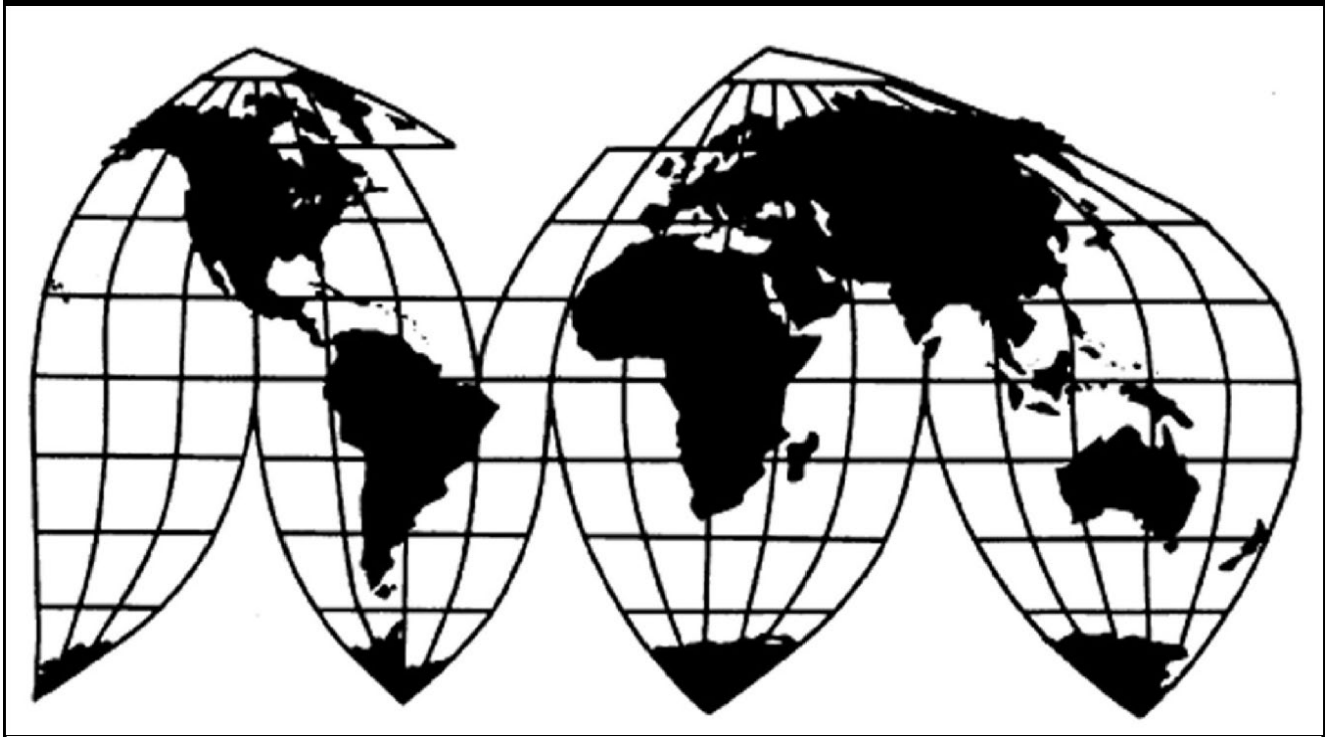
Vanillin from China

Investigation Nos. 701-TA-728 and 731-TA-1697 (Final)

Publication 5646 **July 2025**

U.S. International Trade Commission



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U.S. International Trade Commission

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Note.—Information that would reveal confidential operations of individual firms may not be published.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

UNITED STATES INTERNATIONAL TRADE COMMISSION

Investigation Nos. 701-TA-728 and 731-TA-1697 (Final)

Vanillin from China

DETERMINATIONS

On the basis of the record[1] developed in the subject investigations, the United States International Trade Commission ("Commission") determines, pursuant to the Tariff Act of 1930 ("the Act"), that an industry in the United States is materially injured by reason of imports of vanillin products from China, provided for in subheadings 2912.41.00 and 2912.42.00 of the Harmonized Tariff Schedule of the United States, that have been found by the U.S. Department of Commerce ("Commerce") to be sold in the United States at less than fair value ("LTFV"), and imports of the subject merchandise from China that have been found to be subsidized by the government of China.[2]

