

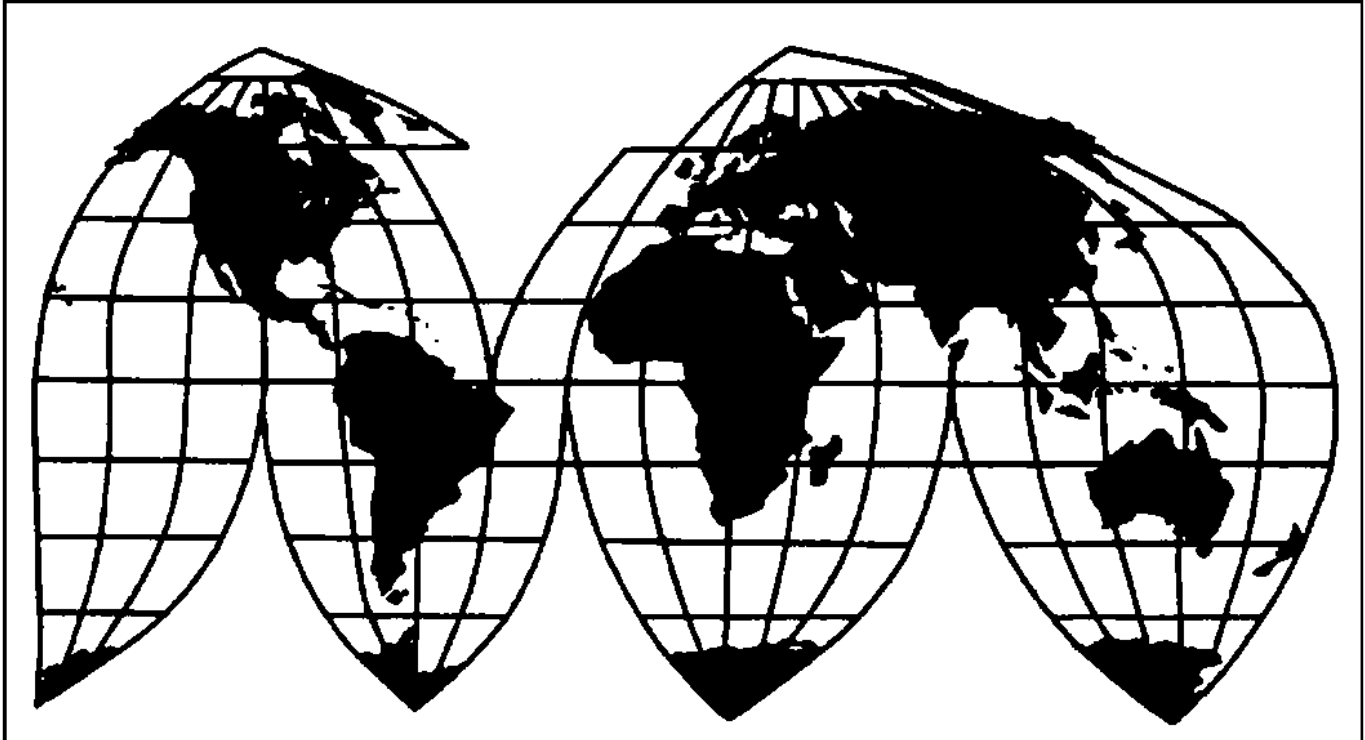
Glycine from China, India, Japan, and Thailand

Investigation Nos. 701-TA-603-605 and 731-TA-1413-1415 (Preliminary)

Publication 4786

May 2018

U.S. International Trade Commission



Washington, DC 20436

U.S. International Trade Commission

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Note.— Information that would reveal confidential operations of individual concerns may not be published.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

UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, DC

Investigation Nos. 701-TA-603-605 and 731-TA-1413-1415 (Preliminary)

Glycine from China, India, Japan, 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 glycine from India, Japan, and Thailand, provided for in subheading 2922.49.4300 of the Harmonized Tariff Schedule of the United States, that are alleged to be sold in the United States at less than fair value (“LTFV”) and imports of glycine that are alleged to be subsidized by the governments of China, India, and Thailand.

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 section 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 sections 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 sections 705(a) or 735(a) of the Act. Parties that filed entries of appearance in the preliminary phase of the investigations need not enter a separate appearance for the final phase of the investigations. 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.

BACKGROUND

On March 28, 2018, GEO Specialty Chemicals (“GEO”), Inc., Lafayette, Indiana, and Chattem Chemicals Inc. (“Chattem”), Chattanooga, Tennessee 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 LTFV imports of glycine from India, Japan, and Thailand and subsidized imports of glycine from China, India, and Thailand. Accordingly, effective March 28, 2018, the Commission, pursuant to sections 703(a) and 733(a) of the Act

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

(19 U.S.C. 1671b(a) and 1673b(a)), instituted countervailing duty investigation Nos. 701-TA-603-605 and antidumping duty investigation Nos. 731-TA-1413-1415 (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 3, 2018 (83 FR 14291). The conference was held in Washington, DC, on April 18, 2018, and all persons who requested the opportunity were permitted to appear in person or by counsel.

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 glycine from India, Japan, and Thailand that are allegedly sold in the United States at less than fair value and imports of the subject merchandise that are allegedly subsidized by the governments of China, India, and Thailand.

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

GEO Specialty Chemicals, Inc. (“GEO”) and Chattem Chemicals, Inc. (“Chattem”), domestic producers of glycine (collectively “Petitioners”), filed the petitions in these investigations on March 28, 2018. Petitioners appeared at the staff conference and submitted a postconference brief.

Several respondent entities participated in these investigations. Counsel and representatives from Ajinomoto Co. Inc. (an exporter of subject merchandise in Japan) and Ajinomoto Health and Nutrition North America Inc. (an importer of subject merchandise) (collectively “Ajinomoto”), appeared at the conference and submitted postconference comments. Counsel and representatives from Newtrend Food Ingredient (Thailand) Co., Ltd. (a producer and exporter of the subject merchandise in Thailand) and Newtrend USA Co., Ltd. (an importer of subject merchandise) (collectively “Newtrend”) also appeared at the conference and submitted a postconference brief.

U.S. industry data are based on the questionnaire responses of two producers, accounting for 100 percent of U.S. production of glycine in 2017.³ U.S. import data are based

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 Confidential Report (“CR”) and Public Report (“PR”) at III-1.

on official Commerce import statistics and from questionnaire responses from seventeen U.S. importers, accounting in 2017 for *** percent of total imports, *** percent of subject imports from China, *** percent of subject imports from India, *** percent of subject imports from Japan, and *** subject imports from Thailand.⁴ The Commission received responses to its questionnaires from five producers of subject merchandise: three producers in India, accounting for approximately *** percent of U.S. imports of glycine from India in 2017,⁵ one producer in Japan accounting for *** percent of U.S. imports of glycine from Japan in 2017,⁶ and one producer in Thailand accounting for *** percent of U.S. imports of glycine from Thailand in 2017.⁷

III. Domestic Like Product

A. In General

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.”⁸ 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.”⁹ 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.”¹⁰

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.¹¹ No single factor is

⁴ CR at IV-1, PR at IV-1.

⁵ CR at VII-7, PR at VII-6.

⁶ CR at VII-12, PR at VII-9.

⁷ CR at VII-17, PR at VII-12. The Commission did not receive a questionnaire response from any producer of subject merchandise in China. CR at I-5, PR at I-4.

⁸ 19 U.S.C. § 1677(4)(A).

⁹ 19 U.S.C. § 1677(4)(A).

¹⁰ 19 U.S.C. § 1677(10).

¹¹ See, e.g., *Cleo Inc. v. United States*, 501 F.3d 1291, 1299 (Fed. Cir. 2007); *NEC Corp. v. Department of Commerce*, 36 F. Supp. 2d 380, 383 (Ct. Int’l Trade 1998); *Nippon Steel Corp. v. United States*, 19 CIT 450, 455 (1995); *Torrington Co. v. United States*, 747 F. Supp. 744, 749 n.3 (Ct. Int’l Trade 1990), *aff’d*, 938 F.2d 1278 (Fed. Cir. 1991) (“every like product determination ‘must be made on the particular record at issue’ and the ‘unique facts of each case’”). The Commission generally considers a number of factors including the following: (1) physical characteristics and uses; (2) interchangeability; (3) channels of distribution; (4) customer and producer perceptions of the products; (5) common manufacturing facilities, production processes, and production employees; and, where appropriate, (6) price. See *Nippon*, 19 CIT at 455 n.4; *Timken Co. v. United States*, 913 F. Supp. 580, 584 (Ct. Int’l Trade 1996).

(Continued...)

dispositive, and the Commission may consider other factors it deems relevant based on the facts of a particular investigation.¹² The Commission looks for clear dividing lines among possible like products and disregards minor variations.¹³ Although 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,¹⁴ the Commission determines what domestic product is like the imported articles Commerce has identified.¹⁵

B. Product Description

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

glycine at any purity level or grade. This includes glycine of all purity levels, which covers all forms of crude or technical glycine including but not limited to sodium glycinate, glycine slurry and any other forms of amino acetic acid or glycine. Subject merchandise also includes glycine and precursors of dried crystalline glycine that are processed in a third country, including, but not limited to, refining or any other processing that would not otherwise remove the merchandise from the scope of the

(...Continued)

In a semifinished products like product analysis, the Commission examines the following: (1) the significance and extent of the processes used to transform the upstream into the downstream articles; (2) whether the upstream article is dedicated to the production of the downstream article or has independent uses; (3) differences in the physical characteristics and functions of the upstream and downstream articles; (4) whether there are perceived to be separate markets for the upstream and downstream articles; and (5) differences in the costs or value of the vertically differentiated articles. *See, e.g., Glycine from India, Japan, and Korea*, Inv. Nos. 731-TA-1111-1113 (Preliminary), USITC Pub. No. 3921 at 7 (May 2007); *Artists' Canvas from China*, Inv. No. 731-TA-1091 (Final), USITC Pub. No. 3853 at 6 (May 2006); *Live Swine from Canada*, Inv. No. 731-TA-1076 (Final), USITC Pub. 3766 at 8 n.40 (Apr. 2005); *Certain Frozen Fish Fillets from Vietnam*, Inv. No. 731-TA-1012 (Preliminary), USITC Pub. No. 3533 at 7 (Aug. 2002).

¹² *See, e.g., S. Rep. No. 96-249 at 90-91 (1979).*

¹³ *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.").

¹⁴ *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).

¹⁵ *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); *Cleo*, 501 F.3d at 1298 n.1 ("Commerce's {scope} finding does not control the Commission's {like product} determination."); *Torrington*, 747 F. Supp. at 748-52 (affirming the Commission's determination defining six like products in investigations where Commerce found five classes or kinds).

investigations if performed in the country of manufacture of the in-scope glycine or precursors of dried crystalline glycine. Glycine has the Chemical Abstracts Service (CAS) registry number of 56-40-6. Glycine and glycine slurry are classified under Harmonized Tariff Schedule of the United States (HTSUS) subheading 2922.49.43.00. Sodium glycinate is classified in the HTSUS under 2922.49.80.00. While the HTSUS subheadings and CAS registry number are provided for convenience and customs purposes, the written description of the scope of these investigations is dispositive.¹⁶

Glycine is a nonessential amino acid that is produced naturally by humans and other organisms as a building block for proteins. It is odorless and sweet to the taste. Commercial production of glycine uses traditional chemical synthesis. In its dried form, in which it is most often sold, glycine is a white, free-flowing powder.¹⁷

Glycine is typically sold in two main grades: United States Pharmacopeia (“USP”) grade and technical grade. The glycine in these grades is chemically identical; the grades differ by the kind and amounts of impurities in the product. USP grade glycine is typically used for pharmaceutical and food applications, while technical-grade glycine is used for industrial applications. Some customers’ requirements for glycine purity exceed those of the USP standard. These higher purity products are often referred to as “pharmaceutical grade” glycine, but the purity standards for these products are set by individual customers, not by government or industry organizations.¹⁸

C. Arguments of the Parties

Petitioners’ Argument. Petitioners argue that there is a single domestic like product that is coextensive with the scope of these investigations. They argue that in prior glycine proceedings, which had scopes similar to the one in these investigations, the Commission repeatedly defined the like product to be all glycine, and that no circumstances warrant finding a different definition here.¹⁹

Respondents’ Argument. No respondent objected to Petitioners’ proposed domestic like product definition or addressed the question of domestic like product in their briefs or conference testimony.

¹⁶ *Glycine from India, Japan, and Thailand: Initiation of Less-Than-Fair-Value Investigations*, 83 Fed. Reg. 17995, 18000 (April 25, 2018); *Glycine from India, the People’s Republic of China, and Thailand: Initiation of Countervailing Duty Investigation*, 83 Fed. Reg. 18002, 18006 (April 25, 2018). We note that the scope of these investigations differs somewhat from the proposed scope described in the petition. See Petition at 21-22. The preliminary phase questionnaires sought data on the basis of the scope described in the petition.

¹⁷ CR at I-12, PR at I-10.

¹⁸ CR at I-13, PR at I-10.

¹⁹ Petitioners’ Postconference Brief at 3-5. See generally *Glycine from Japan and Korea*, Inv. Nos. 731-TA-1112-1113 (Final), USITC Pub. 3980 at 6 (Jan. 2008)

D. Domestic Like Product Analysis

We discuss below: (1) whether all grades, or purity levels, of dried, crystalline glycine should be in the same domestic like product, and (2) whether sodium glycinate and glycine slurry are separate domestic like products.

1. Purity and Grade

We consider whether all grades of glycine are a single domestic like product, using the Commission's traditional like product analysis.

Physical Characteristics and Uses. All glycine, regardless of grade, has the same chemical structure, differing only by the amount of impurities in the product.²⁰ Glycine has a wide variety of uses, including as a sweetener and flavor enhancer in food, beverage, and pharmaceutical products; and as a buffering agent in certain products and manufacturing processes.²¹

Manufacturing Facilities, Production Processes, and Employees. GEO and Chattem, the two domestic glycine producers, use different production processes. However, each uses the same production process, facilities, and employees for all grades of glycine, with USP glycine used for pharmaceutical applications undergoing an additional purification step.²²

Channels of Distribution. Channels of distribution are similar for all domestically produced glycine. Glycine is sold both to end users and distributors, with the majority of domestic producers' shipments, *** percent in 2017, going to end users.²³

Interchangeability. While purity requirements will determine the applications in which the particular glycine grade may be used, glycine meeting higher purity standards can be used in applications with lesser purity requirements and, thus, there is some degree of interchangeability among purity levels. There are no ready substitutes for glycine in any of its end uses.²⁴

Producer and Customer Perceptions. Glycine in all forms is generally perceived to be the same product. Nevertheless, depending on the application, a purchaser will prefer one grade to another.²⁵

Price. The pricing data collected in these investigations for domestically produced products indicates that during the 2015-2017 period of investigation ("POI"), prices for USP grade glycine, the largest segment of the market, decreased.²⁶ Based on the pricing data collected, technical grade glycine was generally priced *** higher than USP grade glycine,

²⁰ CR at I-12, PR at I-10.

²¹ CR at I-13-14, PR at I-11.

²² Petition at 16.

²³ Petition at 16, CR/PR at Table II-1.

²⁴ Petition at 11-12.

²⁵ Petition at 12.

²⁶ CR at V-14, PR at V-5.

although other information on the record suggests that technical-grade glycine is generally lower priced than USP and pharmaceutical grades.²⁷ Pharmaceutical grade glycine was priced *** higher than either of the other grades.²⁸

2. Sodium glycinate

We consider whether sodium glycinate should be treated as a separate like product, using the Commission's semifinished product analysis.

Dedication for Use. Sodium glycinate is an intermediate product in the production of glycine using the hydrogen cyanide (HCN) production process.²⁹ Although Petitioners stated that ***,³⁰ in the main, sodium glycinate appears to be dedicated for use as a precursor in the production of glycine, the downstream article.

Separate Markets. Sodium glycinate has no known markets, except to the limited extent that ***,³¹

Differences in Physical Characteristics and Functions of the Upstream and Downstream Articles. Sodium glycinate is the precursor to glycine in the HCN production process.³² While it may be possible to use sodium glycinate in some of the same applications as glycine, sodium glycinate is primarily or exclusively used to produce glycine.

Differences in Value. Sodium glycinate is not commercially traded and is mostly "internally consumed" in the production of glycine and, therefore, market prices do not exist for this product.³³

Extent of Processes Used to Transform Downstream Product into Upstream Product.

Petitioners state that the production process for making glycine from sodium glycinate involves only ***, and is less significant than the process involved in making sodium glycinate.³⁴

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²⁷ Transcript, p. 84 (Stoel). See also CR/PR at Table D-1.

²⁸ CR/PR at Tables V-3-5.

²⁹ Petitioners' Postconference Brief, Answers to Staff Questions, p. 9.

³⁰ Petitioners' Postconference Brief, Answers to Staff Questions, p. 9.

³¹ See Petitioners' Postconference Brief, Answers to Staff Questions, p. 9.

³² See Petitioners' Postconference Brief, Answers to Staff Questions, p. 11.

³³ Petitioners' Postconference Brief, Answers to Staff Questions, p. 9.

³⁴ Petitioners' Postconference Brief, Answers to Staff Questions, pp. 10-12.

³⁵ The record indicates that there are not significant differences between glycine slurry and dried glycine. Glycine slurry is used exclusively for the production of glycine and has no separate market. Petitioners' Postconference Brief, Answers to Staff Questions, p. 9. Glycine slurry is nothing more than glycine with water. Its conversion to dried glycine simply requires drying. Petitioners' Postconference Brief, Answers to Staff Questions, p. 10.

3. Conclusion

Because all grades of glycine have common physical characteristics and end uses, share common channels of distribution, and generally share common production processes, facilities, and employees, we find, under our traditional six-factor analysis, that all grades of glycine are encompassed in a single domestic like product. We further find, under the five-factor semi-finished product analysis, that sodium glycinate and glycine slurry are not distinct domestic like products from glycine, given their dedication to production of glycine, the absence of a separate market for those upstream products, and the relatively small cost of converting sodium glycinate and slurry into glycine. Accordingly, we define a single domestic like product coextensive with 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.”³⁶ 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.

Neither domestic producer is a related party,³⁷ and there are otherwise no domestic industry issues in these investigations. Accordingly, we define the domestic industry to include the two known domestic producers of glycine – GEO and Chattem.

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.³⁸

For the 12-month period preceding the filing of the petitions (March 2017 through February 2018) subject imports from China accounted for 4.7 percent of total imports,³⁹ subject imports from India accounted for 27.3 percent, subject imports from Japan accounted for 42.3

³⁶ 19 U.S.C. § 1677(4)(A).

³⁷ Neither producer imported subject merchandise during the period of investigation nor is related to an importer or exporter of subject merchandise. See CR at III-2 and III-7, PR at III-1 and III-3.

³⁸ 19 U.S.C. §§ 1671b(a), 1673b(a), 1677(24)(A)(i); see also 19 U.S.C. § 1677(24)(B), 15 C.F.R. § 2013.1 (special provisions concerning countervailing duty investigations of imports from developing countries).

³⁹ We note that certain imports of glycine from Cambodia ***. CR at IV-3-4, PR at IV-3. These imports have been treated as subject imports from China for purposes of these investigations.

percent, and subject imports from Thailand accounted for 23.6 percent.⁴⁰ We consequently find that imports from each subject country are not negligible.

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.⁴¹

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.⁴² Only a “reasonable overlap” of competition is required.⁴³

⁴⁰ CR/PR at Table IV-4.

⁴¹ See *Certain Cast-Iron Pipe Fittings from Brazil, the Republic of Korea, and Taiwan*, Inv. Nos. 731-TA-278-80 (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).

⁴² See, e.g., *Wieland Werke, AG v. United States*, 718 F. Supp. 50 (Ct. Int’l Trade 1989).

⁴³ 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

Petitioners argue that subject imports should be cumulated because there is a reasonable overlap in competition among imports from all subject countries and the domestic like product. They contend that glycine within each grade is fungible regardless of source, and that higher grades of glycine are substitutable for lower grades, regardless of source. They note that in 2017, more than *** percent of domestic producer shipments and reported U.S. shipments of subject imports were of USP grade glycine.⁴⁴ Subject imports from all four subject countries and the domestic like product are sold in all geographic markets in the United States, according to Petitioners.⁴⁵ Subject imports and the domestic like product also are sold in the same channels of distribution, that is, mainly to end users, but also to distributors.⁴⁶ Finally, Petitioners note that subject imports were continuously present with the domestic like product in the U.S. market throughout the period of investigation.⁴⁷

Respondents did not address cumulation for present injury analysis.

B. Analysis and Conclusion

We consider subject imports from China, India, Japan, and Thailand on a cumulated basis. As an initial matter, Petitioners filed the antidumping/countervailing duty petitions with respect to all four countries on the same day, March 28, 2018.⁴⁸

Fungibility. Subject imports from each of the four subject countries appear to be fungible with both the domestic like product and each other. Glycine has the same chemical formula, regardless of where it is sourced.⁴⁹ Most glycine from domestic and individual subject country sources is USP grade. In 2017, USP grade glycine accounted for *** percent of U.S. shipments of the domestic like product, *** percent of shipments of subject imports from Japan, and *** shipments of subject imports from China, India, and Thailand.⁵⁰

Both domestic producers reported that U.S.-produced glycine is frequently interchangeable with glycine produced in each subject country. A majority of importers reported that the domestic product is always or frequently interchangeable with the imports from each subject source, and that imports from each individual subject country are always or frequently interchangeable with imports from each other subject country.⁵¹

Channels of Distribution. Most of the domestic product was sold to end users during the POI. The remainder was sold to distributors; in 2017, this share was appreciable at *** percent. Throughout the POI, *** subject imports from China were sold to distributors, and *** subject

⁴⁴ Petitioners' Postconference Brief at 8-10.

⁴⁵ Petitioners' Postconference Brief at 10-11.

⁴⁶ Petitioners' Postconference Brief at 11-12.

⁴⁷ Petitioners' Postconference Brief at 12.

⁴⁸ None of the statutory exceptions to cumulation applies.

⁴⁹ Conference Tr. at 33 (Woodings).

⁵⁰ CR/PR at Table IV-5.

