pound)	***	***	***

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

Table G-15
Epoxy resins: Apparent U.S. consumption and market shares based on quantity data, by source and period

Quantity in 1,000 pounds; shares in percent

Source	Measure	2021	2022	2023
U.S. producers	Quantity	***	***	***
China	Quantity	8,574	6,841	4,308
India	Quantity	4,586	7,294	5,602
South Korea	Quantity	153,618	184,752	125,275
Taiwan	Quantity	17,076	34,696	42,155
Thailand	Quantity	23,225	18,132	23,820
Subject sources	Quantity	207,078	251,715	201,160
Subject sources less China and India	Quantity	193,918	237,580	191,250
Nonsubject sources	Quantity	82,661	85,955	70,579
Nonsubject sources plus China and India	Quantity	95,821	100,090	80,490
All import sources	Quantity	289,739	337,669	271,739
All sources	Quantity	***	***	***
U.S. producers	Share	***	***	***
China	Share	***	***	***
India	Share	***	***	***
South Korea	Share	***	***	***
Taiwan	Share	***	***	***
Thailand	Share	***	***	***
Subject sources	Share	***	***	***
Subject sources less China and India	Share	***	***	***
Nonsubject sources	Share	***	***	***
Nonsubject sources plus China and India	Share	***	***	***
All import sources	Share	***	***	***
All sources	Share	100.0	100.0	100.0

Table continued.

Table G-15 Continued

Epoxy resins: Apparent U.S. consumption and market shares based on quantity data, by source and period

Source: Compiled from data submitted to Commission questionnaires and adjusted official U.S. imports statistics of the U.S. Department of Commerce Census Bureau using HTS statistical reporting number 3907.30.0000, accessed April 23, 2024. Official U.S. imports statistics were adjusted to add in epoxy resins imported under other HTS statistical reporting numbers as reported in responses to commission questionnaires, as well as to remove out-of-scope products imported under the primary HTS number for epoxy resins as reported as responses to commission questionnaires. Import data are based on the imports for consumption data series.

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 "---". Quantity data reflect U.S. producers Olin's and Westlake's U.S. shipment quantities (which are primarily made into epoxy resins domestically) and excludes U.S. processor Huntsman's U.S. shipments (which are primarily imported epoxy resins processed with some value added in the United States). The U.S. producers' U.S. shipment quantities (i.e., Olin and Westlake) do contain some volumes of processed imports from *** sources for which there is insufficient information in the preliminary to effectively remove from the domestic producers' side of the ledger in this analysis, and likewise U.S. processor Huntsman does ***. Value data reflect both U.S. producers Olin's and Westlake's U.S. shipment values as well as the additional value added by U.S. processor Huntsman to either domestic or imported epoxy resins. In measuring consumption and market share this methodology avoids reclassifying and/or double counting merchandise already reported as an domestic shipment or an import.

Table G-16**Epoxy resins: Apparent U.S. consumption and market shares based on value data, by source and period**

Value in 1,000 dollars; shares in percent

Source	Measure	2021	2022	2023
U.S. producer and processors: Fully domestic value	Value	***	***	***
U.S. producer and processors: Value added to imports	Value	28,234	71,875	70,808
U.S. producer and processors: Overall value	Value	949,185	1,098,393	642,388
China	Value	23,347	17,423	9,133
India	Value	10,971	20,694	9,994
South Korea	Value	363,078	522,326	216,643
Taiwan	Value	40,487	80,292	62,780
Thailand	Value	48,523	49,655	41,468
Subject sources	Value	486,406	690,391	340,017
Subject sources less China and India	Value	452,088	652,274	320,890
Nonsubject sources	Value	262,877	346,688	301,723
Nonsubject sources plus China and India	Value	297,195	384,805	320,849
All import sources	Value	749,283	1,037,079	641,740
All sources	Value	***	***	***
U.S. producer and processors: Fully domestic value	Share	***	***	***
U.S. producer and processors: Value added to imports	Share	***	***	***
U.S. producer and processors: Overall value	Share	***	***	***
China	Share	***	***	***
India	Share	***	***	***
South Korea	Share	***	***	***
Taiwan	Share	***	***	***
Thailand	Share	***	***	***
Subject sources	Share	***	***	***
Subject sources less China and India	Share	***	***	***
Nonsubject sources	Share	***	***	***
Nonsubject sources plus China and India	Share	***	***	***
All import sources	Share	***	***	***
All sources	Share	100.0	100.0	100.0

Table continued.

Table G-16**Epoxy resins: Apparent U.S. consumption and market shares based on value data, by source and period**

Source: Compiled from data submitted to Commission questionnaires and adjusted official U.S. imports statistics of the U.S. Department of Commerce Census Bureau using HTS statistical reporting number 3907.30.0000, accessed April 23, 2024. Official U.S. imports statistics were adjusted to add in epoxy resins imported under other HTS statistical reporting numbers as reported in responses to commission questionnaires, as well as to remove out-of-scope products imported under the primary HTS number for epoxy resins as reported as responses to commission questionnaires. Import data are based on the imports for consumption data series, and values are landed, duty-paid values.