BACKGROUND

The Commission instituted these investigations effective June 5, 2024, following receipt of petitions filed with the Commission and Commerce by Solvay USA LLC ("Solvay"), Baton Rouge, Louisiana. The final phase of the investigations was scheduled by the Commission following notification of preliminary determinations by Commerce that imports of vanillin from China were subsidized within the meaning of section 703(b) of the Act (19 U.S.C. 1671b(b)) and sold at LTFV within the meaning of 733(b) of the Act (19 U.S.C. 1673b(b)). Notice of the scheduling of the final phase of the Commission's investigations and of a public hearing to be held in connection therewith was given by posting copies of the notice in the Office of the Secretary, U.S. International Trade Commission, Washington, DC, and by publishing the notice in the *Federal Register* on February 6, 2025 (90 FR 9082). The public hearing in connection with the investigations, originally scheduled for May 29, 2025, was cancelled.[3]

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

[2] 90 FR 24093, 90 FR 24095, June 06, 2025.

[3] 90 FR 23567, June 3, 2025.

Views of the Commission

Based on the record in the final phase of these investigations, we determine that an industry in the United States is materially injured by reason of imports of vanillin products (as defined below) from China found by the U.S. Department of Commerce ("Commerce") to be sold in the United States at less than fair value ("LTFV") and subsidized by the government of China.

I. Background

The petitions in these investigations were filed on June 5, 2024, by Solvay USA LLC ("Petitioner or "Solvay"), a domestic producer of vanillin products.[1] Solvay submitted prehearing and posthearing briefs and final comments.[2] A prehearing brief and final comments were also submitted jointly on behalf of the following U.S. importers of subject merchandise: DSM-Firmenich; Givaudan; Mane USA; Global Essence; IFF; Flavor & Fragrance Specialties (Lucta); and Arylessence.

U.S. industry data are based on the questionnaire response of one firm that accounted for virtually all U.S. production of vanillin products in 2024.[3] U.S. import data are based on official import statistics from Commerce and the questionnaire responses of 23 U.S. importers of vanillin products that accounted for an estimated 94.1 percent of subject imports from China and virtually all imports of vanillin products from nonsubject sources in 2024.[4] U.S. purchaser data are based on the questionnaire responses of 36 firms that responded to the Commission's questionnaire.[5]

[1] Solvay accounted for virtually all domestic production of vanillin products in 2024. Confidential Report, INV-XX-081 (June 17, 2025) ("CR") at 3.1; *Vanillin from China,* Inv. Nos 701-TA-728 and 731-TA-1697 (Final), USITC Pub. 5646 (July 2025) ("PR") at 3.1.

[2] After no respondent parties requested to appear at the scheduled public hearing in connection with these investigations, the Commission granted Petitioner's request to cancel the hearing.

[3] CR/PR at 3.1. Elan Chemical reported producing approximately *** pounds of natural vanillin 2024. *Id.* at 1.3, n.7. In comparison, Solvay's reported production was *** pounds of synthetic vanillin products in 2024. *Id.* at n.1. Elan Chemical did not submit a U.S. Producers' Questionnaire response and only provided limited information about its production of natural vanillin by email. *Id.*at 1.4, n.9.

[4] CR/PR at 4.1.

[5] CR/PR at 2.3. Responding purchasers include 13 distributors, 24 food manufacturers, three flavor/fragrance manufacturers, and one pharmaceutical manufacturer. *Id.*

II. Domestic Like Product

In determining whether an industry in the United States is materially injured or threatened with material injury by reason of imports of subject merchandise, the Commission first defines the "domestic like product" and the "industry."[6] Section 771(4)(A) of the Tariff Act of 1930, as amended ("the Tariff Act"), defines the relevant domestic industry as the "producers as a whole of a domestic like product, or those producers whose collective output of a domestic like product constitutes a major proportion of the total domestic production of the product."[7] In turn, the Tariff Act defines "domestic like product" as "a product which is like, or in the absence of like, most similar in characteristics and uses with, the article subject to an investigation."[8]

By statute, the Commission's "domestic like product" analysis begins with the "article subject to an investigation," *i.e.*, the subject merchandise as determined by Commerce.[9] Therefore, Commerce's determination as to the scope of the imported merchandise that is subsidized and/or sold at less than fair value is "necessarily the starting point of the Commission's like product analysis."[10] The Commission then defines the domestic like product in light of the imported articles Commerce has identified.[11] The decision regarding the appropriate domestic like product(s) in an investigation is a factual determination, and the Commission has applied the statutory standard of "like" or "most similar in characteristics and

[6] 19 U.S.C. § 1677(4)(A).