⁵¹ CR/PR at Table II-6.

imports from Japan were sold to end users. Subject imports from India were sold *** to distributors and end users in 2015 and *** to distributors in 2016 and 2017, and subject imports from Thailand were sold *** to distributors, with appreciable shares (ranging from *** percent on an annual basis), sold to end users.⁵² Responses to the lost sales and lost revenue survey indicate one common purchaser of subject imports from India, Japan, and Thailand, and four additional common purchasers of subject imports from India and Thailand.⁵³

Geographic Overlap. U.S. producers and importers of subject merchandise from India, Japan, and Thailand reported selling glycine in all regions of the contiguous United States. Subject imports from China were sold in the *** regions.⁵⁴

Simultaneous Presence in Market. Imports from each of the subject countries have been present in the U.S. market throughout the POI, except that subject imports from China were absent in 14 of the 36 months, and subject imports from Thailand were absent in two of the 36 months.⁵⁵

Conclusion. The record in the preliminary phase of these investigations indicates that there is a reasonable overlap of competition between and among subject imports and the domestic like product, notwithstanding some distinctions between imports from different subject sources as to channels of distribution. In light of this and the lack of any contrary argument, we analyze subject imports from China, India, Japan, and Thailand on a cumulated basis for our analysis of whether there is a reasonable indication of material injury by reason of subject imports.

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.⁵⁶ 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

⁵² CR/PR at Table II-1.

⁵³ CR/PR at Table V-10.

⁵⁴ CR/PR at Table II-2.

⁵⁵ CR/PR at Table IV-7.

⁵⁶ 19 U.S.C. §§ 1671b(a), 1673b(a). The Trade Preferences Extension Act of 2015, Pub. L. 114-27, amended the provisions of the Tariff Act pertaining to Commission determinations of reasonable indication of material injury and threat of material injury by reason of subject imports in certain respects.

operations.⁵⁷ The statute defines “material injury” as “harm which is not inconsequential, immaterial, or unimportant.”⁵⁸ 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.⁵⁹ 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.”⁶⁰

Although the statute requires the Commission to determine whether there is a reasonable indication that the domestic industry is “materially injured by reason of” unfairly traded imports,⁶¹ 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.⁶² In identifying a causal link, if any, between subject imports and material injury to the domestic industry, the Commission examines the facts of record that relate to the significance of the volume and price effects of the subject imports and any impact of those imports on the condition of the domestic industry. This evaluation under the “by reason of” standard must ensure that subject imports are more than a minimal or tangential cause of injury and that there is a sufficient causal, not merely a temporal, nexus between subject imports and material injury.⁶³

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

⁵⁷ 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 ... {a}nd explain in full its relevance to the determination.” 19 U.S.C. § 1677(7)(B).

⁵⁸ 19 U.S.C. § 1677(7)(A).

⁵⁹ 19 U.S.C. § 1677(7)(C)(iii).

⁶⁰ 19 U.S.C. § 1677(7)(C)(iii).

⁶¹ 19 U.S.C. §§ 1671b(a), 1673b(a).

⁶² *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).

⁶³ The Federal Circuit, in addressing the causation standard of the statute, has 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 re-affirmed in *Mittal Steel Point Lisas Ltd. v. United States*, 542 F.3d 867, 873 (Fed. Cir. 2008), in which 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).

injury threshold.⁶⁴ In performing its examination, however, the Commission need not isolate the injury caused by other factors from injury caused by unfairly traded imports.⁶⁵ 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.⁶⁶ It is clear that the existence of injury caused by other factors does not compel a negative determination.⁶⁷

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” and the Commission “ensure{s} that it is not attributing injury from other sources to

⁶⁴ 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.

⁶⁵ 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.”).

⁶⁶ S. Rep. 96-249 at 74-75; H.R. Rep. 96-317 at 47.

⁶⁷ *See Nippon*, 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.”).

the subject imports.”⁶⁸ Indeed, the Federal Circuit has examined and affirmed various Commission methodologies and has disavowed “rigid adherence to a specific formula.”⁶⁹

The Federal Circuit’s decisions in *Gerald Metals*, *Bratsk*, and *Mittal Steel* all involved cases in which the relevant “other factor” was the presence in the market of significant volumes of price-competitive nonsubject imports. The Commission interpreted the Federal Circuit’s guidance in *Bratsk* as requiring it to apply a particular additional methodology following its finding of material injury in cases involving commodity products and a significant market presence of price-competitive nonsubject imports.⁷⁰ The additional “replacement/benefit” test looked at whether nonsubject imports might have replaced subject imports without any benefit to the U.S. industry. The Commission applied that specific additional test in subsequent cases, including the *Carbon and Certain Alloy Steel Wire Rod from Trinidad and Tobago* determination that underlies the *Mittal Steel* litigation.

Mittal Steel clarifies that the Commission’s interpretation of *Bratsk* was too rigid and makes clear that the Federal Circuit does not require the Commission to apply an additional test nor any one specific methodology; instead, the court requires the Commission to have “evidence in the record ‘to show that the harm occurred ‘by reason of’ the LTFV imports,’” and requires that the Commission not attribute injury from nonsubject imports or other factors to subject imports.⁷¹ Accordingly, we do not consider ourselves required to apply the replacement/benefit test that was included in Commission opinions subsequent to *Bratsk*.

The progression of *Gerald Metals*, *Bratsk*, and *Mittal Steel* clarifies that, in cases involving commodity products where price-competitive nonsubject imports are a significant factor in the U.S. market, the Court will require the Commission to give full consideration, with adequate explanation, to non-attribution issues when it performs its causation analysis.⁷²

⁶⁸ *Mittal Steel*, 542 F.3d at 877-78; see also *id.* at 873 (“While the Commission may not enter an affirmative determination unless it finds that a domestic industry is materially injured ‘by reason of’ subject imports, the Commission is not required to follow a single methodology for making that determination ... {and has} broad discretion with respect to its choice of methodology.”) citing *United States Steel Group v. United States*, 96 F.3d 1352, 1362 (Fed. Cir. 1996) and S. Rep. 96-249 at 75. In its decision in *Swiff-Train v. United States*, 793 F.3d 1355 (Fed. Cir. 2015), the Federal Circuit affirmed the Commission’s causation analysis as comporting with the Court’s guidance in *Mittal*.

⁶⁹ *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.”).

⁷⁰ *Mittal Steel*, 542 F.3d at 875-79.

⁷¹ *Mittal Steel*, 542 F.3d at 873 (quoting from *Gerald Metals*, 132 F.3d at 722), 875-79 & n.2 (recognizing the Commission’s alternative interpretation of *Bratsk* as a reminder to conduct a non-attribution analysis).

⁷² To that end, after the Federal Circuit issued its decision in *Bratsk*, the Commission began to present published information or send out information requests in the final phase of investigations to producers in nonsubject countries that accounted for substantial shares of U.S. imports of subject merchandise (if, in fact, there were large nonsubject import suppliers). In order to provide a more complete record for the Commission’s causation analysis, these requests typically seek information on (Continued...)

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.⁷³ Congress has delegated this factual finding to the Commission because of the agency's institutional expertise in resolving injury issues.⁷⁴

B. Conditions of Competition and the Business Cycle

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

1. Demand Conditions

Glycine is an input in the production of many other products, and thus its demand is derived from the demand for those end-use products.⁷⁵ Glycine is used as a sweetener and flavor enhancer in food, beverage, and pharmaceutical products, personal care products, and animal feed; as a buffering agent in certain products and manufacturing processes to maintain a stable pH level; as a starting material for producing other organic chemicals; and in metal finishing.⁷⁶ Glycine is sold in three grades: pharmaceutical, USP, and technical.⁷⁷ The grade depends on the level of impurities in the glycine.⁷⁸ Each batch of glycine produced is tested to determine which grade it meets.⁷⁹ The grade of glycine required differs among the end uses.⁸⁰ A small number of purchasers account for a large share of apparent U.S. consumption.⁸¹

Apparent U.S. consumption of glycine declined from *** pounds in 2015 to *** pounds in 2016 and then rose to *** pounds in 2017.⁸² Overall, apparent U.S. consumption in 2017 was *** percent lower than in 2015.⁸³

(...Continued)

capacity, production, and shipments of the product under investigation in the major source countries that export to the United States. The Commission plans to continue utilizing published or requested information in the final phase of investigations in which there are substantial levels of nonsubject imports.

⁷³ We provide in our discussions below a full analysis of other factors alleged to have caused any material injury experienced by the domestic industry.

⁷⁴ *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.”).

⁷⁵ CR at II-7, PR at II-5.

⁷⁶ CR at I-13-14, PR at I-10.

⁷⁷ CR at I-12, PR at I-10.

⁷⁸ CR at I-12, PR at I-10.

⁷⁹ Petitioners' Postconference Brief, Answers to Staff Questions, p. 21.

⁸⁰ CR at I-13, PR at I-10.

⁸¹ Conference Tr. at 21 (Hughes).

⁸² CR/PR at Table IV-9.

⁸³ CR/PR at Table C-1.

2. Supply Conditions

Two domestic producers, GEO and Chattem, accounted for 100 percent of U.S. production of glycine during the POI.⁸⁴ GEO produces glycine using the hydrogen cyanide (“HCN”) process and Chattem produces glycine using the monochloroacetic acid and liquid ammonia (“MCA”) process.⁸⁵ Throughout the POI, the domestic industry’s capacity to produce glycine was less than apparent U.S. consumption.⁸⁶ The domestic industry’s market share (by quantity) rose from *** percent in 2015 to *** percent in 2016 and then declined to *** percent in 2017.⁸⁷

Subject imports held the largest share of apparent U.S. consumption throughout the POI.⁸⁸ The market share (by quantity) of cumulated subject imports was *** percent in 2015, *** percent in 2016, and *** percent in 2017.^{89 90}

Imports from nonsubject countries were present in the U.S. market at low and declining levels throughout the POI.⁹¹ The main sources of nonsubject imports were Canada, Germany, Malaysia, and Taiwan.⁹² The market share of nonsubject imports was *** percent in 2015, *** percent in 2016, and *** percent in 2017.⁹³

3. Substitutability and Other Conditions

The record indicates that there is a high-to-moderate degree of substitutability between subject imports and the domestic like product.⁹⁴

⁸⁴ CR/PR at Table III-1.

⁸⁵ CR at I-14, PR at I-11.

⁸⁶ See CR/PR at Table C-1. Respondent Newtrend argued that imports from non-Chinese sources are necessary to meet U.S. demand not able to be supplied by the domestic producers. See Newtrend Postconference Brief at 2-3; Conference Tr. 11 (Stoehl) and 75 (Lee). In any final phase of these investigations, we will examine if any impact exists from these alleged limitations on the domestic industry’s production capacity.

⁸⁷ CR/PR at Table IV-9.

⁸⁸ The preliminary phase questionnaires sought separate import data for precursors of glycine identified in the petition. The petition defined precursors somewhat more broadly than did the scope in Commerce’s notices of initiation. Import data in the Commission report are based on adjusted official statistics. See CR/PR at Table IV-2, CR at IV-2-4, PR at IV-2-3.

⁸⁹ CR/PR at Table IV-9.

⁹⁰ The imports of glycine from China that are now subject to a countervailing duty investigation are already subject to an antidumping duty order, which has been in place since 1995. *Antidumping Duty Order: Glycine from the People's Republic of China*, 60 Fed. Reg. 16116 (Mar. 29, 1995); *Glycine from the People's Republic of China: Continuation of Antidumping Duty Order*, 82 Fed. Reg. 10745 (Feb. 15, 2017).

⁹¹ CR/PR at Table IV-9.

⁹² CR at IV-3, PR at IV-3.

⁹³ CR/PR at Table IV-9.

⁹⁴ CR at II-10, PR at II-7.

Both domestic producers reported that U.S.-produced glycine is frequently interchangeable with glycine produced in each subject country. A majority of importers reported that the domestic product is always or frequently interchangeable with the imports from each subject source, and that imports from each individual subject country are always or frequently interchangeable with imports from each other subject country.⁹⁵

The record indicates that price is at least a moderately important factor in glycine purchasing decisions. Purchasers responding to the lost sales lost revenue survey named price as the top purchasing factor more frequently than any factor other than quality, and price was also the factor purchasers most frequently identified as among the top three purchasing factors.⁹⁶ When asked whether differences other than price are ever significant in their sales in choosing between glycine from domestic or subject sources, domestic producers responded “sometimes” or “never.”⁹⁷ Importers reported that differences between U.S.-produced glycine and glycine from India and Thailand were sometimes significant, and four of six importers reported that differences between U.S.-produced glycine and glycine from Japan were always or frequently significant. One importer reported that differences between U.S.-produced glycine and glycine from China were always significant, and one reported that differences between glycine from these two sources were never significant.⁹⁸

As indicated above, the two domestic glycine producers use different production methods, with GEO using the HCN process and Chattem using the MCA process.⁹⁹ The HCN and MCA processes use different raw materials.¹⁰⁰ GEO, the *** of the two producers,¹⁰¹ reported *** unit raw material costs during the POI, and Chattem reported *** raw material costs.¹⁰²

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.”¹⁰³

Cumulated subject imports held a substantial presence in the U.S. market throughout the POI. Cumulated subject imports declined from 12.9 million pounds in 2015 to 10.8 million pounds in 2016, and then increased to 12.5 million pounds in 2017.¹⁰⁴ The market share (by

⁹⁵ CR/PR at Table II-6.

⁹⁶ CR/PR at Table II-5.

⁹⁷ CR/PR at Table II-7.

⁹⁸ CR/PR at Table II-7.

⁹⁹ CR at I-14, PR at I-11.

¹⁰⁰ CR/PR at Table V-1.

¹⁰¹ GEO accounted for *** percent of domestic production in 2017. CR/PR at Table III-1.

¹⁰² CR/PR at V-1 n.4. We will explore the role of raw material costs in glycine prices in any final phase of these investigations.

¹⁰³ 19 U.S.C. § 1677(7)(C)(i).

¹⁰⁴ CR/PR at Table IV-2.

quantity) of cumulated subject imports declined from *** percent in 2015 to *** percent in 2016 and then rose to *** percent in 2017, a level above that of 2015.

For purposes of these preliminary determinations, we find that the cumulated volume of subject imports is significant both in absolute terms and relative to consumption.

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.¹⁰⁵

As addressed in section VI.B. above, the record indicates that there is a high-to-moderate degree of substitutability between subject imports and the domestic like product and that price is at least a moderately important factor in purchasing decisions.¹⁰⁶

The two domestic producers and 14 importers of subject merchandise provided usable quarterly f.o.b. price data for three glycine pricing products,¹⁰⁷ although not all firms reported pricing for all products for all quarters.¹⁰⁸ The pricing data show that the subject imports undersold the domestic like product in 46 of 53 quarterly comparisons.¹⁰⁹ There were *** pounds of subject imports in underselling observations, and *** pounds in overselling

¹⁰⁵ 19 U.S.C. § 1677(7)(C)(ii).

¹⁰⁶ CR at II-10 and II-13, PR at II-7 and II-9.

¹⁰⁷ CR at V-7, PR at V-4. Product 1 is Pharmaceutical-grade glycine -- a white, odorless, crystalline powder with a sweet taste, having an assay (glycine content) of 98.5 percent to 101.5 percent (dry basis), and ≤ 7ppm chloride, ≤ 65 ppm sulfate, and ≤1 ppm heavy metals; Product 2 is USP grade glycine -- a white, odorless, crystalline powder with a sweet taste, having an assay (glycine content) of 98.5 percent to 101.5 percent (dry basis) and ≤ 70 ppm chloride, ≤ 65 ppm sulfate, ≤ 20 ppm heavy metals, and not otherwise qualifying as pharmaceutical-grade glycine; and Product 3 is technical-grade glycine -- a white, off-white, or slightly yellow crystalline powder, having an assay (glycine content) of 98.5 percent to 101.5 percent (dry basis), with maximum chlorides of 0.4 percent, and not otherwise qualifying as USP grade glycine. CR at V-6, PR at V-3-4.

¹⁰⁸ Reported pricing data represented approximately *** percent of U.S. producers' shipments of glycine, *** percent of U.S. shipments of subject imports from India, *** percent of U.S. shipments of subject imports from Japan, and *** percent of U.S. shipments of subject imports from Thailand in 2017. No pricing data were reported for imports from China for any of the three pricing products. No pricing data were reported for pricing products 1 and 3 imported from India or Thailand. CR at V-7, PR at V-4.

¹⁰⁹ CR/PR at Table V-7.

observations.¹¹⁰ The margins of underselling ranged from *** percent to *** percent, and the average margin of underselling was *** percent.¹¹¹

We have particularly focused on pricing product 2, USP grade glycine. USP grade glycine constituted *** the largest share of shipments of both the domestic like product and the cumulated subject imports in 2017,¹¹² and product 2 had the largest quantities of both the domestic like product and cumulated subject imports in 2017 of the three pricing products.¹¹³ Subject imports of product 2 undersold the domestic like product in 33 of 36 quarterly comparisons, with *** of total subject import shipments in underselling observations.¹¹⁴ Between the first quarter of 2015 and the fourth quarter of 2017, prices for the domestically produced product declined by *** percent, while prices for subject imports from India, Japan, and Thailand declined by *** percent, *** percent, and *** percent, respectively.¹¹⁵ Prices for domestically produced product 2 in 2017 were notably lower than those in the prior years.¹¹⁶

There was also appreciable subject import competition in pricing product 3, technical-grade glycine.¹¹⁷ In this product, subject imports undersold the domestic like product in every quarterly comparison. From 2015 to 2017, prices for the domestically produced product declined by *** percent, while prices for subject imports from Japan increased by *** percent.¹¹⁸

The record indicates that, for those pricing products that reflect the bulk of shipments for both the domestic like product and the cumulated subject imports, the cumulated subject imports pervasively undersold the domestic like product. Moreover, the substantial volume of low-priced subject imports depressed prices for the domestic like product. This conclusion is supported by the responses from some purchasers indicating that domestic producers had reduced prices to compete with lower-priced subject imports.¹¹⁹

Thus, on the basis of the record in the preliminary phase of these investigations, we find that there was significant underselling by subject imports and that the subject imports depressed prices for the domestic like product to a significant degree.

¹¹⁰ CR at V-15, PR at V-5, CR/PR at Table V-7.

¹¹¹ CR at V-15, PR at V-5, CR/PR at Table V-7.

¹¹² CR/PR at Table IV-5.

¹¹³ See CR/PR at Tables V-3-5.

¹¹⁴ CR/PR at Table V-8.

¹¹⁵ CR/PR at Table V-6.

¹¹⁶ CR/PR at Table V-4.

¹¹⁷ By contrast, there were minimal shipments of subject imports of pricing product 1, pharmaceutical-grade glycine. For this product, there was predominant overselling by subject imports. Product 3 was the only pricing product for which prices for the domestic product were higher in the fourth quarter of 2017 than in the first quarter of 2015. CR/PR at Table V-3.

¹¹⁸ CR/PR at Table V-6.

¹¹⁹ CR at V-19, PR at V-8, CR/PR at Table V-12.

E. Impact of the Subject Imports¹²⁰

Section 771(7)(C)(iii) of the Tariff Act provides that the Commission, in examining the impact of the subject imports on the domestic industry, “shall evaluate all relevant economic factors which have a bearing on the state of the industry.” These factors include output, sales, inventories, capacity utilization, market share, employment, wages, productivity, gross profits, net profits, operating profits, cash flow, return on investment, return on capital, ability to raise capital, ability to service debt, research and development, and factors affecting domestic prices. No single factor is dispositive and all relevant factors are considered “within the context of the business cycle and conditions of competition that are distinctive to the affected industry.”¹²¹

Many of the domestic industry’s performance indicators, particularly financial indicators, declined from 2015 to 2017. The domestic industry’s production of glycine was *** pounds in both 2015 and 2016 and declined to *** pounds in 2017.¹²² Its capacity increased from *** pounds in 2015 to *** pounds in 2016 and remained at that level in 2017.¹²³ As capacity rose and production declined, capacity utilization declined from *** percent in 2015 to *** percent in 2016, and *** percent in 2017.¹²⁴

The domestic industry’s U.S. shipments, by quantity, rose *** pounds in 2015 to *** pounds in 2016 and then declined to *** pounds in 2017.¹²⁵ The domestic industry’s market share rose from *** percent in 2015 to *** percent in 2016 and then declined to *** percent in 2017.¹²⁶ U.S. producers’ inventories were *** pounds in 2015, *** pounds in 2016, and *** pounds in 2017.¹²⁷

The industry’s employment and hours worked were relatively stable over the POI.¹²⁸ Hourly wages rose, and productivity declined.¹²⁹

¹²⁰ Commerce initiated antidumping duty investigations based on estimated dumping margins of 80.49 percent for glycine from India, 86.22 percent for glycine from Japan, and 176.00 to 227.17 percent for glycine from Thailand. *Glycine from India, Japan, and Thailand: Initiation of Less-Than-Fair-Value Investigations*, 83 Fed. Reg. 17995, 17998 (April 25, 2018).

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

¹²² CR/PR at Table III-5.

¹²³ CR/PR at Table III-5.

¹²⁴ CR/PR at Table III-5.

¹²⁵ CR/PR at Table III-6.

¹²⁶ CR/PR at Table IV-9.

¹²⁷ CR/PR at Table III-7. As a share of U.S. production, U.S. shipments, and total shipments, U.S. producers’ inventories increased from 2015 to 2016, but then declined in 2017 to levels lower than they had been in 2015. *Id.*

¹²⁸ The number of production related workers rose from *** in 2015 to *** in 2016 and then declined to *** in 2017. Total hours worked declined from *** in 2015 to *** in 2016, and remained at that level in 2017. CR/PR at Table III-8.

The domestic industry's sales revenues increased from \$*** in 2015 to \$*** in 2016, but then declined to a period low \$*** in 2017.¹³⁰ From 2016 to 2017, sales revenues declined at a faster rate than costs; hence the industry's ratio of cost of goods sold to net sales declined from *** percent in 2015 to *** percent in 2016, but increased to a period high of *** percent in 2017.¹³¹ Gross profit rose from \$*** in 2015 to \$*** in 2016, and then fell to \$*** in 2017.¹³² Operating income and net income, which were the same, rose from \$*** in 2015 to \$*** in 2016, but then declined to \$*** in 2017.¹³³ The industry's operating income (and net income) ratios rose from *** percent in 2015 to *** percent in 2016, but then declined to *** percent in 2017.¹³⁴ The industry's return on assets, expressed as operating income as a share of total assets, increased from *** percent in 2015 to *** percent in 2016, but then declined to *** percent in 2017.¹³⁵ The industry's capital expenditures increased throughout the POI.¹³⁶

As described above, the volume of cumulated subject imports was significant, both absolutely and relative to apparent U.S. consumption. These cumulated subject imports significantly undersold the domestic like product and depressed prices for the domestic like product to a significant degree. This resulted in the domestic industry achieving lower revenues than it would have otherwise, particularly during 2017, when revenues declined in light of falling prices for the predominant grade of domestically produced glycine. Revenues declined by more than costs, leading to declining financial performance during the latter part of the POI. Consequently, for purposes of the preliminary phase of these investigations, we find that subject imports had a significant impact on the domestic industry.