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 "---". Quantity data reflect U.S. producers Olin's and Westlake's U.S. shipment quantities (which are primarily made into epoxy resins domestically) and excludes U.S. processor Huntsman's U.S. shipments (which are primarily imported epoxy resins processed with some value added in the United States). The U.S. producers' U.S. shipment quantities (i.e., Olin and Westlake) do contain some volumes of processed imports from *** sources for which there is insufficient information in the preliminary to effectively remove from the domestic producers' side of the ledger in this analysis, and likewise U.S. processor Huntsman does ***. Value data reflect both U.S. producers Olin's and Westlake's U.S. shipment values as well as the additional value added by U.S. processor Huntsman to either domestic or imported epoxy resins. In measuring consumption and market share this methodology avoids reclassifying and/or double counting merchandise already reported as an domestic shipment or an import.

APPENDIX H

**FINANCIAL DATA FOR DOMESTIC INDUSTRY EXPANDED
TO INCLUDE PROCESSORS**

Table H-1
Epoxy resins: U.S. producers' and processors' results of operations, by item and period

Quantity in 1,000 pounds; Value in 1,000 dollars; Ratios in percent; Shares in percent; Average values in dollars per pound; Count in number of firms reporting

Item	Measure	2021	2022	2023
Total net sales	Quantity	***	***	***
Total net sales	Value	***	***	***
COGS: Raw materials	Value	***	***	***
COGS: Direct labor	Value	***	***	***
COGS: Other factory costs	Value	***	***	***
COGS: Total	Value	***	***	***
Gross profit or (loss)	Value	***	***	***
SG&A expenses	Value	***	***	***
Operating income or (loss)	Value	***	***	***
Interest expense	Value	***	***	***
All other expenses	Value	***	***	***
All other income	Value	***	***	***
Net income or (loss)	Value	***	***	***
Depreciation/amortization included above	Value	***	***	***
Estimated cash flow from operations	Value	***	***	***
COGS: Raw materials	Ratio to NS	***	***	***
COGS: Direct labor	Ratio to NS	***	***	***
COGS: Other factory costs	Ratio to NS	***	***	***
COGS: Total	Ratio to NS	***	***	***
Gross profit or (loss)	Ratio to NS	***	***	***
SG&A expenses	Ratio to NS	***	***	***
Operating income or (loss)	Ratio to NS	***	***	***
Net income or (loss)	Ratio to NS	***	***	***
COGS: Raw materials	Share	***	***	***
COGS: Direct labor	Share	***	***	***
COGS: Other factory costs	Share	***	***	***
COGS: Total	Share	***	***	***
Total net sales	Unit value	***	***	***
COGS: Raw materials	Unit value	***	***	***
COGS: Direct labor	Unit value	***	***	***
COGS: Other factory costs	Unit value	***	***	***
COGS: Total	Unit value	***	***	***
Gross profit or (loss)	Unit value	***	***	***
SG&A expenses	Unit value	***	***	***
Operating income or (loss)	Unit value	***	***	***
Net income or (loss)	Unit value	***	***	***
Operating losses	Count	***	***	***
Net losses	Count	***	***	***
Data	Count	3	3	3

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

Note: Shares represent the share of COGS. Zeroes, null values, and undefined calculations are suppressed and shown as “---”.

Table H-2
Epoxy resins: U.S. producers' and processors' changes in AUVs between comparison periods

Changes in percent

Item	2021-23	2021-22	2022-23
Total net sales	▼***	▲***	▼***
COGS: Raw materials	▼***	▲***	▼***
COGS: Direct labor	▲***	▲***	▼***
COGS: Other factory costs	▲***	▲***	▲***
COGS: Total	▲***	▲***	▼***

Table continued.

Table H-2 Continued
Epoxy resins: U.S. producers' and processors' changes in AUVs between comparison periods

Changes in dollars per pound

Item	2021-23	2021-22	2022-23
Total net sales	▼***	▲***	▼***
COGS: Raw materials	▼***	▲***	▼***
COGS: Direct labor	▲***	▲***	▼***
COGS: Other factory costs	▲***	▲***	▲***
COGS: Total	▲***	▲***	▼***
Gross profit or (loss)	▼***	▲***	▼***
SG&A expenses	▲***	▲***	▲***
Operating income or (loss)	▼***	▲***	▼***
Net income or (loss)	▼***	▲***	▼***

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

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

Table H-3
Epoxy resins: U.S. producers' and U.S. processors' capital expenditures, by firm and period

Value in 1,000 dollars

Firm	2021	2022	2023
Huntsman	***	***	***
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

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

Table H-4
Epoxy resins: U.S. producers' and U.S. processors' R&D expenses, by firm and period

Value in 1,000 dollars

Firm	2021	2022	2023
Huntsman	***	***	***
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

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

Table H-5
Epoxy resins: U.S. producers' and U.S. processors' total net assets, by firm and period

Value in 1,000 dollars

Firm	2021	2022	2023
Huntsman	***	***	***
Olin	***	***	***
Westlake	***	***	***
All firms	***	***	***

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