[7] 19 U.S.C. § 1677(4)(A).

[8] 19 U.S.C. § 1677(10).

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

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

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

uses" on a case-by-case basis.[12] No single factor is dispositive, and the Commission may consider other factors it deems relevant based on the facts of a particular investigation.[13] The Commission looks for clear dividing lines among possible like products and disregards minor variations.[14]

A. Product Description

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

> The merchandise covered by the investigation is vanillin, with the molecular formula $C_8 H_8 O_3$ or $C_9 H_{10} O_3$. For purposes of this investigation, vanillin consists of natural vanillin, synthetic vanillin, bio-sourced synthetic vanillin (biovanillin) (each also known as 4-Hydroxy-3-methoxybenzaldehyde), and ethylvanillin (also known as 3-Ethoxy-4-hydroxybenzaldehyde). Vanillin covered by this investigation is a chemical compound with the Chemical Abstracts Service (CAS) number 121-33-5 or 121-32-4. Vanillin is covered by the investigation regardless of whether it is in a crystalline powder or crystal form. Vanillin is covered by the scope of the investigation, irrespective of purity, particle size, or physical form.[15]

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

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

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

[15] *Vanillin From the People's Republic of China: Final Affirmative Determination of Sales at Less Than Fair Value,* 90 Fed. Reg. 24093 (June 6, 2025).

Methylvanillin (or "vanillin") is the compound that gives vanilla beans their flavor and fragrance, while ethylvanillin is a chemical homologue of vanillin.[16] Because demand for vanillin products far exceeds what could be produced from vanilla beans, most vanillin is synthetic.[17] Methylvanillin and ethylvanillin are used to provide vanilla flavor and fragrance in products including food, beverages, perfumes, vitamins, and laundry detergents. Vanillin products are typically food grade with FSSC-22000 certification or a similar designation.[18]

Solvay produces synthetic vanillin in a multi-step process. First, it reacts phenol with hydrogen peroxide to produce pyrocatechol. Subsequent steps depend on the desired end product. For methylvanillin, Solvay methylates the pyrocatechol to produce guaiacol, which it reacts with glyoxylic acid to produce vanillylmandelic acid, which it subjects to oxidative decarboxylation to produce methylvanillin. For ethylvanillin, it ethylates the pyrocatechol to produce guetol, which it reacts with glyoxylic acid to produce mandelic acid, which it subjects to oxidative decarboxylation to produce ethylvanillin.[19]

B. Arguments of the Parties

Petitioner's Arguments. Petitioner argues that the Commission should define a single domestic like product consisting of natural vanillin, synthetic vanillin, and biovanillin, coextensive with the scope of the investigations.[20]

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[16] CR/PR at 1.9. Vanillin's molecular formula is $C_8H_8O_3$, while ethylvanillin's is $C_9H_{10}O_3$. Ethylvanillin contains the same functional chemical group and characteristics as methylvanillin, but with a flavor and aroma that are two to four times more intense. *Id.* at 1.9, n.23. Vanillin is distinct from vanilla extract, which may include vanillin but is a mixture of multiple compounds, and it is imported under a different HTS subheading. *Id.* at 1.8, n.20.

[17] CR/PR at 1.9. Materials in the record occasionally use "natural vanillin" to refer exclusively to vanillin extracted from vanilla beans, and occasionally to refer collectively to extracted vanillin and biovanillin. For clarity, we use "natural vanillin" to refer exclusively to vanillin extracted from vanilla beans, and "natural vanillin/biovanillin" to refer collectively to both forms of non-synthetic vanillin. As noted above, Elan Chemical indicated that it produced natural vanillin extracted from vanilla beans. *Id.* at 1.11 n.46. Industry representatives participating in these investigations testified that they were unaware of any natural vanillin or biovanillin production in the United States, thereby confirming that the volume of natural vanillin produced by *** during the period of investigation ("POI") was minimal. *See, e.g.,* Conf. Tr. at 26 (Kraemer, Pickard).