We have also considered whether there are other factors that may have had an adverse impact on the domestic industry during the period of investigation to ensure that we are not attributing injury from such other factors to the subject imports. As described above, nonsubject imports had a small and declining presence in the U.S. market during the POI.¹³⁷ The small volume of nonsubject imports does not explain the domestic industry's declines in performance or its falling prices. Similarly, while respondents argue that the subject imports entered the U.S. market during the POI because of domestic producers' inability to meet

(...Continued)

¹²⁹ Hourly wages rose from \$*** per hour in 2015 to \$*** per hour in 2017. Productivity rose *** pounds per hour in 2015 to *** pounds per hour in 2016 and then declined to *** pounds per hour in 2017. CR/PR at Table III-8.

¹³⁰ CR/PR at Table VI-1.

¹³¹ CR/PR at Table VI-1.

¹³² CR/PR at Table VI-1.

¹³³ CR/PR at Table VI-1.

¹³⁴ CR/PR at Table VI-1.

¹³⁵ CR/PR at Table VI-6.

¹³⁶ The domestic industry's capital expenditures were \$*** million in 2015, \$*** million in 2016 and \$*** million in 2017. CR/PR at Table VI-5. The industry *** during the POI. *Id.*

¹³⁷ The market share of nonsubject imports was *** percent in 2015, *** percent in 2016, and *** percent in 2017. CR/PR at Table IV-9.

demand,¹³⁸ any purported inability of domestic producers to satisfy the entire market cannot explain the underselling and price depressing effects of the cumulated subject imports.

Accordingly, for purposes of these preliminary determinations, we conclude that cumulated subject imports had a significant impact on the domestic industry.

VIII. 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 glycine from India, Japan, and Thailand that are allegedly sold in the United States at less than fair value and imports of the subject merchandise that are allegedly subsidized by the governments of China, India, and Thailand.

¹³⁸ See Newtrend Postconference Brief at 2-3.

PART I: INTRODUCTION

BACKGROUND

These investigations result from petitions filed with the U.S. Department of Commerce (“Commerce”) and the U.S. International Trade Commission (“USITC” or “Commission”) by GEO Specialty Chemicals Inc. (“GEO”), Lafayette, Indiana, and Chattem Chemicals Inc. (“Chattem”), Chattanooga, Tennessee on March 28, 2018, alleging that an industry in the United States is materially injured and threatened with material injury by reason of subsidized and less-than-fair-value (“LTFV”) imports of glycine (“glycine”)¹ from China (subsidized only), India (subsidized and LTFV), Japan (LTFV only), and Thailand (subsidized and LTFV). The following tabulation provides information relating to the background of these investigations.^{2 3}

| Effective date | Action |
|-----------------------|--|
| March 28, 2018 | Petition filed with Commerce and the Commission; institution of Commission investigations (83 FR 14291, April 3, 2018) |
| April 17, 2018 | Commerce’s notice of initiation (CVD investigations: 83 FR 18002, April 25, 2018 and AD investigations: 83 FR 17995) |
| April 18, 2018 | Commission’s conference |
| May 11, 2018 | Commission’s vote |
| May 14, 2018 | Commission’s determinations |
| May 21, 2018 | Commission’s views |

¹ See the section entitled “The Subject Merchandise” in *Part I* of this report for a complete description of the merchandise subject in this proceeding.

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

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

STATUTORY CRITERIA AND ORGANIZATION OF THE 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--⁴

In evaluating the volume of imports of merchandise, the Commission shall consider whether the volume of imports of the merchandise, or any increase in that volume, either in absolute terms or relative to production or consumption in the United States is significant. . . In evaluating the effect of imports of such merchandise on prices, the Commission shall consider whether. . . (I) there has been significant price underselling by the imported merchandise as compared with the price of domestic like products of the United States, and (II) the effect of imports of such merchandise otherwise depresses prices to a significant degree or prevents price increases, which otherwise would have occurred, to a significant degree. . . In examining the impact required to be considered under subparagraph (B)(i)(III), the Commission shall evaluate (within the context of the business cycle and conditions of competition that are distinctive to the affected industry) all relevant economic factors which have a bearing on the state of the industry in the United States, including, but not limited to. . . (I) actual and potential decline in output, sales, market share, gross profits, operating profits, net profits, ability to service debt, productivity, return on investments, return on assets, and utilization of capacity, (II) factors affecting domestic prices, (III) actual and potential

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

negative effects on cash flow, inventories, employment, wages, growth, ability to raise capital, and investment, (IV) actual and potential negative effects on the existing development and production efforts of the domestic industry, including efforts to develop a derivative or more advanced version of the domestic like product, and (V) in {an antidumping investigation}, the magnitude of the margin of dumping.

In addition, Section 771(7)(J) of the Act (19 U.S.C. § 1677(7)(J)) provides that—⁵

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

Organization of report

Part I of this report presents information on the subject merchandise, alleged subsidy/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.

MARKET SUMMARY

Glycine, also known as aminoacetic acid, is an organic chemical with the formula $\text{NH}_2\text{CH}_2\text{COOH}$. Glycine is a nonessential amino acid that is produced naturally by humans and other organisms as a building block for proteins. Commercial production of glycine uses traditional chemical synthesis. Glycine is most commonly sold in its dry form as a white, free-flowing powder. Glycine is odorless and sweet to the taste.

There are two known U.S. producers of glycine: GEO and Chattem. GEO is the larger U.S. producer. The leading producers of glycine outside the United States are Yuki of Japan and Newtrend Food Ingredient Co., Ltd. of Thailand. The leading U.S. importers of glycine from subject countries are *** ***, *** ***, *** ***, and *** ***.

Apparent U.S. consumption of glycine totaled approximately *** *** pounds *** in 2017. U.S. producers’ U.S. shipments of glycine totaled *** *** pounds *** in 2017, and

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

accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value. U.S. imports from subject sources totaled 12.4 million pounds (\$22.9 million) in 2017 and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value. U.S. imports from nonsubject sources totaled 267,000 pounds (\$563,000) in 2017 and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value.

SUMMARY DATA AND DATA SOURCES

A summary of data collected in these investigations is presented in appendix C, table C-1. Except as noted, U.S. industry data are based on questionnaire responses of two firms that are believed accounted for 100 percent of U.S. production of glycine during 2017. Seventeen U.S. importers submitted questionnaires, representing 94 percent of imports from China; 90 percent of imports from India; 88 percent of imports from Japan; and 100 percent of imports from Thailand. In light of this coverage, U.S. imports are based on official import statistics. Producers in the subject countries submitted six questionnaires accounting for *** percent of exports to the United States from China, the *** from India, *** percent from Japan, and *** percent from Thailand.

PREVIOUS AND RELATED INVESTIGATIONS

Glycine has been the subject of prior antidumping duty investigations in the United States. In 1968, Chattem Drug and Chemical Co., the forerunner of today's Chattem, filed an antidumping petition against imports of glycine from Japan, France, the Federal Republic of Germany, and the Netherlands. The Department of Treasury found no sales at LTFV from the Federal Republic of Germany or the Netherlands and issued a negative determination concerning Japan on the basis of the Japanese exporter's agreement to discontinue LTFV sales. Antidumping duties were imposed on imports of glycine from France following an affirmative injury determination by the Commission. That finding was revoked in 1979.⁶

In 1994, Hampshire Chemical Corp., a predecessor company of GEO, and Chattem filed an antidumping petition on glycine from China. Following affirmative determinations by Commerce and the Commission, an antidumping duty order on glycine from China was issued in March 1995.⁷ There have been four five-year reviews of that order. In each the Commission determined that revocation of the order would be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time⁸ and, accordingly, Commerce published notices of continuation of the order.⁹

⁶ *Aminoacetic Acid (Glycine) from France*, Inv. No. AA1921-61, USITC Publication 313, February 1970, 34 FR 18559 (1969); 35 FR 4676 (1970); 35 FR 5009 (1970); 44 FR 12417 (1979).

⁷ *Antidumping Duty Order: Glycine from the People's Republic of China*, 60 Fed. Reg. 16116 (Mar. 29, 1995).

⁸ *Glycine from China*, Inv. No. 731-TA-718 (Review), USITC Publication 3315 (June 2000); *Glycine from China*, Inv. No. 731-TA-718 (Second Review), USITC Publication 3810 (Oct. 2005); *Glycine from China*, Inv. No. 731-TA-718 (Third Review), USITC Publication 4310 (Mar. 2009); *Glycine from China*, Inv. No. 731-TA-718 (Fourth Review), USITC Publication 4810 (Mar. 2014).
(continued...)

On March 30, 2007, GEO Specialty Chemicals, Inc. (“GEO”) of Lafayette, Indiana, filed antidumping duty petitions alleging that an industry in the United States is materially injured and threatened with material injury by reason of LTFV imports of glycine from India, Japan, and Korea.¹⁰ The Commission issued final negative determinations on Japan, Korea,¹¹ and India.¹²

NATURE AND EXTENT OF ALLEGED SUBSIDIES AND SALES AT LTFV

Alleged subsidies

On April 25, 2018, Commerce published a notice in the *Federal Register* of the initiation of its countervailing duty investigation on glycine from China, India, and Thailand.¹³ Commerce identified the following government programs in China:¹⁴

1. Preferential Loans and Interest Rates
 - a. Policy Loans to the Glycine Industry
 - b. Export Loans from Chinese State-Owned Banks
 - c. Treasury Bond Loans
 - d. Preferential Loans for State-Owned Enterprises
 - e. Preferential Lending to Glycine Producers and Exporters Classified as “Honorable Enterprises”
 - f. Loan and/or Interest Forgiveness for SOEs
 - g. Shandong Province Policy Loans Program—Twelfth Five-Year Plan
2. Income Tax and Other Direct Tax Subsidies
 - a. Income Tax Programs Under the GOC’s 2008 Corporate Income Tax Law
 - i. Preferential Income Tax Reductions for High and New Technology Enterprises
 - ii. Preferential Deduction of Research & Development (R&D) Expenses for HNTES
 - b. Other Income Tax Programs

(...continued)

No. 731-TA-718 (Third Review), USITC Publication 4255 (Aug. 2011); *Glycine from China*, Inv. No. 731-TA-718 (Fourth Review), USITC Publication 4667 (Feb. 2017).

⁹ *Continuation of Antidumping Duty Order: Glycine from People’s Republic of China*, 65 Fed. Reg. 45752 (July 25, 2000); 70 Fed. Reg. 69316 (Nov. 15, 2005); 76 Fed. Reg. 57951 (Sept. 19, 2011); and 73 FR 26413(August1, 2016)

¹⁰ *Glycine from India, Japan, and The Republic of Korea: Initiation of Antidumping Duty Investigations*, 72 FR 20816, April 26, 2007.

¹¹ *Glycine from Japan and Korea, Determination*, 73 FR 3484, January 18, 2008.

¹² *Glycine from India, Determination*, 73 FR 26413, May 9, 2008

¹³ *Glycine from China, India, and Thailand: Initiation of Countervailing Duty Investigations*, 83 FR 18002, April 25, 2018.

¹⁴ *Glycine from China, Enforcement and Compliance Office of AD/CVD Operations Countervailing Duty Investigation Initiation Checklist*, April 17, 2018.

- i. Income Tax Credits for Domestically-Owned Companies Purchasing Domestically-Produced Equipment
 - ii. Reduction in or Exemption from Fixed Assets Investment Orientation Regulatory Tax
 - iii. Reduced Income Tax Rate for HNTes
 - iv. Income Tax Benefits for Domestically-Owned Enterprises Engaging in R&D
- 3. Indirect Tax Programs
 - a. Import Tariff and VAT Exemptions for Foreign Invested Enterprises (FIEs) and Certain Domestic Enterprises Using Imported Equipment in Encouraged Industries
- 4. Government Provision of Goods and Services for Less Than Adequate Remuneration (LTAR)
 - a. Provision of Land in Industrial Zones for LTAR
 - b. Provision of Electricity for LTAR
- 5. Grant Programs
 - a. Export Assistance Grants from Local Governments
 - b. Subsidies for Development of Famous Export Brands and China World Top Brands at the Central and Sub-Central Level
- 6. Investment Policies of Jiangxi Province
 - a. Reduced Income Tax Rate
 - b. Strategic Fund for Developing Strategic Emerging Industries
 - c. Preferential Lending

The following government programs in India:¹⁵

- 1. Export Promotion of Capital Good Scheme (EPCGS)
- 2. Duty Free Import Authorization Scheme(DFIA Scheme)
- 3. Duty Drawback Program (DDB)
- 4. Status Holders Incentive Scrip Scheme (SHIS)
- 5. Advance Authorization Scheme (AAS)
- 6. Merchandise Export from India Scheme (MEIS)
- 7. Special Economic Zones (SEZs) (formerly known as Export Processing Zones/Export Oriented Units) (EPZs/EOUs)
 - a. Duty-free Importation of Capital Goods and Raw Materials, Components, Consumables, Intermediates, Spare Parts and Packing Material \
 - b. Purchases of Capital Goods and Raw Materials, Components, Consumables, Intermediates, Spare Parts and Packing Material Without the Payment of Central Sales Tax (CST)
 - c. Exemption from Service Tax for Services Consumed Within the SEZ

¹⁵ Glycine from India, *Enforcement and Compliance Office of AD/CVD Operations Countervailing Duty Investigation Initiation Checklist*, April 17, 2018.

- d. Exemption of Stamp Duty for All Transactions and Transfers of Immoveable Property, or Documents Related Thereto Within the SEX
 - e. Exemption from Electricity Duty and Cess Thereon on the Sale or Supply to the SEZ Unit
 - f. Income Tax Exemption Under the Income Tax Exemption Scheme Section 10A
 - g. Discounted Land in an SEZ
8. State and Union Territory Sales Tax Incentive Programs in the States of Gujarat and Maharashtra
 9. State Government of Gujarat (SGOG) Subsidies Under Industrial Policy 2015 and 2009
 - a. Financial Benefits for Mega Projects
 - b. Promotion of Cluster Development in States
 - c. Promotion of Non-Conventional Energy
 - d. Anchor Institutes
 - e. Market Development Assistance(MDA)
 - f. Upgrading Industrial Infrastructure
 10. State Government of Maharashtra (SGOM) Subsidies Under the Package Scheme of Incentives 1993, 2007 and 2013
 - a. Financial Incentives for PSI-2013's MSMEs/LSIs
 - b. Industrial Promotion Subsidy for MSMEs and LSIs
 - c. Interest Subsidy
 - d. Exemption from Electricity Duty
 - e. Waiver of Stamp Duties
 - f. Power Tariff Subsidy
 - g. Subsidy Equal to Various Levels Related to VAT on Local Sales (Minus Input Tax Credit)
 - h. 5% Subsidy on Capital Equipment
 - i. 75% Subsidy on Expenses Incurred on Quality Certifications
 - j. 75% Subsidy on Cost of Water Audit
 - k. 75% Subsidy on Cost of Energy Audit
 - l. 50% Subsidy on Cost of Capital Equipment Under Measures to Conserve/Recycle Water
 - m. 50% Subsidy on Cost of Capital Equipmetn for Improving Energy Efficiency
 - n. 25% Subsidy on Capital Equipment for Cleaner Protection Measures
 - o. 25% Subsidy on Patent Registration
 - p. Incentives for Strengthening MSMEs and LSIs
 - q. Incentives for Units Coming up in Naxalism Affecting Talukas
 - r. Incentives for Mega/Ultra Mega Projects

The following government programs in Thailand:¹⁶

¹⁶ Glycine from Thailand, *Enforcement and Compliance Office of AD/CVD Operations Countervailing Duty Investigation Initiation Checklist*, April 17, 2018.

1. The Investment Promotion Act (IPA)
 - a. Duty Exemption on Imports of Machinery (Section 28)
 - b. Reduction of Import Duties for Raw or Essential Materials (Section 30)
 - c. Exemption of Corporate Income Tax on the Net Profit from the Promoted Activity (Section 31)
 - d. Exemption of Income Tax on Dividends Derived from the Promoted Activity (Section 34)
 - e. Additional Income Tax Deductions (Section 35)
 - f. Exemption of Import Duty on Raw or Essential Materials Imported for Use in Production for Export (Section 36)
2. The Industrial Estate Authority of Thailand (I-EA-T)
3. Measures to Promote Improvement of Production Efficiency
4. The Export-Import Bank of Thailand's Medium-Term and Long-Term Loan and Buyer's Credit Programs
5. BOI Measures to Promote Investment in Food Innovation

Alleged sales at LTFV

On April 25, 2018, Commerce published a notice in the *Federal Register* of the initiation of its antidumping duty investigations on glycine from India,¹⁷ Japan,¹⁸ and Thailand.¹⁹ Commerce has initiated antidumping duty investigations based on estimated dumping margins of 80.49 percent for glycine from India, 86.22 percent for glycine from Japan, and 176.00 to 227.17 percent for glycine from Thailand.

¹⁷ *Glycine from India, Japan, and Thailand: Initiation of Less-Than-Fair-Value Investigations*, 83 FR 17995, April 25, 2018.

¹⁸ *Ibid.*

¹⁹ *Ibid.*

THE SUBJECT MERCHANDISE

Commerce's scope²⁰

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

The merchandise covered by these investigations is glycine at any purity level or grade. This includes glycine of all purity levels, which covers all forms of crude or technical glycine including but not limited to sodium glycinate, glycine slurry and any other forms of amino acetic acid or glycine. Subject merchandise also includes glycine and precursors of dried crystalline glycine that are processed in a third country, including, but not limited to, refining or any other processing that would not otherwise remove the merchandise from the scope of the investigations if performed in the country of manufacture of the in-scope glycine or precursors of dried crystalline glycine. Glycine has the Chemical Abstracts Service (CAS) registry number of 56-40-6. Glycine and glycine slurry are classified under Harmonized Tariff Schedule of the United States (HTSUS) subheading 2922.49.43.00. Sodium glycinate is classified in the HTSUS under 2922.49.80.00. While the HTSUS subheadings and CAS registry number are provided for convenience and customs purposes, the written description of the scope of these investigations is dispositive.

Tariff treatment

Based upon the scope set forth by the Department of Commerce, information available to the Commission indicates that the merchandise subject to these investigations—glycine at any purity level or grade, including glycine slurry—is provided for in subheading 2922.49.4300 of the Harmonized Tariff Schedule of the United States (“HTS”).²¹ The 2018 general rate of duty is 4.2 percent *ad valorem*.

Subject merchandise also includes precursors of dried crystalline glycine that are processed in a third country, including, but not limited to, refining or any other processing that would not otherwise remove the merchandise from the scope of the investigations if performed in the country of manufacture of the in-scope glycine or precursors of dried crystalline glycine. Sodium glycinate is classified under HTS subheading 2922.49.8000. Precursors of dried crystalline glycine, other than sodium glycinate, could be classified in various HTS subheadings depending on their chemical structure and essential character.

²⁰ Enforcement and Compliance, International Trade Administration, U.S. Department of Commerce, “Glycine From India, Japan, and Thailand: Initiation of Less-Than-Fair-Value Investigations ***,” *Federal Register* notice, April 25, 2018, 17995 (https://www.usitc.gov/trade_remedy/731_ad_701_cvd/investigations/2018/Glycine%20from%20China,%20India,%20Japan,%20and%20Thailand/Preliminary/fr-notice_initiation_ad.pdf).

²¹ The import classification for glycine changed from HTS subheading 2922.49.4020 to HTS subheading 2922.49.4300 as of July 1, 2017, as a result of Presidential Proclamation 9625.

THE PRODUCT

Description and applications²²

Glycine, also known as aminoacetic acid, is an organic chemical with the formula $\text{NH}_2\text{CH}_2\text{COOH}$. Glycine is a nonessential amino acid that is produced naturally by humans and other organisms as a building block for proteins.²³ Glycine is most commonly sold in its dry form as a white, free-flowing powder. Glycine is odorless and sweet to the taste.

Glycine is typically sold in two main grades: United States Pharmacopeial Convention (“USP”) grade and technical grade.²⁴ The glycine in these grades is chemically identical; the grades differ by the kind and amounts of impurities in the product. The USP-grade standard sets maximum allowable concentrations for impurities such as arsenic, heavy metals, and chlorides. For technical-grade glycine, the maximum allowable concentrations for impurities are either less strict or not specified. USP-grade glycine is typically used for pharmaceutical and food applications, while technical-grade glycine is used for industrial applications.

Some customers’ requirements for glycine purity exceed those of the USP standard. These higher purity products are often referred to as “pharmaceutical grade” glycine, but the purity standards for these products are set by individual customers, not by government or industry organizations.

Glycine is used as a sweetener and flavor enhancer in food, beverage, and pharmaceutical products. Glycine is used to sweeten soft drinks, juice concentrates, and other beverages. Manufacturers of medicaments and personal care products, such as mouthwash and toothpaste, use glycine to mask the bitter taste of some active ingredients. Glycine is also used to enhance the flavor of animal feeds for household pets and for livestock. Pharmaceutical manufacturers use USP-grade glycine to promote the gastric absorption of certain drugs such as aspirin and to treat diarrhea in humans and animals. USP-grade glycine is required for products made for human or animal consumption.

Glycine is used as a buffering agent in certain products and manufacturing processes to maintain a stable pH. In antacids and analgesics, USP-grade glycine helps reduce the acidity of the digestive tract. In personal care products such as antiperspirants and cosmetics, USP-grade glycine is used to reduce the acidity of other ingredients. Technical-grade glycine is used as a buffer in the production of foam rubber sponges.

²² Unless otherwise noted, this information is based on *Glycine from China, Inv. No. 731-TA-718 (Fourth Review)*, USITC Publication 4667, February 2017, pp. I-3 through I-4.

²³ Despite their name, nonessential amino acids are necessary for cell function. Nonessential amino acids are synthesized by the body, while essential amino acids must be furnished through the diet.

²⁴ The USP sets standards for medicines, food ingredients, and dietary supplements. Its standards are used in more than 140 countries, with its drug standards enforceable in the United States by the Food and Drug Administration. See <http://www.usp.org/about/quality-policy-iso-accreditation>, <http://www.usp.org/about/legal-recognition>, and <http://www.usp.org/frequently-asked-questions/usp-and-its-standards> (accessed April 16, 2018).

Glycine can also be used as a starting material for producing other organic chemicals or in metal finishing. USP-grade glycine is typically used in the production of other amino acids and pharmaceuticals. Technical-grade glycine is used in metal finishing to brighten metal surfaces or to enhance the adhesion of rubber to a surface.

Glycine is typically packaged and sold in plastic bags weighing 50 to 200 pounds or in super sacks weighing up to 2,000 pounds. These bags and super sacks are placed on pallets and shipped by truck. Each package of glycine is accompanied by a certificate of analysis that states the levels of moisture and impurities in the product.

Manufacturing processes²⁵

Commercial production of glycine uses traditional chemical synthesis. There are two known processes for the commercial production of glycine: the hydrogen cyanide (“HCN”) process and the monochloroacetic acid (“MCA”) process. Both of these processes can be used to produce both technical and USP grades of glycine. GEO uses the HCN process and Chattem Chemicals, Inc. (“Chattem”), another domestic producer of glycine, uses the MCA process.