[18] CR/PR at 1.9. FSSC is a certification "…to ensure the provision of safe food, feed, and packaging to the consumer goods industry." *Id.* at 1.9 n.25.

[19] CR/PR at 1.10.

[20] Petitioner's Prehearing Br. at 3.

Respondents' Arguments. Respondents argue that synthetic and natural vanillin should be considered separate domestic like products.[21] They do not assert that there are differences in physical characteristics and uses or channels of distribution. However, they argue that natural and synthetic vanillin have significantly different production processes, and that Petitioner is only able to produce synthetic vanillin products.[22] Respondents argue further that producer and customer perceptions are different, with increased demand for "clean label" ingredients driving increased consumption of natural vanillin. On interchangeability, they argue that U.S. Food and Drug Administration ("FDA") labeling regulations preclude the use of synthetic vanillin in products labeled as "natural," and that some importers and purchasers cited purity and taste/aroma profiles differentiating natural and synthetic vanillin.[23] Finally, Respondents contend that the average unit values ("AUVs") of imported methylvanillin, ethylvanillin, and natural vanillin indicate that natural vanillin is sold at a significant price premium.[24]

C. Analysis

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

In its preliminary determinations, the Commission found that methylvanillin and ethylvanillin are part of a single domestic like product. The record indicated that they share common physical characteristics and are capable of imparting vanilla fragrance or flavor; are produced in the same manufacturing facility, with the same equipment, process, and production workers; and that both methylvanillin and ethylvanillin are sold through the same channels of distribution, can often be used in the same end-use applications, and can be used interchangeably.[25] The record of these final phase investigations does not contain any new information concerning methylvanillin and ethylvanillin that would warrant revisiting whether they constitute part of a single domestic like product, and no party has argued otherwise.[26]

We next consider whether natural vanillin is part of the same domestic like product as synthetically produced methylvanillin and ethylvanillin. As an initial point, we note that the

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[21] Respondents' Prehearing Br. at 1. Respondents define "natural vanillin" as vanillin products that use natural precursors, including vanillin extracted from vanilla beans and biovanillin. *Id.*

[22] Respondents' Prehearing Br. at 2-3.

[23] Respondents' Prehearing Br. at 3-4.

[24] Respondents' Prehearing Br. at 4.

[25] *Vanillin from China,* Inv. Nos. 701-TA-728 and 731-TA-1697 (Preliminary), USITC Pub. 5527 (July 2024) at 8-11.

[26] *See generally* CR/PR at 1.8-12 and Table E.1.

scope covers "natural vanillin," which we understand to refer to vanillin produced using vanilla beans. The record indicates that a small quantity of natural vanillin was produced in the United States.[27] [28]

Physical Characteristics and Uses. Natural vanillin and synthetic methylvanillin are imbued with their vanilla flavor and fragrance by the same molecule, $C_8H_8O_3$.[29] All vanillin products, whether natural or synthetic, are sold in crystalline form.[30] In addition, all vanillin products are ultimately used for the same purpose of imparting vanilla flavor or aroma, and all are food grade and food safe, with similar purity levels due to food safety certification and additional customer requirements.[31]

Manufacturing Facilities, Production Processes, and Employees. The limited information available indicates that the process for producing natural vanillin in the United States differs from the production of synthetic methylvanillin and ethylvanillin. Natural vanillin derived from vanilla beans is produced through an extraction process, using ethyl alcohol.[32] As the inputs and process differ, the manufacturing facilities, equipment, and employees for the production processes are presumably different.[33]

Channels of Distribution. The record does not indicate the channels through which domestically produced natural vanillin is sold. However, it indicates that domestically produced synthetic vanillin products and imports of natural vanillin are generally sold in the same channels of distribution, although a greater share of natural vanillin/biovanillin is sold to food

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[27] CR/PR at 1.11, 3.1, n.1; Petitioner's Final Comments at 3; Respondents' Prehearing Br. at 1.

[28] Petitioner contends that the domestic industry has the equipment in place and the technical expertise to produce natural vanillin in the United States but that it was unprofitable to begin production during the POI due to competition with subject imports. Petitioner's Posthearing Br. at Exh. 1, p.5.

[29] CR/PR at 1.9. Ethylvanillin – $C_9H_{10}O_3$ – is a synthetic chemical homologue of vanillin, containing the same functional chemical groups and characteristics, albeit with a different molecular structure. *Id.* at 1.3, 1.9.

Although Solvay reported that the physical characteristics and uses of synthetic vanillin are "mostly comparable" to natural and biosynthetic vanillin, a plurality of purchasers reported that they are "somewhat comparable," and a plurality of importers reported that they are "never comparable." *Id.* at Table D.1.

[30] CR/PR at 1.10, Table D.4.

[31] CR/PR at 1.8-10; Conf. Tr. at 5-6 (Kraemer). Several responding importers and purchasers noted differences in flavor or purity profiles. CR/PR at Tables D.4 and D.5.

[32] CR/PR at 1.11; *See also* DeCarlo, Samantha, "Alright Stop, Collaborate and Listen: Vanillin, Not Vanilla," USITC, February 2022 at 7. https://www.usitc.gov/publications/332/alright_stop_collaborate_and_listen_vanillin_not.htm.

[33] CR/PR at 1.11, n. 43. Elan Chemical did not provide information about its manufacturing facility, equipment, employees, or any other information concerning its production of natural vanillin.

end users.[34] Solvay sold a majority of its synthetic vanillin products to fragrance end users, with the remainder split among distributors and food end users.[35] Most imported natural/biovanillin was sold to food end users, with *** percent of subject imported natural vanillin/biovanillin and *** percent of nonsubject imported natural/biovanillin shipped to food end users in 2024.[36]

Interchangeability. In general, responding purchasers and importers indicated that natural vanillin/biovanillin may be substituted for synthetic vanillin, but that the reverse is not true in all situations.[37] Seventeen of 24 purchasers described synthetic methylvanillin as at least somewhat interchangeable with natural vanillin/biovanillin and 17 of 29 purchasers described all synthetic vanillin as at least somewhat interchangeable with natural vanillin/biovanillin.[38] Purchasers reported that FDA regulations prevent substituting synthetic vanillin when natural vanillin is required to meet labeling rules.[39] Where such substitution is theoretically possible, the price premium for natural vanillin effectively eliminates it in practice.[40]

Producer and Customer Perceptions. Evidence in the record indicates that some customers perceive distinctions between natural and synthetic vanillin products, notably having favorable associations with products labeled as "natural."[41] Respondents submitted an industry report stating that North American consumers are increasingly seeking products that meet "clean labeling" requirements that only natural vanillin can fill.[42] Similarly, a representative for Solvay testified that the possibility of labeling downstream products as

[34] CR/PR at Table E.1, E.2, E.3.

[35] CR/PR at Table 2.2. In 2024, *** percent of domestically produced synthetic vanillin products were sold to fragrance end users, *** percent were sold to distributors, and *** percent were sold to food end users. *Id.*

[36] In 2024, *** percent of subject natural vanillin/biovanillin was sold to fragrance end users, and *** percent to distributors. For nonsubject imports of natural vanillin/biovanillin, *** percent was sold to distributors and *** percent to fragrance end users that year. *Derived from* CR/PR at Tables E.2 and E.3.

[37] *See* CR/PR at Tables D.4 and D.5. Synthetic vanillin cannot be used in downstream products requiring natural vanillin/biovanillin. *Id*.

[38] CR/PR at Tables D.1 and D.2.

[39] *See* CR/PR at Table D.5.

[40] *See* CR/PR at Table D.5. Given that the volume of imported natural vanillin together with biovanillin vastly exceeds the volume of domestically produced natural vanillin, we consider that questionnaire respondents most likely based their evaluations on a comparison of imported natural vanillin/biovanillin with domestic and imported synthetic vanillin. However, these data remain the best information available on the interchangeability of natural and synthetic vanillin.

[41] *See* CR/PR at Table D.5.

[42] Respondents' Prehearing Br. at Exh. 1.