The HCN process uses hydrogen cyanide and formaldehyde (CH₂O) as the primary starting materials. These chemicals are mixed with aqueous ammonia (NH₄OH) in the first reaction step of the process. The reaction product from this first step is then reacted with caustic soda (NaOH) to produce sodium glycinate. Glycine is produced when an acid, such as sulfuric acid, is mixed with sodium glycinate. The glycine solution then goes through one or more crystallization and filtration steps to produce a pure white glycine powder.

For the MCA process, the primary feedstocks are monochloroacetic acid (ClCH₂COOH) and ammonia. These feedstocks are mixed together in the presence of a catalyst to produce glycine. The MCA process typically has higher raw material and energy costs.

DOMESTIC LIKE PRODUCT ISSUES

No issues with respect to domestic like product have been raised in these investigations. The petitioner proposes that the Commission should find a single domestic like product, coextensive with Commerce’s scope as they did in the *Glycine from China*. Respondents did not object to petitioners’ proposal.

Petitioners argues that the Commission should find a single domestic like product because the Commission generally does not find differing grades of a product to constitute more than one like product.²⁶ Furthermore, the petitioners advance the argument that all three grades of glycine have the same chemical formula.

²⁵ Unless otherwise noted, this information is based on *Glycine from China, Inv. No. 731-TA-718 (Fourth Review)*, USITC Publication 4667, February 2017, pp. I-3 through I-4.

²⁶ Petition, p. 8.

Petitioners assert that a single domestic like product determination is warranted because this scope is similar to prior glycine proceedings wherein the Commission has consistently determined that the like product is all glycine. ²⁷

²⁷ Petitioners' postconference brief, p. 4.

PART II: CONDITIONS OF COMPETITION IN THE U.S. MARKET

U.S. MARKET CHARACTERISTICS

Glycine is typically an odorless, white material that is sweet to the taste and normally sold in its dried form, with the appearance of salt or sugar.¹ Glycine is largely used as an input in downstream products, such as pharmaceuticals, dietary supplements, sweeteners or flavor enhancers, reabsorbable amino acid, chemical intermediaries, or as a metal complexing, buffering, or finishing agent.² Most glycine sold in the United States is USP grade, with smaller shares of the technical grade and to a lesser extent pharmaceutical grade, and limited precursor sales.³ All three glycine grades are chemically identical, but have varying purity levels, with pharmaceutical-grade glycine having the highest purity levels and technical-grade glycine having the lowest purity levels.⁴

The U.S. market is principally supplied by U.S. producers and imports from subject countries. Purchasers are primarily in the food and personal care products industries, and in the general manufacturing sector. According to petitioners, the glycine market is dominated by a handful of large customers with a degree of purchasing power over suppliers.⁵

Apparent U.S. consumption of glycine decreased during January 2015-December 2017. Overall, apparent U.S. consumption in 2017 was *** percent lower than in 2015.

CHANNELS OF DISTRIBUTION

U.S. producers and importers of glycine from Japan sold mainly to end users while importers of glycine from China, India, and Thailand sold mainly to distributors, as shown in table II-1. Subject imports overall have shifted from end-user sales to distributor sales, reflecting the shifting channels of imports from ***.

Table II-1

Glycine: U.S. producers' and importers' U.S. commercial shipments, by sources and channels of distribution, January 2015-December 2017

* * * * *

GEOGRAPHIC DISTRIBUTION

U.S. producers and subject importers reported selling glycine to all regions in the contiguous United States (table II-2).⁶ For U.S. producers, *** percent of sales were between

¹ Petition, p. 7.

² Petition, pp. 12-14.

³ For additional information, see Parts III and IV.

⁴ Petition, pp. 9-10, 11; conference transcript, p. 33.

⁵ Conference transcript, p. 21 (Hughes).

⁶ U.S. importers of *** glycine did not report sales in all regions.

101 and 1,000 miles, and *** percent were over 1,000 miles. Importers sold *** percent within 100 miles of their U.S. point of shipment, *** percent between 101 and 1,000 miles, and *** percent over 1,000 miles.

Table II-2
Glycine: Geographic market areas in the United States served by U.S. producers and importers

| Region | U.S. producers | U.S. importers | | | | Subject sources |
|----------------------------|----------------|----------------|-------|-------|----------|-----------------|
| | | China | India | Japan | Thailand | |
| Northeast | *** | *** | 7 | 2 | 2 | 11 |
| Midwest | *** | *** | 5 | 3 | 2 | 9 |
| Southeast | *** | *** | 4 | 2 | 2 | 7 |
| Central Southwest | *** | *** | 5 | 2 | 2 | 8 |
| Mountains | *** | *** | 3 | 4 | 2 | 8 |
| Pacific Coast | *** | *** | 3 | 1 | 2 | 6 |
| Other ¹ | *** | *** | --- | --- | --- | --- |
| All regions (except Other) | *** | *** | 2 | 1 | 2 | 4 |
| Reporting firms | 2 | 1 | 9 | 4 | 2 | 15 |

¹ All other U.S. markets, including AK, HI, PR, and VI.

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

SUPPLY AND DEMAND CONSIDERATIONS

U.S. supply

Table II-3 provides a summary of the supply factors regarding glycine from U.S. producers and from subject countries.

Table II-3

Glycine: Supply factors that affect the ability to increase shipments to the U.S. market

| Item | Capacity (1,000 pounds) | | Capacity utilization (percent) | | Inventories as a ratio to total shipments (percent) | | Home market shipments | Exports to non- U.S. markets | Able to shift to alternate products |
|---------------|----------------------------|------|--------------------------------------|------|--|------|--|---------------------------------------|--|
| | 2015 | 2017 | 2015 | 2017 | 2015 | 2017 | Shipments by market in 2017 (percent) | | No. of firms reporting "yes" |
| United States | *** | *** | *** | *** | *** | *** | *** | *** | 0 of 2 |
| China | *** | *** | *** | *** | *** | *** | *** | *** | 0 of 0 |
| India | *** | *** | *** | *** | *** | *** | *** | *** | 0 of 2 |
| Japan | *** | *** | *** | *** | *** | *** | *** | *** | 0 of 1 |
| Thailand | *** | *** | *** | *** | *** | *** | *** | *** | 0 of 1 |

Note.—Responding U.S. producers accounted for all of U.S. production of glycine in 2017. There were no responding foreign producer/exporter firms from China, and coverage is unknown for India. Responding foreign producer/exporter firms accounted for virtually all U.S. imports from Japan, and the vast majority of U.S. imports from Thailand during 2017. 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."

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

Domestic production

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

Subject imports from China

The Commission received no questionnaire responses from Chinese producers, and there was no information provided by the parties.

Subject imports from India

Based on available information, producers of glycine from India have the ability to respond to changes in demand with large changes in the quantity of shipments of glycine to the U.S. market. The main contributing factors to this degree of responsiveness of supply are the availability of unused capacity. Factors mitigating responsiveness of supply include limited ability to shift shipments from alternate markets or inventories and an inability to shift production to or from alternate products. Responding Indian producers' declining capacity utilization was driven by increasing overall production capacity.

Subject imports from Japan

Based on available information, producers of glycine from Japan have the ability to respond to changes in demand with moderate-to-large changes in the quantity of shipments of glycine to the U.S. market. The main contributing factors to this degree of responsiveness of supply are the availability of unused capacity and inventories, and some ability to shift shipments from alternate markets. Factors mitigating responsiveness of supply include an inability to shift production to or from alternate products. The decrease in capacity utilization was driven by a decrease in production. Non-U.S. market shipments represented almost *** of responding Japanese producers' shipments in 2017.

Subject imports from Thailand

Based on available information, producers of glycine from Thailand have the ability to respond to changes in demand with large changes in the quantity of shipments of glycine to the U.S. market. The main contributing factors to this degree of responsiveness of supply are the availability of unused capacity and an ability to shift shipments from alternate markets. Factors mitigating responsiveness of supply include limited availability of inventories and an ability to shift production to or from alternate products. Responding Thai producers' increase in capacity utilization was driven by an increase in production. Non-U.S. market sales represented almost *** of total shipments in 2017.

Imports from nonsubject sources

Imports from nonsubject countries accounted for 2.1 percent of total U.S. imports in 2017.⁷ The largest nonsubject source of glycine during 2017 was Malaysia. Imports from Malaysia accounted for more than *** percent of glycine imports from nonsubject sources in 2017.

Supply constraints

No supply constraints were reported by U.S. producers or importers. Respondent Newtrend stated that its customers have expressed concerns about GEO regarding instances of supply delays or production qualification issues that were inadequately handled, and stated that GEO encountered production problems because of a shortage of raw materials.⁸

⁷ See table IV-2.

⁸ Conference transcript, p. 73 (Wang).

U.S. demand

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

End uses and cost share

U.S. demand for glycine depends on the demand for U.S.-produced downstream products. Reported end uses include pharmaceutical products (e.g., intravenous solutions), nutritional supplements, pet food/livestock feed, personal care products (e.g., antiperspirant), and electronic/metal cleaners.⁹

Glycine accounts for a small share of the cost of the end-use products in which it is used. Reported cost shares for some end uses were as follows:

- Pet food (10-12 percent)
- Electronic industry polishing slurry (10 percent)
- Textile dyes (10 percent)
- Amino acid mixture (8 percent)
- Food supplements (3 percent)
- Food sweeteners (2 percent)

Pharmaceutical end uses and packaging

Petitioners stated that packaging can impact the pricing of pharmaceutical-grade glycine because the glycine producer will package the material to satisfy the customer's specific requirements and charge more for the unique packaging.¹⁰

Both U.S. producers and one U.S. importer reported producing or importing glycine for pharmaceutical use. U.S. producer ***. U.S. importer *** reported that its pharmaceutical grade glycine was used for amino acid mixtures in the pharmaceutical industry.

U.S. producers reported packaging their pharmaceutical grade glycine in fiber and cardboard drums, and plastic sacks. The responding importer reported packaging its pharmaceutical product in 50-kg fiber drums. *** estimated that packaging accounted for 7 percent to 12 percent of the total cost.

⁹ Petition, pp. 12-14; conference transcript, p. 19 (Lang), p. 21 (Hughes).

¹⁰ Petition, p. 10.

Business cycles

Most firms reported that the glycine market was not subject to business cycles or distinct conditions of competition. One of two U.S. producers reported that the *** sector experiences seasonality but the remainder of the market does not. Two of 15 responding importers reported that the glycine market is subject to distinct conditions of competition. Importer *** reported that regulatory approvals and certifications serve as an important condition of competition. It stated that U.S. producers either have too many impurities, such as too much trace aluminum content, in the glycine for pharmaceutical use or do not have necessary European regulatory approval for pharmaceutical product sales. Respondent Newtrend reported that customers want to maintain multiple supply sources of glycine so as to not disrupt the production process of downstream products.¹¹

Demand trends

Firms' responses regarding demand trends since 2015 were mixed (table II-4). U.S. producer *** reported *** U.S. demand citing ***, and U.S. producer *** reported *** demand citing ***. A plurality (7 of 14) of importers reported stable demand. Four importers reported an increase in demand, citing increased demand for pet food, increasing use of glycine in cosmetics, and increased demand for food supplements and protein drinks.

¹¹ Conference transcript, p. 71 (Wang), p. 79 (Lee).

Table II-4

Glycine: Firms' responses regarding U.S. demand and demand outside the United States

| Item | Number of firms reporting | | | |
|-----------------------------------|---------------------------|-----------|----------|-----------|
| | Increase | No change | Decrease | Fluctuate |
| Demand inside the United States: | | | | |
| U.S. producers | *** | *** | *** | *** |
| Importers | 4 | 7 | --- | 3 |
| Demand outside the United States: | | | | |
| U.S. producers | *** | *** | *** | *** |
| Importers | 4 | 3 | 1 | --- |

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

Substitute products

There are no reported substitutes for glycine. However, a higher-grade of glycine can be used in a lower-grade application. While downselling pharmaceutical-grade glycine is not economically feasible, due to the costs of testing and certifications, it is often feasible for USP-grade to be sold for technical-grade applications.¹²

Supplier certification

Petitioners stated that *** and both meet customer requirements. Both U.S. producers adhere to the FDA standards, hold certifications from the U.S. and European Pharmacopeia, and are Kosher and Halal certified.¹³ Glycine for pharmaceutical use in the EU requires a Certificate of Suitability (“CEP”) and U.S. producer GEO has this certification, which is important for customers that want to export their end-use products.¹⁴ Respondents stated that *** and that ***.¹⁵ Certifications and supplier approvals can often take a few years.¹⁶

SUBSTITUTABILITY ISSUES

The degree of substitution between domestic and imported glycine depends upon such factors as relative prices, quality (e.g., grade standards, defect rates, etc.), and conditions of sale (e.g., price discounts/rebates, lead times between order and delivery dates, reliability of supply, product services, etc.). Based on available data, staff believes that there is a high-to-moderate degree of substitutability between domestically produced glycine and glycine imported from subject sources, with the variation based on a degree of regulatory certification required.

¹² Petitioners' postconference brief, Answers to Staff Questions, pp. 12-13, 22.

¹³ Petitioners' postconference brief, Answers to Staff Questions, p. 1.

¹⁴ Respondents' postconference brief, Exhibit 1, p. 3; Petitioners' postconference brief, Answers to Staff Questions, p. 1.

¹⁵ Respondents' postconference brief, Exhibit 1, p. 3.

¹⁶ Conference transcript, p. 103 (Wang); Respondents' postconference brief, Exhibit 1, p. 3.

Lead times

Glycine is primarily sold from inventory. U.S. producers reported that *** percent of their commercial shipments were shipped from inventories, with lead times averaging *** days. The remaining *** percent of their commercial shipments were produced-to-order, with lead times averaging *** days. U.S. importers reported that 52.9 percent of their commercial shipments were shipped from U.S. inventories and 29.4 percent of their shipments were shipped from foreign inventories, with lead times averaging 26 days and 38 days, respectively. The remaining 17.7 percent of importers' commercial shipments were produced-to-order, with lead times averaging 81 days.

Petitioners stated that some customers are satisfied with long lead times, while others require immediate shipments. They stated that depending on contractual commitments and inventories, they may only be able to offer lead times of four to six weeks.¹⁷

Factors affecting purchasing decisions

Purchasers responding to lost sales lost revenue allegations¹⁸ were asked to identify the main purchasing factors their firm considered in their purchasing decisions for glycine. The major purchasing factors identified by firms include quality, price, and availability (table II-5). Most responding firms identified quality as the leading purchase factor.

Table II-5
Glycine: Ranking of purchasing factors by importance

| Item | 1st | 2nd | 3rd | Total |
|--------------------------------|--------------------------|-----|-----|-------|
| | Number of firms (number) | | | |
| Quality | 5 | 1 | --- | 6 |
| Price / cost | 3 | 1 | 3 | 7 |
| Availability / supply | 1 | 1 | --- | 2 |
| All other factors ¹ | 1 | 3 | 1 | NA |

¹Other factors listed included customer sourcing preferences, customer service, professionalism and ethical behavior, lead times, and flexibility.

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

Comparison of U.S.-produced and imported glycine

In order to determine whether U.S.-produced glycine can generally be used in the same applications as imports from China, India, Japan, and Thailand, U.S. producers and importers were asked whether the products can always, frequently, sometimes, or never be used interchangeably. As shown in table II-6, U.S. producers reported that U.S.-produced glycine is frequently interchangeable with glycine produced in subject countries. Similarly, a majority of

¹⁷ Petitioners' postconference brief, Answers to Staff Questions, p. 5.

¹⁸ This information is compiled from responses by purchasers identified by Petitioners to the lost sales lost revenue allegations. See Part V for additional information.

importers reported that U.S.-produced glycine is always or frequently interchangeable with glycine from subject countries.

Table II-6
Glycine: Interchangeability between glycine produced in the United States and in other countries, by country pair

| Country pair | U.S. producers | | | | U.S. importers | | | |
|----------------------------|----------------|-----|-----|-----|----------------|-----|-----|-----|
| | A | F | S | N | A | F | S | N |
| United States vs. China | --- | 2 | --- | --- | 2 | 1 | --- | --- |
| United States vs. India | --- | 2 | --- | --- | 2 | 3 | --- | --- |
| United States vs. Japan | --- | 2 | --- | --- | 3 | 1 | 2 | 1 |
| United States vs. Thailand | --- | 2 | --- | --- | 2 | 1 | --- | --- |
| China vs. India | --- | --- | --- | --- | 2 | --- | --- | --- |
| China vs. Japan | --- | --- | --- | --- | 3 | --- | --- | --- |
| China vs. Thailand | --- | --- | --- | --- | 2 | --- | --- | --- |
| India vs. Japan | --- | --- | --- | --- | 3 | --- | 1 | --- |
| India vs. Thailand | --- | --- | --- | --- | 2 | 1 | --- | --- |
| Japan vs. Thailand | --- | --- | --- | --- | 2 | 1 | --- | --- |
| United States vs. Other | --- | 1 | --- | --- | 2 | 1 | --- | --- |
| China vs. Other | --- | --- | --- | --- | 2 | --- | --- | --- |
| India vs. Other | --- | --- | --- | --- | 2 | --- | --- | --- |
| Japan vs. Other | --- | --- | --- | --- | 2 | --- | --- | --- |
| Thailand vs. Other | --- | --- | --- | --- | 2 | 1 | --- | --- |

Note.-- A=Always, F=Frequently, S=Sometimes, N=Never.

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

Three importers reported that U.S.-produced glycine and glycine produced in Japan is sometimes or never interchangeable. Importer *** reported that its customers have specific quality requirements and that approval of new sources of glycine takes several years. Importer *** reported that Japanese glycine *** is of a lower grade and cannot be used with customers who require USP grade; it also noted that particle size can be an issue. Importer *** reported that U.S.-produced glycine does not meet the U.S. and EU requirements that imports from Japan do. According to this importer, GEO's product has too much aluminum content, and Chattem's products do not satisfy requirements necessary for end-use products that are intended for export to the EU.

In addition, producers and importers were asked to assess how often differences other than price were significant in sales of glycine from the United States, subject, or nonsubject countries. As seen in table II-7, U.S. producers reported that differences other than price between U.S.-produced glycine and glycine imported from subject countries are sometimes or never significant. Responding importers reported that differences between U.S.-produced glycine and glycine from India and Thailand were sometimes significant, while four (of 6) importers reported that differences between U.S.-produced glycine and glycine from Japan were always or frequently significant. One importer each reported that differences between U.S.-produced and Chinese glycine were either always or never significant.

Table II-7
Glycine: Significance of differences other than price between glycine produced in the United States and in other countries, by country pair

| Country pair | U.S. producers | | | | U.S. importers | | | |
|----------------------------|----------------|-----|-----|-----|----------------|-----|-----|-----|
| | A | F | S | N | A | F | S | N |
| United States vs. China | --- | --- | 1 | 1 | 1 | --- | --- | 1 |
| United States vs. India | --- | --- | 1 | 1 | --- | --- | 3 | --- |
| United States vs. Japan | --- | --- | 1 | 1 | 3 | 1 | 1 | 1 |
| United States vs. Thailand | --- | --- | 1 | 1 | --- | --- | 3 | --- |
| China vs. India | --- | --- | --- | --- | --- | --- | 1 | --- |
| China vs. Japan | --- | --- | --- | --- | 1 | --- | 1 | --- |
| China vs. Thailand | --- | --- | --- | --- | --- | --- | 1 | 1 |
| India vs. Japan | --- | --- | --- | --- | 1 | --- | 2 | --- |
| India vs. Thailand | --- | --- | --- | --- | --- | --- | 3 | --- |
| Japan vs. Thailand | --- | --- | --- | --- | --- | --- | 3 | --- |
| United States vs. Other | --- | --- | --- | 1 | --- | --- | --- | 2 |
| China vs. Other | --- | --- | --- | --- | --- | --- | 1 | --- |
| India vs. Other | --- | --- | --- | --- | --- | --- | 1 | --- |
| Japan vs. Other | --- | --- | --- | --- | --- | --- | 1 | --- |
| Thailand vs. Other | --- | --- | --- | --- | --- | --- | 1 | --- |

Note.--A = Always, F = Frequently, S = Sometimes, N = Never.

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

Importers *** reported that trace metal and elemental impurities are significant factors other than price that their firms and their customers consider when making sourcing decisions. Importer *** stated that the technical grade of glycine produced by *** (Japan) meets its customer's high-end specifications for electronics applications at a lower cost than the purer pharmaceutical grade.

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 100 percent of U.S. production of glycine in 2017.

U.S. PRODUCERS

The Commission issued a U.S. producer questionnaire to two firms based on information contained in the petition. Both firms provided usable data on their productive operations. Staff believes that these responses represent all known U.S. production of glycine.

Table III-1 lists U.S. producers of glycine, their production locations, positions on the petition, and shares of total production.

Table III-1

Glycine: U.S. producers of glycine, their positions on the petition, production locations, and shares of reported production, 2017

| Firm | Position on petition | Production location(s) | Share of production (percent) |
|---------|----------------------|------------------------|-------------------------------|
| Chattem | Petitioner | Chattanooga, TN | *** |
| GEO | Petitioner | Deer Park, TX | *** |
| Total | | | *** |

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

Table III-2 presents information on U.S. producers' ownership, related and/or affiliated firms of glycine. As indicated in table III-2, no U.S. producer is related to a foreign producer or U.S. importer of the subject merchandise. However, *** is a subsidiary of *** an Indian company that does not produce or import subject merchandise.

Table III-2

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

* * * * *

Table III-3 presents U.S. producers' reported changes in operations since January 1, 2015. There was one reported expansion as *** and a production curtailment by *** due to ***.

Table III-3
Glycine: U.S. producers' reported changes in operations, since January 1, 2015

* * * * *

U.S. PRODUCTION, CAPACITY, AND CAPACITY UTILIZATION

Table III-4 and figure III-1 present U.S. producers' production, capacity, and capacity utilization. From 2015 to 2017, U.S producers' capacity increased reflecting a *** increase in production capacity by ***. Total U.S. production declined from 2015 to 2017. *** reported a *** percent decline in production from 2015 to 2016; however, production increased by *** percent from 2016 to 2017. From 2015 to 2016, *** reported a *** percent increase in production; however, the firm experienced a *** percent decline in production from 2016 to 2017. *** reported an overall net declines in production and capacity utilization from 2015 to 2017.

Table III-4
Glycine: U.S. producers' production, capacity, and capacity utilization, 2015-17

* * * * *

Figure III-1
Glycine: U.S. producers' production, capacity, and capacity utilization, 2015-17

* * * * *

Alternative products

Table III-5 presents data on U.S. producers' capacity and production of alternative products using the same equipment and machinery as glycine. Table III-5 shows no production of alternative products on the same equipment used to produce glycine.

Table III-5
Glycine: U.S. producers' overall plant capacity and production on the same equipment as subject production, 2015-17

* * * * *

U.S. PRODUCERS' U.S. SHIPMENTS AND EXPORTS

Table III-6 presents U.S. producers' U.S. shipments, export shipments, and total shipments. From 2015 to 2017, U.S. shipments by quantity and value declined by *** percent and *** percent respectively. U.S. export shipments, in contrast, increased by quantity and value by *** percent and *** percent, respectively. The average unit value of U.S. shipments declined from a high of *** per pound in 2015 to a low of *** per pound in 2017, resulting to a net decline of *** percent from 2015 to 2017. The unit value of export shipments, in contrast,

increased between 2015 and 2017. Total shipments of glycine by U.S. producers decreased in terms of quantity, value, and unit value between 2015 and 2017.

Table III-6
Glycine: U.S. producers' U.S. shipments, exports shipments, and total shipments, 2015-17

* * * * *

U.S. PRODUCERS' INVENTORIES

Table III-7 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. From 2015-2017, U.S. producers' end-of-period inventories decreased by *** percent. The ratio inventories to U.S. production, U.S. shipments, and total shipments all decreased between 2015 and 2017.

Table III-7
Glycine: U.S. producers' inventories, 2015-17

* * * * *

U.S. PRODUCERS' IMPORTS AND PURCHASES

Neither U.S. producer reported importing or purchasing glycine from 2015 to 2017.

U.S. EMPLOYMENT, WAGES, AND PRODUCTIVITY

Table III-8 shows U.S. producers' employment-related data. From 2015 to 2017, the number of production and related workers ("PRWs") fluctuated slightly. Over the same period, the total hours worked and hours worked per PRW declined slightly by *** percent, while wages paid and hourly wages increased by *** percent and *** percent respectively. From 2015 to 2017, productivity declined by *** percent per hours while unit labor costs increased.

Table III-8
Glycine: Average number of production and related workers, hours worked, wages paid to such employees, hourly wages, productivity, and unit labor costs, 2015-17

* * * * *

PART IV: U.S. IMPORTS, APPARENT U.S. CONSUMPTION, AND MARKET SHARES

U.S. IMPORTERS

Overview

The Commission issued questionnaires to 38 firms believed to be importers of subject glycine, as well as to all U.S. producers of glycine.¹ Usable questionnaire responses were received from 17 companies, representing *** percent of U.S. imports from China, *** percent of U.S. imports from India, *** percent of U.S. imports from Japan, and *** U.S. imports from Thailand for 2017 under HTSUS statistical reporting numbers 2922.49.43.00 (as of July 1, 2017, and 2922.49.4020 prior to that date).^{2 3} Overall, the 17 questionnaire responses represented *** percent of U.S. imports from the combined subject countries during 2017.⁴ Table IV-1 lists all responding U.S. importers of glycine from China, India, Japan, Thailand, and other sources, their locations, and their shares of U.S. imports, in 2017.

¹ The Commission issued questionnaires to those firms identified in the petitions, along with firms that, based on a review of data provided by U.S. Customs and Border Protection (“Customs”), may have accounted for more than one percent of total imports under HTS statistical reporting numbers in 2017.

² Glycine and glycine slurry are classified, since July 1, 2017, under subheading 2922.49.4300 of the Harmonized Tariff Schedule of the United States (“HTSUS”); before that date, it was classified under HTS statistical reporting number 2922.49.4020 of the HTSUS.

³ The scope of this proceeding also covers precursors of dried crystalline glycine, including, but not limited to, glycine slurry (i.e. glycine in a non-crystallized form), sodium glycinate and a non-reacted ammonia-monochloroacetic or chloroacetic acid mix. Glycine slurry is classified under the same HTSUS as crystallized glycine (2922.49.4300 as of July 1, 2017, and 2922.49.4020 before that date), sodium glycinate is classified under HTSUS 2922.49.8000, and the non-reacted ammonia-monochloroacetic or chloroacetic acid mix has been classified under a number of HTS US 2922.49 subheadings.

⁴ Based on official import statistics, nonsubject U.S. imports of glycine accounted for approximately 2.0 percent of total U.S. imports of glycine in 2017. Overall, the 17 questionnaire responses represented *** percent of U.S. imports from nonsubject countries during 2017.

Table IV-1**Glycine: U.S. importers, their headquarters, and share of total imports by source, 2017**

| Firm | Headquarters | Share of imports by source (percent) | | | | | | |
|--|----------------------|--------------------------------------|-------|-------|----------|-----------------|---------------------|--------------------|
| | | China | India | Japan | Thailand | Subject sources | Non subject sources | All import sources |
| Aceto | Port Washington, NY | *** | *** | *** | *** | *** | *** | *** |
| Ajinomoto | Itasca, IL | *** | *** | *** | *** | *** | *** | *** |
| Avid Organics | Delhi, India | *** | *** | *** | *** | *** | *** | *** |
| Brio | Miami, FL | *** | *** | *** | *** | *** | *** | *** |
| CEKA | Chino Hills, CA | *** | *** | *** | *** | *** | *** | *** |
| Charkit | South Norwalk, CT | *** | *** | *** | *** | *** | *** | *** |
| Fujimi | Tualatin, OR | *** | *** | *** | *** | *** | *** | *** |
| Innospec | High Point, NC | *** | *** | *** | *** | *** | *** | *** |
| Marubeni | White Plains, NY | *** | *** | *** | *** | *** | *** | *** |
| Mulji Mehta | Mumbai, India | *** | *** | *** | *** | *** | *** | *** |
| Nagase | New York, NY | *** | *** | *** | *** | *** | *** | *** |
| Newtrend USA Co | City of Industry, CA | *** | *** | *** | *** | *** | *** | *** |
| NutriScience Innovations, LLC (formerly FabriChem, Inc.) | Trumbull, CT | *** | *** | *** | *** | *** | *** | *** |
| Prinova | Carol Stream, IL | *** | *** | *** | *** | *** | *** | *** |
| Soyventis | Fairfield, NJ | *** | *** | *** | *** | *** | *** | *** |
| Tiana | New York, NY | *** | *** | *** | *** | *** | *** | *** |
| TRInternational | Seattle, WA | *** | *** | *** | *** | *** | *** | *** |
| Total | | *** | *** | *** | *** | *** | *** | *** |

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

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

U.S. IMPORTS

Table IV-2 and figure IV-1 present data for U.S. imports of glycine from China, India, Japan, and Thailand and all other sources. The quantity of glycine imports from the subject countries decreased by 16.7 percent from 2015 to 2016, but increased by 16.0 percent from 2016 to 2017. The quantity of glycine imports from the subject countries decreased overall by 3.4 percent during 2015-17. The value of glycine imports from subject countries decreased by 20.0 percent from 2015 to 2016, but increased by 5.0 percent from 2016 to 2017. The value of glycine imports from the subject countries decreased overall by 16.1 percent during 2015-17. As a share of total imports, imports from the subject countries increased from 93.8 percent in 2015 to 97.9 percent in 2017. The average unit values of glycine imports from the subject countries, which were higher than those reported for nonsubject imports in 2015 and 2016 but lower than those reported for nonsubject imports in 2017, decreased by 13.3 percent from 2015 to 2017.

The ratio of total import volume to U.S. production decreased from *** percent in 2015 to *** in 2016, but increased to *** in 2017. From 2015 to 2017, the ratio of subject imports increased by *** percentage points, while the ratio of total imports to U.S production increased by *** percentage points.

Subject imports from China (Cambodia)

Petitioners contend that all imports of glycine from Cambodia during 2015-17 were actually of Chinese origin.⁵ Petitioners also cite to a separate U.S. Customs and Border Protection (“CBP”) Enforcement and Protection Act duty evasion proceeding, which CBP issued interim measures on December 4, 2017. The interim measures were based on the finding that all glycine from Cambodia shipped to the United States since August 2016 was of Chinese origin and subject to the antidumping duty order on glycine from China, which was shipped to a single U.S. importer, ***. *** has been the only importer of Cambodian-exported glycine since these shipments began in 2015.⁶

Based on its response to the Commission’s questionnaire, ***. In its response to the Commission’s questionnaire, *** also indicated that ***.⁷ Staff further followed up with ***. In an email to Commission staff, ***.⁸

⁵ Petition, p. 19 and *See* USITC, *Generalized System of Preferences (GSP): Possible Modifications, 2016/2017 Review*, Inv. No. 332-560, USITC Publication 4694, June 2017, Chapter 7, at 64.

⁶ Petition, p. 19 and Exhibit GEN-3.

⁷ ***, U.S. importer questionnaire response, section II-5a.

⁸ In its email, *** officials indicated ***. Email message from ***.

Table IV-2
Glycine: U.S. imports by source, 2015-17

| Item | Calendar year | | |
|----------------------|---------------------------------------|--------|--------|
| | 2015 | 2016 | 2017 |
| | Quantity (1,000 pounds) | | |
| U.S. imports from.-- | | | |
| China | 104 | 526 | 572 |
| India | 2,926 | 4,260 | 3,903 |
| Japan | 6,011 | 4,629 | 5,305 |
| Thailand | 3,895 | 1,356 | 2,720 |
| Subject sources | 12,936 | 10,771 | 12,499 |
| Nonsubject sources | 859 | 292 | 267 |
| All import sources | 13,795 | 11,063 | 12,765 |
| | Value (1,000 dollars) | | |
| U.S. imports from.-- | | | |
| China | 177 | 825 | 1,158 |
| India | 6,008 | 8,146 | 6,965 |
| Japan | 12,450 | 9,807 | 10,206 |
| Thailand | 8,672 | 3,060 | 4,589 |
| Subject sources | 27,307 | 21,837 | 22,918 |
| Nonsubject sources | 1,386 | 526 | 563 |
| All import sources | 28,693 | 22,364 | 23,481 |
| | Unit value (dollars per pound) | | |
| U.S. imports from.-- | | | |
| China | 1.71 | 1.57 | 2.03 |
| India | 2.05 | 1.91 | 1.78 |
| Japan | 2.07 | 2.12 | 1.92 |
| Thailand | 2.23 | 2.26 | 1.69 |
| Subject sources | 2.11 | 2.03 | 1.83 |
| Nonsubject sources | 1.61 | 1.80 | 2.11 |
| All import sources | 2.08 | 2.02 | 1.84 |

Table continued on next page.

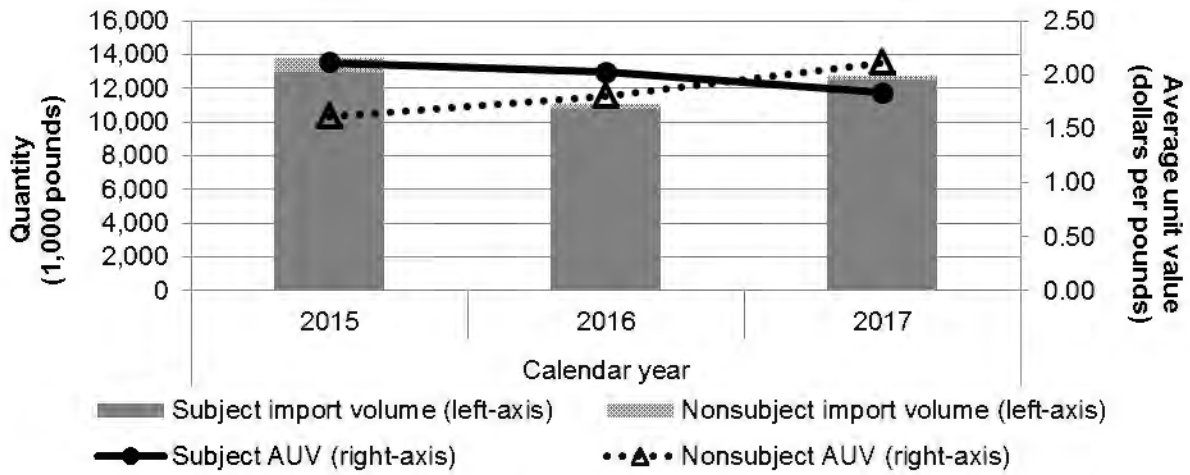
Table IV-2--Continued
Glycine: U.S. imports by source, 2015-17

| Item | Calendar year | | |
|----------------------|------------------------------------|-------|-------|
| | 2015 | 2016 | 2017 |
| | Share of quantity (percent) | | |
| U.S. imports from.-- | | | |
| China | 0.8 | 4.8 | 4.5 |
| India | 21.2 | 38.5 | 30.6 |
| Japan | 43.6 | 41.8 | 41.6 |
| Thailand | 28.2 | 12.3 | 21.3 |
| Subject sources | 93.8 | 97.4 | 97.9 |
| Nonsubject sources | 6.2 | 2.6 | 2.1 |
| All import sources | 100.0 | 100.0 | 100.0 |
| | Share of value (percent) | | |
| U.S. imports from.-- | | | |
| China | 0.6 | 3.7 | 4.9 |
| India | 20.9 | 36.4 | 29.7 |
| Japan | 43.4 | 43.9 | 43.5 |
| Thailand | 30.2 | 13.7 | 19.5 |
| Subject sources | 95.2 | 97.6 | 97.6 |
| Nonsubject sources | 4.8 | 2.4 | 2.4 |
| All import sources | 100.0 | 100.0 | 100.0 |
| | Ratio to U.S. production | | |
| U.S. imports from.-- | | | |
| China | *** | *** | *** |
| India | *** | *** | *** |
| Japan | *** | *** | *** |
| Thailand | *** | *** | *** |
| Subject sources | *** | *** | *** |
| Nonsubject sources | *** | *** | *** |
| All import sources | *** | *** | *** |

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

Source: Compiled from official U.S. import statistics for HTS statistical reporting numbers 2922.49.4020 and 2922.49.4300, accessed April 9, 2018.

Figure IV-1
Glycine: U.S. imports, quantities and unit values, 2015-17



Source: Compiled from official U.S. import statistics for HTS statistical reporting numbers 2922.49.4020 and 2922.49.4300, accessed April 9, 2018.

Nonsubject imports

Table IV-3 presents data for U.S. imports of glycine from nonsubject sources. The quantity of glycine imports from all nonsubject countries decreased by 68.9 percent from 2015 to 2017. The share of total nonsubject glycine imports decreased by 4.1 percentage points from 2015 to 2017, as glycine imports from Taiwan in particular decreased from 218,000 pounds (74.7 percent of all nonsubject imports in 2016) in 2016 to zero in 2017.

Table IV-3
Glycine: U.S. imports, nonsubject sources, 2015-17

| Item | Calendar year | | |
|------------------------|--|------|------|
| | 2015 | 2016 | 2017 |
| | Quantity (1,000 pounds) | | |
| U.S. imports from.-- | | | |
| Belgium | 15 | --- | 3 |
| Canada | 128 | 23 | 37 |
| France | --- | 0 | 27 |
| Germany | 176 | 10 | 34 |
| Ireland | --- | --- | --- |
| Italy | 1 | --- | 1 |
| Malaysia | 340 | 40 | 165 |
| Sweden | 0 | 0 | 0 |
| Taiwan | 198 | 218 | --- |
| United Kingdom | 0 | 0 | --- |
| All nonsubject sources | 859 | 292 | 267 |
| | Share of total U.S. imports (percent) | | |
| U.S. imports from.-- | | | |
| Belgium | 0.1 | --- | 0.0 |
| Canada | 0.9 | 0.2 | 0.3 |
| France | --- | 0.0 | 0.2 |
| Germany | 1.3 | 0.1 | 0.3 |
| Ireland | --- | --- | --- |
| Italy | 0.0 | --- | 0.0 |
| Malaysia | 2.5 | 0.4 | 1.3 |
| Sweden | 0.0 | 0.0 | 0.0 |
| Taiwan | 1.4 | 2.0 | --- |
| United Kingdom | 0.0 | 0.0 | --- |
| All nonsubject sources | 6.2 | 2.6 | 2.1 |

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

Source: Compiled from official U.S. import statistics for HTS statistical reporting numbers 2922.49.4020 and 2922.49.4300, accessed April 9, 2018.

NEGLIGENCE

The statute requires that an investigation be terminated without an injury determination if imports of the subject merchandise are found to be negligible.⁹ Negligible imports are generally defined in the Act, as amended, as imports from a country of merchandise corresponding to a domestic like product where such imports account for less than 3 percent of the volume of all such merchandise imported into the United States in the most recent 12-month period for which data are available that precedes the filing of the

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

petition or the initiation of the investigation. However, if there are imports of such merchandise from a number of countries subject to investigations initiated on the same day that individually account for less than 3 percent of the total volume of the subject merchandise, and if the imports from those countries collectively account for more than 7 percent of the volume of all such merchandise imported into the United States during the applicable 12-month period, then imports from such countries are deemed not to be negligible.¹⁰ In the case of countervailing duty investigations involving developing countries, the negligibility limits are 4 percent and 9 percent rather than 3 percent and 7 percent.¹¹ Although the petitions in these investigations include countervailing duty allegations on three countries (China, India, and Thailand), only India and Thailand have been designated as developing countries by the U.S. Trade Representative.¹²

The quantity of U.S. imports in the twelve month period preceding the filing of the petitions (March 2017 through February 2018) and the share of quantity of total U.S. imports for which each country accounted are presented in table IV-4. Based on official import statistics, U.S. imports from China, India, Japan, and Thailand accounted for 4.7 percent (609,000 pounds), 27.3 percent (3.5 million pounds), 42.3 percent (5.5 million pounds), and 23.6 percent (3.1 million pounds), respectively, of total imports of glycine by quantity during March 2017 through February 2018. Based on official import statistics, U.S. imports from the three combined CVD subject countries (China, India, and Thailand), accounted for 55.6 percent of total imports during March 2017 to February 2018, while U.S. imports from the three combined AD subject countries (India, Japan, and Thailand), accounted for 93.3 percent of total imports during March 2017 to February 2018.¹³

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

¹¹ Section 771 (24) of the Act (19 U.S.C § 1677(24)(B)).

¹² Because the U.S. Trade Representative, pursuant to 15 C.F.R. § 2013, has designated India and Thailand as developing countries and imports from these countries are subject to countervailing duty investigations, India and Thailand are entitled to the higher four percent negligibility threshold. Both China and Japan remain subject to the three percent negligibility threshold. Petitioner's postconference brief, p. 6.

¹³ Based on official import statistics, imports from all four subject countries combined accounted for 98.0 percent of total imports of glycine during March 2017 to February 2018.

Table IV-4**Glycine: U.S. imports in the 12 month period preceding the filing of the petition, March 2017 through February 2018**

| Item | March 2017 through February 2018 | |
|-------------------------|----------------------------------|-----------------------------|
| | Official U.S. import statistics | |
| | Quantity (1,000 pounds) | Share of quantity (percent) |
| U.S. imports from.-- | | |
| China ¹ | 609 | 4.7 |
| India ^{1 2} | 3,538 | 27.3 |
| Japan ² | 5,476 | 42.3 |
| Thailand ^{1 2} | 3,054 | 23.6 |
| Subject sources | 12,676 | 98.0 |
| Nonsubject sources | 261 | 2.0 |
| All import sources | 12,937 | 100.0 |

¹ Subject to countervailing duty investigations.² Subject to antidumping duty investigations.

Source: Compiled from official U.S. import statistics for HTS statistical reporting numbers 2922.49.4020 and 2922.49.4300, accessed April 9, 2018.

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

Table IV-5 and figure IV-2 present data for U.S. producers' and U.S. importers' U.S. shipments by product type for 2017. U.S. shipments by product type data are categorized by technical grade glycine, USP grade glycine, pharmaceutical (not injectable) glycine, pharmaceutical (injectable), other grades or precursors, and all end uses. For U.S. producers and U.S. importers from the subject countries, USP grade glycine was the largest for shipments by type. For U.S. producers and all U.S. importers combined, USP grade glycine accounted for

the largest share (***) percent) of shipments by type in 2017.¹⁴ Technical grade glycine accounted for the second largest share for shipments by type (***) percent) for U.S. producers' and U.S. importers' combined U.S. shipments in 2017. Imports from Japan accounted for *** percent of U.S. producers' and U.S. importers' combined U.S. shipments. The other grades or precursors of glycine ***.

Table IV-5
Glycine: U.S. producers and U.S. importers' U.S. shipments by product type, 2017

* * * * *

Figure IV-2
Glycine: U.S. producers and U.S. importers' U.S. shipments by product type, 2017

* * * * *

Geographical markets

As illustrated in table IV-6, U.S. Customs districts located in the West¹⁵ accounted (by share of quantity) the largest share of the imports of glycine from the subject countries (46.9 percent) during 2017, whereas U.S. Customs districts located in the North¹⁶ and East¹⁷ accounted for smaller shares (39.0 percent and 14.2 percent, respectively). The majority of subject imports from China (71.6 percent), Japan (51.2 percent), and Thailand (95.6 percent) arrive through ports of entry in the West during 2017. In 2017, the majority of subject imports from India (61.7 percent) arrived through ports of entry in the North. Subject imports from

¹⁴ In its postconference brief, the respondents indicated “in the United States, glycine for pharmaceutical use is regulated by the U.S. Pharmacopoeia (“USP”) and the U.S. Food and Drug Administration (“FDA”);” while only one firm (Chattem) produces glycine that has FDA approval for U.S. use. Respondents’ postconference brief, p. 3.

¹⁵ The “West” includes the following Customs entry districts: Columbia-Snake, Oregon; Honolulu, Hawaii; Los Angeles, California; Nogales, Arizona; San Diego, California; San Francisco, California; and Seattle, Washington.

¹⁶ The “North” includes the following Customs entry districts: Chicago, Illinois; Cleveland, Ohio; Detroit, Michigan; Duluth, Minnesota; Great Falls, Montana; Milwaukee, Wisconsin; Minneapolis, Minnesota; and Pembina, North Dakota. The “South” includes the following Customs entry districts: Dallas-Fort Worth, Texas; El Paso, Texas; Houston-Galveston, Texas; Laredo, Texas; Miami, Florida; Mobile, Alabama; New Orleans, Louisiana; and Tampa, Florida.

¹⁷ The “East” includes the following Customs entry districts: Baltimore, Maryland; Boston, Massachusetts; Buffalo, New York; Charleston, South Carolina; Charlotte, North Carolina; New York, New York; Norfolk, Virginia; Ogdensburg, New York; Philadelphia, Pennsylvania; Portland, Maine; San Juan, Puerto Rico; Savannah, Georgia; St. Albans, Vermont; and Washington, District of Columbia.

Japan and India by quantity accounted for nearly all glycine imports that arrived in the North during 2017.

Table IV-6
Glycine: U.S. imports, by border of entry, 2017

| Item | Border of entry | | | | |
|----------------------|--------------------------------|-------|-------|-------|--------|
| | East | North | South | West | Total |
| | Quantity (1,000 pounds) | | | | |
| U.S. imports from.-- | | | | | |
| China | 133 | 28 | 2 | 410 | 572 |
| India | 1,364 | 2,407 | --- | 132 | 3,903 |
| Japan | 155 | 2,434 | --- | 2,715 | 5,305 |
| Thailand | 119 | --- | --- | 2,601 | 2,720 |
| Subject sources | 1,771 | 4,869 | 2 | 5,857 | 12,499 |
| Nonsubject sources | 32 | 37 | 33 | 165 | 267 |
| All import sources | 1,803 | 4,905 | 35 | 6,022 | 12,765 |
| | Share across (percent) | | | | |
| U.S. imports from.-- | | | | | |
| China | 23.2 | 4.8 | 0.3 | 71.6 | 100.0 |
| India | 35.0 | 61.7 | --- | 3.4 | 100.0 |
| Japan | 2.9 | 45.9 | --- | 51.2 | 100.0 |
| Thailand | 4.4 | --- | --- | 95.6 | 100.0 |
| Subject sources | 14.2 | 39.0 | 0.0 | 46.9 | 100.0 |
| Nonsubject sources | 11.9 | 13.7 | 12.4 | 62.0 | 100.0 |
| All import sources | 14.1 | 38.4 | 0.3 | 47.2 | 100.0 |
| | Share down (percent) | | | | |
| U.S. imports from.-- | | | | | |
| China | 7.4 | 0.6 | 4.9 | 6.8 | 4.5 |
| India | 75.6 | 49.1 | --- | 2.2 | 30.6 |
| Japan | 8.6 | 49.6 | --- | 45.1 | 41.6 |
| Thailand | 6.6 | --- | --- | 43.2 | 21.3 |
| Subject sources | 98.2 | 99.3 | 4.9 | 97.3 | 97.9 |
| Nonsubject sources | 1.8 | 0.7 | 95.1 | 2.7 | 2.1 |
| All import sources | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

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

Compiled from official U.S. import statistics for HTS statistical reporting numbers 2922.49.4020 and 2922.49.4300, accessed April 9, 2018.

Presence in the market

Table IV-7 presents monthly U.S. imports from January 2015 to February 2018. U.S. imports from India and Japan entered the U.S. market in each of the 38 months. With respect to China, imports of glycine entered the U.S. market in at least 24 of the 38 months. U.S. imports from Thailand entered the U.S. market in 34 of the 38 months.

Table IV-7
Glycine: Monthly U.S. imports, January 2015 through February 2018

| Year / month | U.S. imports | | | | | | |
|--------------|-------------------------|-------|-------|----------|-----------------|---------------------|-------------|
| | China | India | Japan | Thailand | Subject sources | Non subject sources | All sources |
| | Quantity (1,000 pounds) | | | | | | |
| 2015.-- | | | | | | | |
| January | 7 | 326 | 393 | --- | 726 | 174 | 900 |
| February | --- | 280 | 351 | 265 | 895 | 58 | 953 |
| March | 7 | 437 | 448 | 176 | 1,067 | 161 | 1,228 |
| April | --- | 350 | 519 | 220 | 1,089 | 15 | 1,104 |
| May | --- | 214 | 669 | 220 | 1,103 | 146 | 1,249 |
| June | --- | 254 | 500 | 225 | 978 | 79 | 1,058 |
| July | --- | 93 | 586 | 181 | 860 | 11 | 871 |
| August | 44 | 130 | 679 | 88 | 941 | 115 | 1,056 |
| September | --- | 304 | 340 | --- | 645 | 0 | 645 |
| October | 44 | 233 | 445 | 882 | 1,603 | 56 | 1,659 |
| November | --- | 198 | 650 | 667 | 1,515 | 0 | 1,515 |
| December | 2 | 108 | 432 | 970 | 1,512 | 44 | 1,556 |
| 2016.-- | | | | | | | |
| January | 26 | 553 | 549 | 802 | 1,931 | 0 | 1,931 |
| February | 88 | 279 | 123 | 176 | 667 | 46 | 713 |
| March | 2 | 273 | 641 | --- | 917 | 44 | 961 |
| April | --- | 570 | 348 | 43 | 961 | 90 | 1,051 |
| May | --- | 364 | 301 | 41 | 706 | 92 | 799 |
| June | 1 | 291 | 293 | 47 | 632 | 8 | 640 |
| July | 181 | 276 | 374 | 41 | 871 | 0 | 871 |
| August | 2 | 247 | 481 | 41 | 772 | 8 | 780 |
| September | 72 | 395 | 397 | 41 | 905 | --- | 905 |
| October | --- | 176 | 261 | 41 | 478 | 0 | 479 |
| November | 36 | 468 | 447 | 41 | 993 | 0 | 993 |
| December | 116 | 368 | 414 | 41 | 939 | 4 | 943 |

Table continued on next page.

Table IV-7--Continued
Glycine: Monthly U.S. imports, January 2015 through February 2018

| Year / month | U.S. imports | | | | | | |
|-------------------------|--------------|-------|-------|----------|-----------------|---------------------|-------------|
| | China | India | Japan | Thailand | Subject sources | Non subject sources | All sources |
| Quantity (1,000 pounds) | | | | | | | |
| 2017.-- | | | | | | | |
| January | 88 | 298 | 264 | 124 | 775 | 6 | 781 |
| February | 7 | 313 | 386 | 124 | 831 | 0 | 831 |
| March | 109 | 269 | 421 | 251 | 1,051 | 9 | 1,060 |
| April | 110 | 283 | 503 | 205 | 1,100 | 14 | 1,114 |
| May | 131 | 401 | 521 | 202 | 1,254 | 3 | 1,258 |
| June | 0 | 427 | 521 | 483 | 1,431 | 14 | 1,445 |
| July | 124 | 359 | 394 | 290 | 1,167 | 51 | 1,218 |
| August | 1 | 381 | 567 | 292 | 1,240 | 1 | 1,241 |
| September | 0 | 219 | 265 | 250 | 734 | 0 | 734 |
| October | --- | 249 | 631 | 250 | 1,131 | 72 | 1,203 |
| November | --- | 333 | 243 | --- | 576 | 49 | 625 |
| December | 1 | 371 | 589 | 248 | 1,209 | 48 | 1,256 |
| 2018.-- | | | | | | | |
| January | 53 | 163 | 388 | 249 | 853 | 0 | 853 |
| February | 79 | 84 | 433 | 334 | 930 | 0 | 930 |

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

Compiled from official U.S. import statistics for HTS statistical reporting numbers 2922.49.4020 and 2922.49.4300, accessed April 9, 2018.

APPARENT U.S. CONSUMPTION

Table IV-8 and figure IV-3 present data on apparent U.S. consumption for glycine during 2015-17. Apparent U.S. consumption based on quantity decreased by *** percent from 2015 to 2016, but increased by *** percent from 2016 to 2017. From 2015 to 2017, apparent consumption by quantity of decreased overall by *** percent. U.S. imports based on quantity from subject sources decreased by 16.7 percent from 2015 to 2016, but increased by 16.0 percent from 2016 to 2017. From 2015 to 2017, U.S. imports based on quantity from subject sources decreased by 3.4 percent. Apparent consumption based on value decreased by *** percent from 2015 to 2017.

Table IV-8
Glycine: Apparent U.S. consumption, 2015-17

| Item | Calendar year | | |
|--------------------------------|--------------------------------|--------|--------|
| | 2015 | 2016 | 2017 |
| | Quantity (1,000 pounds) | | |
| U.S. producers' U.S. shipments | *** | *** | *** |
| U.S. imports from.-- | | | |
| China | 104 | 526 | 572 |
| India | 2,926 | 4,260 | 3,903 |
| Japan | 6,011 | 4,629 | 5,305 |
| Thailand | 3,895 | 1,356 | 2,720 |
| Subject sources | 12,936 | 10,771 | 12,499 |
| Nonsubject sources | 859 | 292 | 267 |
| All import sources | 13,795 | 11,063 | 12,765 |
| Apparent U.S. consumption | *** | *** | *** |
| | Value (1,000 dollars) | | |
| U.S. producers' U.S. shipments | *** | *** | *** |
| U.S. imports from.-- | | | |
| China | 177 | 825 | 1,158 |
| India | 6,008 | 8,146 | 6,965 |
| Japan | 12,450 | 9,807 | 10,206 |
| Thailand | 8,672 | 3,060 | 4,589 |
| Subject sources | 27,307 | 21,837 | 22,918 |
| Nonsubject sources | 1,386 | 526 | 563 |
| All import sources | 28,693 | 22,364 | 23,481 |
| Apparent U.S. consumption | *** | *** | *** |

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

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

Figure IV-3
Glycine: Apparent U.S. consumption, 2015-17

* * * * *

U.S. MARKET SHARES

U.S. market share data are presented in table IV-9 and figure IV-4 during 2015-17. These data show that U.S. producers' market share based on quantity increased by *** percentage points from 2015 to 2017. U.S. producer's market share based on value, increased by *** percentage points from 2015 to 2017. The market share based on quantity of imports of glycine from subject countries increased by *** percentage points, while the market share for nonsubject sources decreased by *** percentage points.

Table IV-9
Glycine: U.S. consumption and market shares, 2015-17

* * * * *

Figure IV-4
Glycine: U.S. market shares, 2015-17

* * * * *

APPARENT U.S. CONSUMPTION AND MARKET SHARES, ADJUSTED

U.S. importers' inventory changes in levels for U.S. importers based on quantity are presented in table IV-10 for 2015 through 2017. During 2016 and 2017, beginning of period ("BOP") inventories were *** than end-of-period inventories ("EOP"), but BOP inventories were *** EOP inventories in 2015, reflecting that some quantity of imports in 2015 were not consumed that year but in subsequent periods.

BOP inventories from the subject countries increased by *** percent from 2015 to 2016, but decreased by *** percent from 2016 to 2017. From 2015 to 2017, BOP inventories increased by *** percent. From 2015 to 2017, EOP inventories from the subject countries decreased by *** percent.

Table IV-10
Glycine: U.S. importers' inventory changes in levels, 2015-17

* * * * *

U.S. importers' re-export shipments are presented in tables IV-11 for 2015 through 2017. From 2015 to 2017, U.S. imports from *** accounted for the *** of re-export shipments (*** percent), while subject U.S. imports accounted for *** re-export shipments.

Table IV-11
Glycine: U.S. importers' (re)-export shipments, 2015-17

* * * * *

Table IV-12 presents data on apparent U.S. apparent consumption and market shares based on quantity, adjusted for U.S. importers' inventory changes and re-exports of glycine during 2015-17. Apparent U.S. consumption decreased by *** percent from 2015 to 2016, but increased by *** percent from 2016 to 2017. From 2015 to 2017, apparent consumption of decreased overall by *** percent. U.S. producer's market share based on quantity, increased by *** percentage points from 2015 to 2017. The market share of U.S. imports of glycine from subject countries increased by *** percentage points, while the market share for nonsubject sources decreased by *** percentage points.

Table IV-12

Glycine: Apparent U.S. consumption and market shares adjusted for U.S. importers' inventory changes and re-exports, 2015-17

* * * * *

PART V: PRICING DATA

FACTORS AFFECTING PRICES

Raw material costs

Glycine can be produced by using two different production methods.¹ U.S. producer GEO uses the hydrogen cyanide (“HCN”) process, using the hazardous chemical HCN as its primary feedstock.² U.S. producer Chattem uses the monochloroacetic acid (“MCAA”) process, using monochloroacetic acid and liquid ammonia. Available information indicates that foreign producers use the MCAA process.³

Overall, U.S. producers reported that raw materials accounted for *** percent of the total cost of goods sold in 2017, down from *** percent in 2015. However, the different production methods employ different raw material inputs, and U.S. producers ***.⁴ U.S. producers GEO and Chattem stated that raw material input pricing ***.⁵

There is no list price available in the United States for HCN.⁶ ***.⁷ ***.⁸

Ammonia prices and MCAA prices generally decreased during 2015-16, and increased in early 2017 (figure V-1). Overall, ammonia prices decreased by *** percent and MCAA prices increased slightly by *** percent.

Figure V-1
Raw materials: *, 2015-17**

* * * * *

¹ Petition, p. 14; conference transcript, p. 35 (Hughes). Some end users prefer one process over the other due to differences in impurities. Conference transcript, p. 35 (Hughes).

² The HCN process requires that GEO maintain high operational standards to ensure that all U.S. government environmental, safety, and FDA regulations are satisfied, and its facility faces regular inspections. Conference transcript, pp. 16-17 (Lang).

³ There is no available information indicating if there are foreign producers that use the HCN process.

⁴ U.S. producer GEO reported that *** percent of its inputs was attributable to HCN, *** in 2017. GEO reported *** unit raw material costs during January 2015-December 2017. For additional information, see Part VI.

U.S. producer Chattem reported that *** percent of its raw material inputs was attributable to MCAA, *** percent to ammonia, *** in 2017. Chattem reported *** raw material costs during January 2015-December 2017.

For additional information, see Part VI.

⁵ Petitioners’ postconference brief, Answers to Staff Questions, p. 17.

⁶ Petitioners’ postconference brief, Answers to Staff Questions, p. 19.

⁷ ***.

⁸ IHS Chemical Economics Handbook, Hydrogen Cyanide, October 14, 2016, p. 18.

U.S. inland transportation costs

Both responding U.S. producers and half of responding importers reported that they typically arrange transportation to their customers. U.S. producers reported U.S. inland transportation costs from less than *** percent to *** percent, while 12 importers reported costs of less than *** percent to *** percent.

PRICING PRACTICES

Pricing methods

U.S. producers and importers reported using transaction-by-transaction negotiations, contracts, and price lists. As presented in table V-1, U.S. producers and importers sell primarily through transaction-by-transaction negotiations. About half of responding importers indicated that they also sell through contracts.

Table V-1

Glycine: U.S. producers' and importers' reported price setting methods, by number of responding firms¹

| Method | U.S. producers | U.S. importers |
|----------------------------|----------------|----------------|
| Transaction-by-transaction | *** | 11 |
| Contract | *** | 7 |
| Set price list | *** | 1 |
| Other | *** | 2 |
| Responding firms | 2 | 16 |

¹ 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.

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

*** U.S. producer *** reported selling ***, while U.S. producer *** reported selling ***. Most U.S.-produced glycine (more than *** percent) and imported glycine from subject sources (more than *** percent) are sold ***. Importers reported selling some of their glycine (***) percent) on the spot market (table V-2). Petitioners stated that contracts are generally negotiated during the fourth quarter of the year.⁹

⁹ Conference transcript, p. 54 (Hughes).

Table V-2

Glycine: U.S. producers' and importers' shares of U.S. commercial shipments by type of sale, 2017

* * * * *

U.S. producer *** reported that its contracts generally ***. Most responding U.S. importers reported that their annual and short-term contracts do not allow for price renegotiation and fix both price and quantity. During January 2015-December 2017, ***.¹⁰

Purchasers provided a general description of their firms' method of purchase for glycine. Most purchasers (6 of 7) reported primarily individual purchases on the spot market. Purchaser *** reported that some of its purchases are with ***. Purchaser *** reported that it formally negotiates its prices, and *** reported also purchasing through contracts.

Sales terms and discounts

U.S. producers and importers quote prices on both f.o.b. and delivered bases. U.S. producer *** reported that it quotes prices on *** basis and *** reported that it quotes prices on ***. Nine of 15 importers reported quoting prices on a delivered basis, and eight reported quoting prices on an f.o.b. basis. Importers *** reported quoting prices using both methods.

*** and most importers reported that they have no discount policy. *** and most importers reported sales terms of net 30 days. Some importers (***) reported offering various payment terms. Two importers reported payment within 7 days of the bill of landing, if not earlier.

Price differences between grades

Purchasers were asked to estimate the price ranges they had paid for each of the three grades of glycine (pharmaceutical, USP, and technical). Six purchasers provided estimated price ranges for USP grade glycine that ranged from \$*** per pound up to \$*** dollars per pound.¹¹ Two purchasers provided estimated price ranges for technical-grade glycine that ranged from \$*** per pound.

PRICE DATA

The Commission requested U.S. producers and importers to provide quarterly data for the total quantity and f.o.b. value of the following glycine products shipped to unrelated U.S. customers during January 2015-December 2017.

¹⁰ Petitioners' postconference brief, Answers to Staff Questions, p. 20.

¹¹ Purchaser *** reported that prices for USP grade glycine ranged from \$*** per pound.

Product 1.--Pharmaceutical-grade glycine -- a white, odorless, crystalline powder with a sweet taste, having an assay (glycine content) of 98.5 percent to 101.5 percent (dry basis), and ≤ 7ppm chloride, ≤ 65 ppm sulfate, and ≤1 ppm heavy metals.

Product 2.--USP-grade glycine -- a white, odorless, crystalline powder with a sweet taste, having an assay (glycine content) of 98.5 percent to 101.5 percent (dry basis) and ≤ 70 ppm chloride, ≤ 65 ppm sulfate, ≤ 20 ppm heavy metals, and not otherwise qualifying as pharmaceutical-grade glycine.

Product 3.--Technical-grade glycine -- a white, off-white, or slightly yellow crystalline powder, having an assay (glycine content) of 98.5 percent to 101.5 percent (dry basis), with maximum chlorides of 0.4 percent, and not otherwise qualifying as USP-grade glycine.

Both U.S. producers and 14 (of 18) importers provided usable pricing data for sales of the requested products, although not all firms reported pricing for all products for all quarters.¹² Pricing data reported by these firms accounted for approximately *** percent of U.S. producers' shipments of glycine and *** percent of subject imports from India, *** percent of U.S. shipments of subject imports from Japan, and *** percent of imports from Thailand in 2017.¹³ No pricing data were reported for China for any of the three pricing products. No pricing data were pricing products 1 and 3 imported from India or Thailand. Price data for products 1-3 are presented in tables V-3 to V-5 and figures V-2 to V-4.

Table V-3
Glycine: Weighted-average f.o.b. prices and quantities of domestic and imported product 1¹ and margins of underselling/(overselling), by quarters, January 2015-December 2017

* * * * *

¹² 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.

¹³ Pricing data were reported for virtually all U.S. shipments of U.S.-produced glycine for pharmaceutical, USP, and technical grades in 2017. Pricing data accounted for *** percent of U.S. shipments of Indian USP-grade glycine. Pricing data accounted for *** percent of U.S. shipments of USP-grade glycine from Japan in 2017, and virtually all U.S. shipments of pharmaceutical grade glycine. Pricing data accounted for *** percent of U.S. commercial shipments of USP grade glycine from Thailand in 2017.

Table V-4

Glycine: Weighted-average f.o.b. prices and quantities of domestic and imported product 2¹ and margins of underselling/(overselling), by quarters, January 2015-December 2017

* * * * *

Table V-5

Glycine: Weighted-average f.o.b. prices and quantities of domestic and imported product 3¹ and margins of underselling/(overselling), by quarters, January 2015-December 2017

* * * * *

Figure V-2

Glycine: Weighted-average prices and quantities of domestic and imported product 1, by quarters, January 2015-December 2017

* * * * *

Figure V-3

Glycine: Weighted-average prices and quantities of domestic and imported product 2, by quarters, January 2015-December 2017

* * * * *

Figure V-4

Glycine: Weighted-average prices and quantities of domestic and imported product 3, by quarters, January 2015-December 2017

* * * * *

Price trends

Prices for USP-grade glycine (pricing product 2), which is the largest segment of the market, decreased during January 2015-December 2017. Prices for technical (pricing product 3) and pharmaceutical (pricing product 1) grades exhibited trends that varied by country. Table V-6 summarizes the price trends, by country and by product. As shown in the table, domestic price decreases ranged *** percent to *** percent, but also showed an increase of *** percent for pharmaceutical-grade glycine. Import decreases ranged from *** percent to *** percent and increases ranged from *** percent to *** percent.

Table V-6

Glycine: Summary of weighted-average f.o.b. prices for products 1-3 from the United States and India, Japan, and Thailand

* * * * *

Price comparisons

As shown in tables V-7 and V-8, prices for product imported from subject countries were below those for U.S.-produced glycine in 46 of 53 instances (***) pounds); margins of underselling ranged from *** percent. In the remaining seven instances (***) pounds), prices for glycine from *** were between *** percent above prices for the domestic product. There were no instances of overselling for pricing product 3 during January 2015-December 2017.

Table V-7
Glycine: Instances of underselling/overselling and the range and average of margins, by country, January 2015-December 2017

| Source | Underselling | | | | |
|---------------------|--------------------|-------------------|--------------------------|------------------------|-----|
| | Number of quarters | Quantity (pounds) | Average margin (percent) | Margin range (percent) | |
| | | | | Min | Max |
| China | 0 | 0 | --- | --- | --- |
| India | 12 | *** | *** | *** | *** |
| Japan | 22 | *** | *** | *** | *** |
| Thailand | 12 | *** | *** | *** | *** |
| Total, underselling | 46 | *** | *** | *** | *** |
| Source | (Overselling) | | | | |
| | Number of quarters | Quantity (pounds) | Average margin (percent) | Margin range (percent) | |
| | | | | Min | Max |
| China | 0 | 0 | --- | --- | --- |
| India | 0 | 0 | --- | --- | --- |
| Japan | 7 | *** | *** | *** | *** |
| Thailand | 0 | 0 | --- | --- | --- |
| Total, overselling | 7 | *** | *** | *** | *** |

¹ These data include only quarters in which there is a comparison between the U.S. and subject product.

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

Table V-8
Glycine: Instances of underselling/overselling and the range and average of margins, by pricing product, January 2015-December 2017

| Source | Underselling | | | | |
|---------------------|--------------------|-------------------|--------------------------|------------------------|-----|
| | Number of quarters | Quantity (pounds) | Average margin (percent) | Margin range (percent) | |
| | | | | Min | Max |
| Product 1 | 1 | *** | *** | *** | *** |
| Product 2 | 33 | *** | *** | *** | *** |
| Product 3 | 12 | *** | *** | *** | *** |
| Total, underselling | 46 | *** | *** | *** | *** |
| Source | (Overselling) | | | | |
| | Number of quarters | Quantity (pounds) | Average margin (percent) | Margin range (percent) | |
| | | | | Min | Max |
| Product 1 | 4 | *** | *** | *** | *** |
| Product 2 | 3 | *** | *** | *** | *** |
| Product 3 | 0 | 0 | --- | --- | --- |
| Total, overselling | 7 | *** | *** | *** | *** |

¹ These data include only quarters in which there is a comparison between the U.S. and subject product.

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

LOST SALES AND LOST REVENUE

The Commission requested that U.S. producers of glycine report purchasers where they experienced instances of lost sales or revenue due to competition from imports of glycine from China, India, Japan, and Thailand during January 2015-December 2017. Of the two responding U.S. producers, *** reported that *** had to reduce prices, and *** reported that *** had lost sales. *** submitted lost sales and lost revenue allegations and identified 16 firms where *** lost sales or revenue (8 consisting lost sales allegations and 8 consisting of lost revenue allegations). Twelve allegations were for lost sales and lost revenues for USP grade glycine and four allegations were for technical grade glycine. Most allegations were for lost sales and revenues in 2016 and 2017.

Staff contacted 16 purchasers and received responses from 7 purchasers. Responding purchasers reported purchasing *** pounds of glycine during January 2015-December 2017.

Of the seven responding purchasers, six reported that they had purchased imported glycine from subject countries instead of U.S.-produced product since 2015. No purchaser reported purchasing glycine from China. All six responding purchasers reported that subject import prices were lower than U.S.-produced product, and three of these purchasers reported that price was a primary reason for the decision to purchase imported product rather than U.S.-produced product (table V-9).

Table V-9**Glycine: Purchasers' responses to purchasing subject instead of domestic, by country**

| 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 subject purchased (1,000 pounds) |
|--------------------|---|---|---|---|
| China | --- | --- | --- | --- |
| India | 5 | 5 | 3 | *** |
| Japan | 2 | 2 | --- | *** |
| Thailand | 5 | 5 | 3 | *** |
| Any subject source | 6 | 6 | 3 | *** |

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

Six purchasers reported purchasing subject imports instead of U.S.-produced glycine, and stated that the imports were priced lower than domestic product, and estimated the quantity of glycine from subject countries purchased instead of domestic product; quantities ranged from *** pounds to *** pounds (table V-10).

Purchasers identified several non-price reasons for purchasing imported rather than U.S.-produced product including availability, prior source approval from the customer, and supplier diversification.

Table V-10**Glycine: Purchasers' responses to purchasing patterns**

* * * * *

Of the seven responding purchasers, four reported that U.S. producers had reduced prices in order to compete with lower-priced imports from India and Thailand (tables V-11 and V-12; three reported that they did not know). The reported estimated price reduction ranged from *** percent to compete with glycine from India and from *** percent to compete with glycine imported from Thailand.

Table V-11**Glycine: Purchasers' responses to U.S. producer price reductions, by country**

| Source | Count of purchasers reporting U.S. producers reduced prices | Range of estimated U.S. price reductions (percent) |
|---------------------|---|--|
| China | --- | *** |
| India | 3 | *** |
| Japan | --- | *** |
| Thailand | 2 | *** |
| All subject sources | 4 | *** |

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

In describing the price reductions, purchaser *** reported that prices decreased by *** percent, but that it did not know the impact of import competition on the price reduction, and reported that feedstock cost was a factor in the cost reduction. Purchaser *** reported that it ***, and purchaser *** reported that ***.

Table V-12

Glycine: Purchasers' responses to U.S. producer price reductions, by firm and by country

* * * * *

PART VI: FINANCIAL EXPERIENCE OF U.S. PRODUCERS

BACKGROUND

Two U.S. producers, Chattem and GEO, provided usable financial results on their glycine operations.¹ The responding producers are believed to represent all U.S. production. Both U.S. producers provided their financial data on a GAAP and calendar-year basis.² None of the sales of glycine were either internally consumed or transferred to related companies.

OPERATIONS ON GLYCINE

Income-and-loss data for the U.S. producers' glycine operations are presented in table VI-1, while table VI-2 presents corresponding changes in average unit values. Table VI-3 presents selected company-specific financial data. The U.S. producers collectively reported *** in each requested period; however, the reported gross, operating, and net profitability of the U.S. industry declined from 2015 to 2017.

Table VI-1
Glycine: Results of operations of U.S. producers, 2015-17

* * * * *

Table VI-2
Glycine: Changes in AUVs between calendar years, 2015-17

* * * * *

Table VI-3
Glycine: Results of operations of U.S. producers, by firm, 2015-17

* * * * *

Net sales

Both the quantity and value of the industry's net sales decreased from 2015 to 2017.³ The reported aggregate net sales quantity declined by *** percent during this time, while the aggregate net sales value declined by *** percent. The larger decrease by value reflected the decrease in the industry's average net sales unit value (from \$*** per pound in 2015 to \$***

¹ The data presented in this section of the report reflect the data submitted in the original questionnaire responses and revisions submitted by ***.

² ***.

³ Net sales value increased from 2015 to 2016, and decreased from 2016 to 2017, but decreased overall from 2015 to 2017.

per pound in 2017). ***. *** reported lower net sales, by quantity and value, in 2017 than 2015,⁴ however, ***. ***.⁵

Cost of goods sold and gross profit or (loss)

Raw material costs, direct labor, and other factory costs accounted for an average of ***, ***, and *** percent of total COGS, respectively, for the reporting period. Aggregate COGS declined by *** percent from 2015 to 2017, while net sales value declined by *** percent.⁶ As a result of the larger decline in revenue compared to COGS, and a decrease in the volume of sales, gross profit declined from \$*** in 2015 to \$*** in 2017.

On a per-pound basis, aggregate raw material costs declined, while direct labor costs and other factory costs increased. Table VI-2 shows that the per-pound COGS increased by \$*** from 2015 to 2017 and the unit net sales value declined by \$*** per pound. The combination of lower unit net sales value with an increase in the per-pound COGS, resulted in the decline in gross profit per-pound from 2015 to 2017. As a ratio to net sales, raw material costs decreased irregularly, while direct labor and other factory costs increased from 2015 to 2017.⁷

As mentioned previously, ***. As can be seen in table VI-3, the companies' unit COGS ***.⁸ These ***.⁹ Table VI-4 presents the raw materials used by each company, as well as how these ***. The table shows that in 2017, GEO's raw material cost per pound of glycine was \$***, while Chattem's was \$*** per pound.

Table VI-4
Glycine: Raw materials by type, 2017

* * * * *

***.¹⁰

SG&A expenses and operating income

As seen in table VI-1, the industry's SG&A expenses increased from \$*** in 2015 to \$*** in 2017, and the expense ratio (SG&A expenses as a share of sales) increased from *** percent

⁴ ***.

⁵ More details regarding the difference in price between the three grades of glycine can be seen in part V of this report.

⁶ The decline in aggregate COGS was ***. Email from David Schwartz, of Thompson Hine LLP on behalf of ***, May 3, 2018.

⁷ The ratio of raw materials to net sales decreased from 2015 to 2016 and increased from 2016 to 2017, but remained lower than the 2015 level in 2017. This ratio was at a period low in 2016, which was mainly attributable to the increase in net sales during the same year.

⁸ ***.

⁹ See Part I for more information on the different production processes.

¹⁰ ***.

to *** percent during this period. ***.¹¹ Operating income followed a similar trend as gross profit, but due to the increase in SG&A expenses it decreased by *** percent from 2015 to 2017 compared to the *** percent decrease in gross profit during this time. The operating margin was *** percent in 2015, *** percent in 2016, and *** percent in 2017.¹² ***.

CAPITAL EXPENDITURES AND RESEARCH AND DEVELOPMENT EXPENSES

Table VI-5 presents capital expenditures and research and development (“R&D”) expenses by firm. Aggregate capital expenditure data increased from \$*** in 2015 to \$*** in 2017. *** accounted for the *** of capital expenditures during 2015-17. According to ***, the firm’s capital expenditures in general reflect ***.¹³ *** reported R&D expenses.

Table VI-5
Glycine: Capital expenditures and research and development expenses of U.S. producers, 2015-17

* * * * *

ASSETS AND RETURN ON ASSETS

Table VI-6 presents data on the U.S. producers’ total assets and their return on assets (“ROA”).¹⁴ The total assets utilized in the production, warehousing, and sale of glycine decreased from \$*** in 2015 to \$*** in 2017, while the operating ROA decreased from *** percent in 2015 to *** percent in 2017.

Table VI-6
Glycine: U.S. producers’ total assets and return on assets, 2015-17

* * * * *

CAPITAL AND INVESTMENT

The Commission requested U.S. producers of glycine to describe any actual or potential negative effects of imports of glycine from China, India, Japan, or Thailand on their firms’ growth, investment, ability to raise capital, development and production efforts, or the scale of capital investments. Table VI-7 presents the number of firms reporting an impact in each category and table VI-8 provides the U.S. producers’ narrative responses.

¹¹ Email from ***. The increase in ***. Ibid. ***. Email from ***.

¹² ***.

¹³ U.S. producers’ questionnaire response of ***, question III-13.

¹⁴ The return on assets (“ROA”) is calculated as operating income divided by total assets. With respect to a firm’s overall operations, the total asset value reflects an aggregation of a number of assets which are generally not product specific. Thus, high-level allocations are generally required in order to report a total asset value for the subject product.

Table VI-7
Glycine: Actual and anticipated negative effects of imports on investment, growth, and development, since January 1, 2015

| Item | No | Yes |
|--|----|-----|
| Negative effects on investment | 0 | 2 |
| Cancellation, postponement, or rejection of expansion projects | | *** |
| Denial or rejection of investment proposal | | *** |
| Reduction in the size of capital investments | | *** |
| Return on specific investments negatively impacted | | *** |
| Other | | *** |
| Negative effects on growth and development | 0 | 2 |
| Rejection of bank loans | | *** |
| Lowering of credit rating | | *** |
| Problem related to the issue of stocks or bonds | | *** |
| Ability to service debt | | *** |
| Other | | *** |
| Anticipated negative effects of imports | 0 | 2 |

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

Table VI-8
Glycine: Narratives relating to actual and anticipated negative effects of imports on investment, growth, and development, since January 1, 2015

* * * * *

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 CHINA

The Commission issued foreign producers' or exporters' questionnaires to three firms believed to produce and/or export glycine from China.³ The Commission did not receive any questionnaire response to any of the firms issued questionnaires.

***.⁴ Most glycine producers in China use the MCA process.⁵

Exports

Table VII-1 presents GTA data for the leading export markets for amino acids and esters from China.⁶ In 2017, United States, Netherlands, and Germany respectively were the top three export destination for glycine from China. During 2017, the United States was the top export market for glycine from China, accounting for 16.8 percent, followed by Netherlands, accounting for 12.1 percent, and Germany, accounting for 10.0 percent.

³ These firms were identified through a review of information submitted in the petition and contained in *** records.

⁴ ***.

⁵ *Glycine from China, Inv. No. 731-TA-718 (Fourth Review)*, USITC Publication 4667, February 2017, p. I-5.

⁶ The GTA data listed for the four subject countries address Harmonized System heading 2922.49. This heading includes a large number of products, of which glycine is one.

Table VII-1
Amino-acids and esters: China exports by destination market, 2015-17

| Destination market | Calendar year | | |
|---|--------------------------------|---------|---------|
| | 2015 | 2016 | 2017 |
| | Quantity (1,000 pounds) | | |
| China exports to the United States | 67,299 | 69,967 | 86,604 |
| China exports to other major destination markets.-- | | | |
| Netherlands | 48,545 | 60,089 | 75,103 |
| Germany | 40,087 | 45,390 | 49,351 |
| Japan | 35,804 | 40,357 | 47,949 |
| India | 29,056 | 36,936 | 38,055 |
| Spain | 11,787 | 14,987 | 21,990 |
| Thailand | 15,179 | 16,683 | 18,228 |
| Korea | 15,315 | 16,611 | 18,211 |
| Russia | 11,329 | 12,303 | 16,808 |
| All other destination markets | 126,523 | 144,161 | 165,090 |
| Total China exports | 400,924 | 457,484 | 537,390 |
| | Value (1,000 dollars) | | |
| China exports to the United States | 142,679 | 116,747 | 142,863 |
| China exports to other major destination markets.-- | | | |
| Netherlands | 52,085 | 58,925 | 73,625 |
| Germany | 68,325 | 66,172 | 68,366 |
| Japan | 65,785 | 73,107 | 81,768 |
| India | 60,128 | 63,438 | 79,280 |
| Spain | 23,148 | 21,518 | 32,679 |
| Thailand | 15,685 | 14,256 | 19,077 |
| Korea | 32,823 | 32,343 | 31,839 |
| Russia | 16,733 | 16,443 | 23,024 |
| All other destination markets | 242,478 | 243,587 | 289,019 |
| Total China exports | 719,870 | 706,537 | 841,541 |

Table continued on next page.

Table VII-1--Continued
Amino-acids and esters: China exports by destination market, 2015-17

| Destination market | Calendar year | | |
|---|---------------------------------------|-------|-------|
| | 2015 | 2016 | 2017 |
| | Unit value (dollars per pound) | | |
| China exports to the United States | 2.12 | 1.67 | 1.65 |
| China exports to other major destination markets.-- | | | |
| Netherlands | 1.07 | 0.98 | 0.98 |
| Germany | 1.70 | 1.46 | 1.39 |
| Japan | 1.84 | 1.81 | 1.71 |
| India | 2.07 | 1.72 | 2.08 |
| Spain | 1.96 | 1.44 | 1.49 |
| Thailand | 1.03 | 0.85 | 1.05 |
| Korea | 2.14 | 1.95 | 1.75 |
| Russia | 1.48 | 1.34 | 1.37 |
| All other destination markets | 1.92 | 1.69 | 1.75 |
| Total China exports | 1.80 | 1.54 | 1.57 |
| | Share of quantity (percent) | | |
| China exports to the United States | 16.8 | 15.3 | 16.1 |
| China exports to other major destination markets.-- | | | |
| Netherlands | 12.1 | 13.1 | 14.0 |
| Germany | 10.0 | 9.9 | 9.2 |
| Japan | 8.9 | 8.8 | 8.9 |
| India | 7.2 | 8.1 | 7.1 |
| Spain | 2.9 | 3.3 | 4.1 |
| Thailand | 3.8 | 3.6 | 3.4 |
| Korea | 3.8 | 3.6 | 3.4 |
| Russia | 2.8 | 2.7 | 3.1 |
| All other destination markets | 31.6 | 31.5 | 30.7 |
| Total China exports | 100.0 | 100.0 | 100.0 |

Source: GTIS/GTA database.

Source: Official exports statistics under HTS subheading 2922.49 as reported by Ministry of Commerce database, accessed April 6, 2018.

THE INDUSTRY IN INDIA

The Commission issued foreign producers' or exporters' questionnaires to nine firms believed to produce and/or export glycine from India.⁷ Usable responses to the Commission's questionnaire were received from three firms: Kumar, Mulji Mehta, and Paras. These firms' exports to the United States accounted for approximately *** percent of U.S. imports of glycine from India in 2017. According to estimates requested of the responding India producers, the production of glycine in India reported in questionnaires accounts for approximately *** percent of overall production of glycine in India. Table VII-2 presents information on the glycine operations of the responding producers and exporters in India.

Table VII-2
Glycine: Summary data for producers in India, 2017

* * * * *

Changes in operations

As presented in table VII-3 producers in India reported one operational change since January 1, 2015.

Table VII-3
Glycine: Indian producers' reported changes in operations, since January 1, 2015

* * * * *

Operations on glycine

Table VII-4 presents information on the glycine operations of the responding producers and exporters in India. From 2015 to 2017, reported capacity increased by *** percent, while production decreased by *** percent from 2015 to 2017. Production is projected to continue decreasing in 2018 and slight increase in 2019. Capacity utilization decreased by more than *** percentage points from 2015 to 2017; however, it is projected to return to 2015 level in 2018 and continue to increase 2019. Reported exports to the United States decreased by *** percent between 2015 and 2017; it is projected to decrease in 2018 and 2019.

Table VII-4
Glycine: Data for producers in India, 2015-17 and projection calendar years 2018 and 2019

* * * * *

⁷ These firms were identified through a review of information submitted in the petition and contained in *** records.

Alternative products

As shown in table VII-5, responding India firms produced no other products on the same equipment and machinery used to produce glycine.

Table VII-5
Glycine: Indian producers' overall capacity and production on the same equipment as subject production, 2015-17

* * * * *

Exports

Table VII-6 presents GTA data for the leading export markets for amino acids and esters from India. In 2017, United States, Vietnam, and United Kingdom, respectively were the top three export destination for amino acids and esters from India. In 2017, export to the United States accounted for 45.1 percent, followed by Vietnam, accounting for 6.5 percent, and the United Kingdom, accounting for 6.1 percent.

Table VII-6
Amino-acids and esters: India exports by destination market, 2015-17

| Destination market | Calendar year | | |
|---|--------------------------------|---------|---------|
| | 2015 | 2016 | 2017 |
| | Quantity (1,000 pounds) | | |
| India exports to the United States | 5,475 | 7,123 | 6,409 |
| India exports to other major destination markets.-- | | | |
| Vietnam | 426 | 583 | 926 |
| United Kingdom | 496 | 965 | 861 |
| Germany | 1,788 | 2,552 | 705 |
| Netherlands | 321 | 648 | 442 |
| Canada | 79 | 309 | 431 |
| China | 815 | 1,374 | 344 |
| Korea | 106 | 174 | 262 |
| Bangladesh | 166 | 261 | 259 |
| All other destination markets | 2,481 | 3,847 | 3,577 |
| Total India exports | 12,153 | 17,836 | 14,215 |
| | Value (1,000 dollars) | | |
| India exports to the United States | 39,332 | 53,440 | 48,002 |
| India exports to other major destination markets.-- | | | |
| Vietnam | 739 | 870 | 1,564 |
| United Kingdom | 4,023 | 9,612 | 7,372 |
| Germany | 11,856 | 15,494 | 5,768 |
| Netherlands | 623 | 1,186 | 740 |
| Canada | 1,010 | 5,872 | 10,133 |
| China | 1,521 | 1,753 | 1,224 |
| Korea | 569 | 1,316 | 3,940 |
| Bangladesh | 1,412 | 2,053 | 2,061 |
| All other destination markets | 32,728 | 42,282 | 58,130 |
| Total India exports | 93,814 | 133,878 | 138,933 |

Table continued on next page.

Table VII-6--Continued
Amino-acids and esters: India exports by destination market, 2015-17

| Destination market | Calendar year | | |
|---|---------------------------------------|-------|-------|
| | 2015 | 2016 | 2017 |
| | Unit value (dollars per pound) | | |
| India exports to the United States | 7.18 | 7.50 | 7.49 |
| India exports to other major destination markets.-- | | | |
| Vietnam | 1.74 | 1.49 | 1.69 |
| United Kingdom | 8.12 | 9.96 | 8.56 |
| Germany | 6.63 | 6.07 | 8.18 |
| Netherlands | 1.94 | 1.83 | 1.68 |
| Canada | 12.77 | 19.00 | 23.54 |
| China | 1.87 | 1.28 | 3.56 |
| Korea | 5.36 | 7.57 | 15.04 |
| Bangladesh | 8.53 | 7.85 | 7.95 |
| All other destination markets | 13.19 | 10.99 | 16.25 |
| Total India exports | 7.72 | 7.51 | 9.77 |
| | Share of quantity (percent) | | |
| India exports to the United States | 45.0 | 39.9 | 45.1 |
| India exports to other major destination markets.-- | | | |
| Vietnam | 3.5 | 3.3 | 6.5 |
| United Kingdom | 4.1 | 5.4 | 6.1 |
| Germany | 14.7 | 14.3 | 5.0 |
| Netherlands | 2.6 | 3.6 | 3.1 |
| Canada | 0.7 | 1.7 | 3.0 |
| China | 6.7 | 7.7 | 2.4 |
| Korea | 0.9 | 1.0 | 1.8 |
| Bangladesh | 1.4 | 1.5 | 1.8 |
| All other destination markets | 20.4 | 21.6 | 25.2 |
| Total India exports | 100.0 | 100.0 | 100.0 |

Source: GTIS/GTA database.

Source: Official exports statistics under HTS subheading 2922.49 as reported by Ministry of Commerce database, accessed April 6, 2018.

THE INDUSTRY IN JAPAN

The Commission issued foreign producers' or exporters' questionnaires to eight firms believed to produce and/or export glycine from Japan.⁸ A usable response to the Commission's questionnaire was received from one firm: Yuki Gosei Kogyo Co., Ltd. This firm's exports to the United States accounted for approximately *** percent of U.S. imports of glycine from Japan in 2017. According to estimates requested of the responding Japanese producer, the production of glycine in Japan reported in its questionnaire accounts for approximately *** percent of overall production of glycine in Japan. Table VII-7 presents information on the glycine operations of the responding producers and exporters in Japan.

Table VII-7
Glycine: Summary data for producers in Japan, 2017

* * * * *

Changes in operations

Japanese producers of did not report any operational and organizational changes since January 1, 2015.

Operations on glycine

Table VII-8 presents information on the glycine operations of the responding producers and exporters in Japan. Reported capacity remained constant, while production decreased by *** percent from 2015 to 2017, continue to decreased in 2018 before increasing in 2019. Capacity utilization increased by *** percentage points from 2015 to 2017; it is projected to continue decreasing in 2018 before increasing 2019. Reported exports to the United States decreased by *** percent between 2015 and 2017 and are projected to continue decreasing by *** percent from 2017 to 2018 before increasing by *** in 2019.

Table VII-8
Glycine: Data for producers in Japan, 2015-17 and projection calendar years 2018 and 2019

* * * * *

⁸ These firms were identified through a review of information submitted in the petition and contained in *** records.

Alternative products

As shown in table VII-9, responding Japanese firms produced no other products on the same equipment and machinery used to produce glycine.

Table VII-9
Glycine: Japanese producers' overall capacity and production on the same equipment as subject production, 2015-17

* * * * *

Exports

Table VII-10 presents GTA data for the leading export markets for amino acids and esters from Japan. In 2017, United States, Korea, and United Kingdom, respectively were the top three export destination for amino acids and esters from Japan. During 2017, the United States was the top export market for amino acids and esters from Japan, accounting for 24.9 percent, followed by Korea, accounting for 16.8 percent, and the United Kingdom, accounting for 10.8 percent.

Table VII-10
Amino-acids and esters: Japan exports by destination market, 2015-17

| Destination market | Calendar year | | |
|---|-------------------------|--------|--------|
| | 2015 | 2016 | 2017 |
| | Quantity (1,000 pounds) | | |
| Japan exports to the United States | 7,719 | 6,734 | 6,477 |
| Japan exports to other major destination markets.-- | | | |
| Korea | 4,698 | 4,344 | 4,359 |
| United Kingdom | 3,083 | 2,790 | 2,812 |
| Germany | 2,256 | 2,516 | 2,322 |
| Taiwan | 1,626 | 1,815 | 1,890 |
| Thailand | 559 | 714 | 1,843 |
| Vietnam | 1,474 | 1,490 | 1,041 |
| China | 1,229 | 947 | 868 |
| Netherlands | 666 | 664 | 677 |
| All other destination markets | 4,466 | 3,285 | 3,705 |
| Total Japan exports | 27,775 | 25,299 | 25,996 |

Table continues on next page.

Table VII-10 -- Continued
Amino-acids and esters: Japan exports by destination market, 2015-17

| Destination market | Calendar year | | |
|---|---------------------------------------|---------|--------|
| | 2015 | 2016 | 2017 |
| | Value (1,000 dollars) | | |
| Japan exports to the United States | 27,948 | 27,420 | 23,561 |
| Japan exports to other major destination markets.-- | | | |
| Korea | 11,517 | 11,568 | 9,641 |
| United Kingdom | 4,788 | 4,252 | 4,658 |
| Germany | 19,521 | 20,395 | 19,392 |
| Taiwan | 3,327 | 3,320 | 3,653 |
| Thailand | 2,205 | 2,498 | 3,611 |
| Vietnam | 2,714 | 3,683 | 2,518 |
| China | 7,390 | 11,098 | 6,398 |
| Netherlands | 4,173 | 4,417 | 3,697 |
| All other destination markets | 21,325 | 18,553 | 20,571 |
| Total Japan exports | 104,908 | 107,204 | 97,701 |
| | Unit value (dollars per pound) | | |
| Japan exports to the United States | 3.62 | 4.07 | 3.64 |
| Japan exports to other major destination markets.-- | | | |
| Korea | 2.45 | 2.66 | 2.21 |
| United Kingdom | 1.55 | 1.52 | 1.66 |
| Germany | 8.65 | 8.11 | 8.35 |
| Taiwan | 2.05 | 1.83 | 1.93 |
| Thailand | 3.95 | 3.50 | 1.96 |
| Vietnam | 1.84 | 2.47 | 2.42 |
| China | 6.01 | 11.71 | 7.37 |
| Netherlands | 6.27 | 6.65 | 5.46 |
| All other destination markets | 4.78 | 5.65 | 5.55 |
| Total Japan exports | 3.78 | 4.24 | 3.76 |
| | Share of quantity (percent) | | |
| Japan exports to the United States | 27.8 | 26.6 | 24.9 |
| Japan exports to other major destination markets.-- | | | |
| Korea | 16.9 | 17.2 | 16.8 |
| United Kingdom | 11.1 | 11.0 | 10.8 |
| Germany | 8.1 | 9.9 | 8.9 |
| Taiwan | 5.9 | 7.2 | 7.3 |
| Thailand | 2.0 | 2.8 | 7.1 |
| Vietnam | 5.3 | 5.9 | 4.0 |
| China | 4.4 | 3.7 | 3.3 |
| Netherlands | 2.4 | 2.6 | 2.6 |
| All other destination markets | 16.1 | 13.0 | 14.3 |
| Total Japan exports | 100.0 | 100.0 | 100.0 |

Source: GTIS/GTA database.

Source: Official exports statistics under HS subheading 2922.49 as reported by Japan Ministry of Finance in the database, accessed April 6, 2018.

THE INDUSTRY IN THAILAND

The Commission issued foreign producers' or exporters' questionnaires to one firm believed to produce and/or export glycine from India.⁹ Usable responses to the Commission's questionnaire were received from the one firm: Newtrend Food Ingredient (Thailand) Co. Ltd. This firm's exports to the United States accounted for approximately 100 percent of U.S. imports of glycine from Thailand in 2017. According to estimates requested of the responding Thai producer, the production of glycine in Thailand reported in questionnaires accounts for approximately 100.0 percent of overall production of glycine from Thailand. Table VII-11 presents information on the glycine operations of Newtrend in Thailand.

Table VII-11
Glycine: Summary data for Newtrend in Thailand, 2017

* * * * *

Changes in operations

The Thai producer of did not report any operational and organizational changes since January 1, 2013.

Operations on glycine

Table VII-12 presents information on the glycine operations of Newtrend in Thailand. Reported capacity remained constant, while production decreased by *** percent from 2015 to 2016, then increased by more than *** from 2016 to 2017. Production is projected to increase by *** in 2018 and *** to 2019. Capacity utilization increased by *** percentage points from 2015 to 2017; it projected to increase over *** percentage points in 2018 and 2019. Reported exports to the United States decreased by *** percent between 2015 and 2017; but are project by *** percent in 2018 and maintain the same level in 2019.

Table VII-12
Glycine: Data for Newtrend in Thailand, 2015-17 and projection calendar years 2018 and 2019

* * * * *

Alternative products

As shown in table VII-13, responding Thai firm Newtrend produced no other products on the same equipment and machinery used to produce glycine.

⁹ These firms were identified through a review of information submitted in the petition and contained in *** records.

Table VII-13

Glycine: Thai producers' overall capacity and production on the same equipment as subject production, 2015-17

* * * * *

Exports

Table VII-14 presents GTA data for the leading export markets for amino acids and esters from Thailand. In 2017, United States, Germany, and Netherlands, respectively were the top three export destinations for amino acids and esters from Thailand. During 2017, the United States was the top export market for amino acids and esters from Thailand, accounting for 47.3 percent, followed by Germany, accounting for 34.4 percent, and the Netherlands, accounting for 4.2 percent.

Table VII-14

Amino-acids and esters: Thailand exports by destination market, 2015-17

| Destination market | Calendar year | | |
|--|--------------------------------|-------|-------|
| | 2015 | 2016 | 2017 |
| | Quantity (1,000 pounds) | | |
| Thailand exports to the United States | 4,859 | 503 | 2,765 |
| Thailand exports to other major destination markets.-- | | | |
| Germany | --- | 2,302 | 2,011 |
| Netherlands | --- | 88 | 247 |
| China | 1 | 54 | 212 |
| Russia | --- | --- | 176 |
| United Kingdom | --- | --- | 161 |
| Cambodia | 0 | 4 | 102 |
| Singapore | 2 | 20 | 62 |
| India | 0 | 2 | 38 |
| All other destination markets | 59 | 57 | 69 |
| Total Thailand exports | 4,921 | 3,030 | 5,842 |
| | Value (1,000 dollars) | | |
| Thailand exports to the United States | 10,412 | 968 | 4,477 |
| Thailand exports to other major destination markets.-- | | | |
| Germany | --- | 1,600 | 1,502 |
| Netherlands | --- | 80 | 263 |
| China | 23 | 31 | 1,307 |
| Russia | --- | --- | 233 |
| United Kingdom | --- | --- | 210 |
| Cambodia | 1 | 5 | 293 |
| Singapore | 4 | 26 | 181 |
| India | 1 | 43 | 450 |
| All other destination markets | 195 | 160 | 276 |
| Total Thailand exports | 10,636 | 2,914 | 9,192 |

Table continued on next page.

Table VII-14--Continued
Amino-acids and esters: Thailand exports by destination market, 2015-17

| Destination market | Calendar year | | |
|--|---------------------------------------|-------|-------|
| | 2015 | 2016 | 2017 |
| | Unit value (dollars per pound) | | |
| Thailand exports to the United States | 2.14 | 1.93 | 1.62 |
| Thailand exports to other major destination markets.-- | | | |
| Germany | --- | 0.70 | 0.75 |
| Netherlands | --- | 0.91 | 1.07 |
| China | 40.92 | 0.57 | 6.17 |
| Russia | --- | --- | 1.32 |
| United Kingdom | --- | --- | 1.30 |
| Cambodia | 114.99 | 1.24 | 2.87 |
| Singapore | 1.88 | 1.29 | 2.93 |
| India | 7.83 | 17.74 | 11.97 |
| All other destination markets | 3.30 | 2.83 | 4.00 |
| Total Thailand exports | 2.16 | 0.96 | 1.57 |
| | Share of quantity (percent) | | |
| Thailand exports to the United States | 98.7 | 16.6 | 47.3 |
| Thailand exports to other major destination markets.-- | | | |
| Germany | --- | 76.0 | 34.4 |
| Netherlands | --- | 2.9 | 4.2 |
| China | 0.0 | 1.8 | 3.6 |
| Russia | --- | --- | 3.0 |
| United Kingdom | --- | --- | 2.8 |
| Cambodia | 0.0 | 0.1 | 1.7 |
| Singapore | 0.0 | 0.7 | 1.1 |
| India | 0.0 | 0.1 | 0.6 |
| All other destination markets | 1.2 | 1.9 | 1.2 |
| Total Thailand exports | 100.0 | 100.0 | 100.0 |

Source: GTIS/GTA database.

Source: Official exports statistics under HS subheading 2922.49 as reported by Thai Customs Department database, accessed April 6, 2018.

THE INDUSTRIES IN THE SUBJECT COUNTRIES (COMBINED)

Table VII-15 presents information on glycine operations of the responding producers and exporters in all subject countries combined. The combined capacity in the subject countries increased by *** percent from 2015 to 2017, but it is projected to decrease in 2018 and remain constant in 2019. Combined production decreased by *** percent from 2015 to 2016, increased by *** percent from 2016 to 2017, and is projected to decrease by *** in 2017 and increase by *** in 2018. Combined capacity utilization decreased by *** percentage points from 2015 to 2017, and is expected to increase in 2018 and 2019. Combined exports to the United States decreased by *** percent from 2015 to 2017 and are projected to decrease slightly in 2018 before increasing by *** percent from 2018 to 2019.

Table VII-15

Glycine: Data on all subject industries, 2015-17 and projection calendar years 2018 and 2019

* * * * *

U.S. INVENTORIES OF IMPORTED MERCHANDISE

Table VII-16 presents data on U.S. importers' reported inventories of glycine.

Table VII-16

Glycine: U.S. importers' inventories, 2015-17

* * * * *

U.S. IMPORTERS' OUTSTANDING ORDERS

The Commission requested importers to indicate whether they imported or arranged for the importation of glycine from all subject countries between January 1, 2018 through December 31, 2018.

Table VII-11

Glycine: Arranged imports

* * * * *

ANTIDUMPING OR COUNTERVAILING DUTY ORDERS IN THIRD-COUNTRY MARKETS

There are known no antidumping duty, countervailing duty, or safeguard investigations on glycine in any other country.

INFORMATION ON NONSUBJECT COUNTRIES

During 2015-17, nonsubject sources of U.S. imports of glycine included the following: Cambodia, Malaysia, France, Germany, Italy, Sweden, Canada, Belgium, United Kingdom, and Taiwan.¹⁰ The Tessenderlo Group (Belgium) was identified in 2007 as the only European producer of glycine.¹¹ In 2010, Evonik (Germany) purchased Tessenderlo's glycine assets, stating that it would produce glycine at its plant in China and that Tessenderlo would shut down its glycine production in Belgium.¹² According to information from its website, Evonik appears to still supply glycine and notes that they are backward integrated, therefore producing many of their inputs.¹³ However, despite a review of secondary source information, information is not readily available as to whether Evonik still produces glycine and, if so, where. ***.¹⁴ The European Chemical Agency's (ECHA) Registration Dossier for glycine lists 19 registrants/suppliers in the EU, including Evonik Rexim S.A.S. in France.¹⁵

***. ***. ***.

¹⁰ USITC DataWeb/USDOC (HTS subheadings 2922.49.4020 and 2922.49.4300; accessed April 24, 2018).

¹¹ USITC, *Glycine from India, Japan, and Korea* (Investigation Nos. 731-TA-1111-1113 (Preliminary)), Publication 3921, May 2007.

¹² Evonik, "Evonik Offers Tessenderlo Customers Secure Supply of Glycine," press release, July 14, 2010 (<http://corporate.evonik.com/en/media/search/pages/news-details.aspx?newsid=13460>); Evonik, "Evonik Expands Glycine Capacity," press release, June 20, 2011 (<http://corporate.evonik.com/en/media/search/pages/news-details.aspx?newsid=29523>).

¹³ Evonik, "High Quality Pharmaceutical Ingredients for your Applications: API – Intermediates – Amino Acid as Nutrients – Excipients," September 2016 (http://healthcare.evonik.com/sites/lists/nc/documentshc/evonik_pharma_amino_acid_brochure.pdf).

¹⁴ ***.

¹⁵ ECHA, "Registration Dossier: Glycine," September 1, 2011 (<https://echa.europa.eu/registration-dossier/-/registered-dossier/14889>). The dossier does not indicate if firms are producers or importers.

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 |
|-------------------------------|---|---|
| 83 FR 14291 March 28, 2018 | <i>Glycine From China, India, Japan, and Thailand; Institution of Antidumping and Countervailing Duty Investigations and Scheduling of Preliminary Phase Investigations</i> | https://www.gpo.gov/fdsys/pkg/FR-2018-04-03/pdf/2018-06716.pdf |
| 83 FR 18002 April 25, 2018 | <i>Glycine From India, the People's Republic of China, and Thailand: Initiation of Countervailing Duty Investigations</i> | https://www.gpo.gov/fdsys/pkg/FR-2018-04-25/pdf/2018-08665.pdf |
| 83 FR 17995 April 25, 2018 | <i>Glycine From India, Japan, and Thailand: Initiation of Less-Than-Fair-Value Investigations</i> | https://www.gpo.gov/fdsys/pkg/FR-2018-04-25/pdf/2018-08664.pdf |

APPENDIX B

LIST OF STAFF CONFERENCE WITNESSES

CALENDAR OF PUBLIC PRELIMINARY CONFERENCE

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

Subject: Glycine from China, India, Japan, and Thailand
Inv. Nos.: 701-TA-603-605 and 731-TA-1413-1415 (Preliminary)
Date and Time: April 18, 2018 - 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 (**David Schwartz**, Thompson Hine, LLP)
In Opposition of Imposition (**Johnathan T. Stoel**, Hogan Lovells US, LLP)

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

Thompson Hine LLP
Washington, DC
on behalf of

GEO Specialty Chemicals, Inc. (“GEO”)
Chattem Chemicals, Inc. (“Chattem Chemicals”)

Scot Lang, Senior Vice President, GEO

Dan Hughes, Glycine Business Manager, GEO

Jason Allen, Vice President and General Manager, Chattem Chemicals

Rebecca Woodings, Economic Consultant

David Schwartz)
Mark Lunn)
) – OF COUNSEL
Bill Matthews)
Michelle Li)

**In Opposition to the Imposition of
Antidumping and Countervailing Duty Orders:**

Hogan Lovells US LLP
Washington, DC
on behalf of

Ajinomoto Co. Inc.
Ajinomoto Health and Nutrition North America Inc.

Johnathan T. Stoel)
) – OF COUNSEL
Nicholas R. Sparks)

Harris Bricken McVay, LLP
Seattle, Washington
on behalf of

Newtrend Food Ingredient (Thailand) Co., Ltd.
Newtrend USA Co., Ltd.

Edward Wang, General Manager, Newtrend USA Co., Ltd.

Adams Lee) – OF COUNSEL

REBUTTAL/CLOSING REMARKS:

In Support of Imposition (**Mark Lunn**, Thompson Hine, LLP)
In Opposition of Imposition (**Adams Lee**, Harris Bricken McVay, LLP)

-END-

APPENDIX C
SUMMARY DATA

Table C-1

Glycine: Summary data concerning the U.S. market, 2015-17

(Quantity=1,000 pounds; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per pound; Period changes=percent--exceptions noted)

| | Reported data | | | Period changes | | |
|--------------------------------|---------------|--------|--------|----------------|---------|---------|
| | Calendar year | | | Calendar year | | |
| | 2015 | 2016 | 2017 | 2015-17 | 2015-16 | 2016-17 |
| U.S. consumption quantity: | | | | | | |
| Amount..... | *** | *** | *** | *** | *** | *** |
| Producers' share (fn1)..... | *** | *** | *** | *** | *** | *** |
| Importers' share (fn1): | | | | | | |
| China..... | *** | *** | *** | *** | *** | *** |
| India..... | *** | *** | *** | *** | *** | *** |
| Japan..... | *** | *** | *** | *** | *** | *** |
| Thailand..... | *** | *** | *** | *** | *** | *** |
| Subject sources..... | *** | *** | *** | *** | *** | *** |
| Nonsubject sources..... | *** | *** | *** | *** | *** | *** |
| All import sources..... | *** | *** | *** | *** | *** | *** |
| U.S. consumption value: | | | | | | |
| Amount..... | *** | *** | *** | *** | *** | *** |
| Producers' share (fn1)..... | *** | *** | *** | *** | *** | *** |
| Importers' share (fn1): | | | | | | |
| China..... | *** | *** | *** | *** | *** | *** |
| India..... | *** | *** | *** | *** | *** | *** |
| Japan..... | *** | *** | *** | *** | *** | *** |
| Thailand..... | *** | *** | *** | *** | *** | *** |
| Subject sources..... | *** | *** | *** | *** | *** | *** |
| Nonsubject sources..... | *** | *** | *** | *** | *** | *** |
| All import sources..... | *** | *** | *** | *** | *** | *** |
| U.S. imports from: | | | | | | |
| China: | | | | | | |
| Quantity..... | 104 | 526 | 572 | 451.7 | 407.3 | 8.7 |
| Value..... | 177 | 825 | 1,158 | 554.5 | 366.3 | 40.4 |
| Unit value..... | \$1.71 | \$1.57 | \$2.03 | 18.6 | (8.1) | 29.1 |
| Ending inventory quantity..... | *** | *** | *** | *** | *** | *** |
| India: | | | | | | |
| Quantity..... | 2,926 | 4,260 | 3,903 | 33.4 | 45.6 | (8.4) |
| Value..... | 6,008 | 8,146 | 6,965 | 15.9 | 35.6 | (14.5) |
| Unit value..... | \$2.05 | \$1.91 | \$1.78 | (13.1) | (6.9) | (6.7) |
| Ending inventory quantity..... | *** | *** | *** | *** | *** | *** |
| Japan: | | | | | | |
| Quantity..... | 6,011 | 4,629 | 5,305 | (11.7) | (23.0) | 14.6 |
| Value..... | 12,450 | 9,807 | 10,206 | (18.0) | (21.2) | 4.1 |
| Unit value..... | \$2.07 | \$2.12 | \$1.92 | (7.1) | 2.3 | (9.2) |
| Ending inventory quantity..... | *** | *** | *** | *** | *** | *** |
| Thailand: | | | | | | |
| Quantity..... | 3,895 | 1,356 | 2,720 | (30.2) | (65.2) | 100.5 |
| Value..... | 8,672 | 3,060 | 4,589 | (47.1) | (64.7) | 50.0 |
| Unit value..... | \$2.23 | \$2.26 | \$1.69 | (24.2) | 1.3 | (25.2) |
| Ending inventory quantity..... | *** | *** | *** | *** | *** | *** |
| Subject sources: | | | | | | |
| Quantity..... | 12,936 | 10,771 | 12,499 | (3.4) | (16.7) | 16.0 |
| Value..... | 27,307 | 21,837 | 22,918 | (16.1) | (20.0) | 4.9 |
| Unit value..... | \$2.11 | \$2.03 | \$1.83 | (13.1) | (4.0) | (9.6) |
| Ending inventory quantity..... | *** | *** | *** | *** | *** | *** |
| Nonsubject sources: | | | | | | |
| Quantity..... | 859 | 292 | 267 | (69.0) | (66.0) | (8.6) |
| Value..... | 1,386 | 526 | 563 | (59.4) | (62.0) | 7.0 |
| Unit value..... | \$1.61 | \$1.80 | \$2.11 | 31.0 | 11.8 | 17.1 |
| Ending inventory quantity..... | *** | *** | *** | *** | *** | *** |
| All import sources: | | | | | | |
| Quantity..... | 13,795 | 11,063 | 12,765 | (7.5) | (19.8) | 15.4 |
| Value..... | 28,693 | 22,364 | 23,481 | (18.2) | (22.1) | 5.0 |
| Unit value..... | \$2.08 | \$2.02 | \$1.84 | (11.6) | (2.8) | (9.0) |
| Ending inventory quantity..... | *** | *** | *** | *** | *** | *** |

Table continued on next page.

Table C-1--Continued

Glycine: Summary data concerning the U.S. market, 2015-17

(Quantity=1,000 pounds; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per pound; Period changes=percent--exceptions noted)

| | Reported data | | | Period changes | | |
|---|---------------|------|------|----------------|---------|---------|
| | Calendar year | | | Calendar year | | |
| | 2015 | 2016 | 2017 | 2015-17 | 2015-16 | 2016-17 |
| U.S. producers: | | | | | | |
| Average capacity quantity..... | *** | *** | *** | *** | *** | *** |
| Production quantity..... | *** | *** | *** | *** | *** | *** |
| Capacity utilization (fn1)..... | *** | *** | *** | *** | *** | *** |
| U.S. shipments: | | | | | | |
| Quantity..... | *** | *** | *** | *** | *** | *** |
| Value..... | *** | *** | *** | *** | *** | *** |
| Unit value..... | *** | *** | *** | *** | *** | *** |
| Export shipments: | | | | | | |
| Quantity..... | *** | *** | *** | *** | *** | *** |
| Value..... | *** | *** | *** | *** | *** | *** |
| Unit value..... | *** | *** | *** | *** | *** | *** |
| Ending inventory quantity..... | *** | *** | *** | *** | *** | *** |
| Inventories/total shipments (fn1)..... | *** | *** | *** | *** | *** | *** |
| Production workers..... | *** | *** | *** | *** | *** | *** |
| Hours worked (1,000s)..... | *** | *** | *** | *** | *** | *** |
| Wages paid (\$1,000)..... | *** | *** | *** | *** | *** | *** |
| Hourly wages (dollars per hour)..... | *** | *** | *** | *** | *** | *** |
| Productivity (pounds per hour)..... | *** | *** | *** | *** | *** | *** |
| Unit labor costs..... | *** | *** | *** | *** | *** | *** |
| Net sales: | | | | | | |
| Quantity..... | *** | *** | *** | *** | *** | *** |
| Value..... | *** | *** | *** | *** | *** | *** |
| Unit value..... | *** | *** | *** | *** | *** | *** |
| Cost of goods sold (COGS)..... | *** | *** | *** | *** | *** | *** |
| Gross profit or (loss)..... | *** | *** | *** | *** | *** | *** |
| SG&A expenses..... | *** | *** | *** | *** | *** | *** |
| Operating income or (loss)..... | *** | *** | *** | *** | *** | *** |
| Net income or (loss)..... | *** | *** | *** | *** | *** | *** |
| Capital expenditures..... | *** | *** | *** | *** | *** | *** |
| Unit COGS..... | *** | *** | *** | *** | *** | *** |
| Unit SG&A expenses..... | *** | *** | *** | *** | *** | *** |
| Unit operating income or (loss)..... | *** | *** | *** | *** | *** | *** |
| Unit net income or (loss)..... | *** | *** | *** | *** | *** | *** |
| COGS/sales (fn1)..... | *** | *** | *** | *** | *** | *** |
| Operating income or (loss)/sales (fn1)..... | *** | *** | *** | *** | *** | *** |
| Net income or (loss)/sales (fn1)..... | *** | *** | *** | *** | *** | *** |

Notes.--Data for China is calculated by adding imports from China and Cambodia. Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent.

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

fn2.--Undefined.

Source: Compiled from data submitted in response to Commission questionnaires and compiled from official U.S. import statistics for HTS statistical reporting numbers 2922.49.4020 and 2922.49.4300, accessed April 9, 2018.

APPENDIX D

U.S. PRODUCERS' U.S. SHIPMENTS BY PRODUCT TYPE

Table D-1
Glycine: U.S. producers' U.S. shipments, by product type, 2015-17

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