"natural" is the principal differentiator between natural vanillin and synthetic vanillin, and is a significant driver of demand for natural vanillin products.[43]

Price. The record does not contain pricing data for domestically produced natural vanillin. However, the U.S. sales prices for natural vanillin/biovanillin imported from China were much higher than for synthetic vanillin products imported from China.[44] In addition, three responding purchasers indicated that natural vanillin may be higher priced than synthetic vanillin,[45] and representatives of Solvay testified to their understanding that the production of natural vanillin is more costly.[46]

Conclusion. Similarities in physical characteristics and uses as between synthetic vanillin products and natural vanillin strongly favors finding a single like product, as both synthetic vanillin products and natural vanillin impart a vanilla flavor and fragrance and consist of molecules that are either identical or homologous, irrespective of production method. Further, although there is some differentiation of relative concentration across channels of distribution, the distribution channels for synthetic vanillin products and natural vanillin generally overlap, with both synthetic and natural product commonly sold to fragrance end users and to food end users. On the other hand, the production processes and facilities for natural vanillin– extraction using alcohol – appear to be different from those for synthetic vanillin.[47] The record also indicates differentiations with price, with synthetic vanillin as the less expensive of the two product types, and perception, with some customers favoring products labeled as "natural." The evidence on interchangeability is mixed.

In our view, the fundamental similarity between synthetic and natural vanillin products with respect to their physical characteristics and uses, as well as overlap in distribution channels into the U.S. market and other similarities, outweigh the apparent differences in other factors. Accordingly, we define a single domestic like product consisting of all vanillin products, coextensive with the scope of the investigations.[48]

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[43] Conf. Tr. at 39, 45 (Kraemer).

[44] *See* CR/PR at 5.13 and Figure 5.5. In every quarter, prices for imported product 3 (natural methylvanillin) were at least *** prices for imported products 1 and 2 (synthetic methylvanillin and ethylvanillin), and sometimes as much as *** as high. *Compare* CR/PR at Tables 5.6 and 6.7 *with* Table 5.8.

[45] *See* CR/PR at Table D.5.

[46] Conf. Tr. at 39 (Kraemer).

[47] CR/PR at 1.10-11.

[48] There was no domestic production of biovanillin during the POI, which is also included in the scope of these investigations. When an article covered by the scope is not produced domestically, the Commission must include the "most similar" article that is domestically produced. *See* 19 U.S.C. § 1677(10) (defining "domestic like product" as a product which is like, or in the absence of like, most (Continued...)

III. Domestic Industry

The domestic industry is defined as the domestic "producers as a whole of a domestic like product, or those producers whose collective output of a domestic like product constitutes a major proportion of the total domestic production of the product."[49] 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.

A. Related Parties

We must determine whether any producer of the domestic like product should be excluded from the domestic industry pursuant to section 771(4)(B) of the Tariff Act. This provision allows the Commission, if appropriate circumstances exist, to exclude from the domestic industry producers that are related to an exporter or importer of subject merchandise or which are themselves importers.[50] Exclusion of such a producer is within the Commission's discretion based upon the facts presented in each investigation.[51]

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similar in characteristics and uses with, the article subject to an investigation."); *Crystalline Silicon Photovoltaic Cells and Modules from China*, Inv. Nos. 701-TA-481 and 731-TA-1190 (Preliminary), USITC Pub. 4295 at 11 & n.57 (Dec. 2011) (citing prior Commission determinations). We find that the domestically produced product most similar to biovanillin is the single domestic like product defined in these investigations.

[49] 19 U.S.C. § 1677(4)(A).

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

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

(1) the percentage of domestic production attributable to the importing producer;

(2) the reason the U.S. producer has decided to import the product subject to investigation (whether the firm benefits from the LTFV sales or subsidies or whether the firm must import in order to enable it to continue production and compete in the U.S. market);

(3) whether inclusion or exclusion of the related party will skew the data for the rest of the industry;

(4) the ratio of import shipments to U.S. production for the imported product; and

(5) whether the primary interest of the importing producer lies in domestic production or importation. *Changzhou Trina Solar Energy Co. v. USITC*, 100 F. Supp.3d 1314, 1326-31 (Ct. Int'l. Trade 2015), *aff'd*, 879 F.3d 1377 (Fed. Cir. 2018); *see also Torrington Co. v. United States*, 790 F. Supp. at 1168.

Party Arguments. Petitioner argues that the Commission should define a single domestic industry consisting of Solvay.[52] Respondents did not address the issue.

Analysis. The record indicates that Solvay is potentially subject to exclusion from the domestic industry under the related party provision because it imported subject merchandise during the January 2022 — December 2024 POI and is related to a foreign producer of the subject merchandise.[53] Solvay is the sole petitioner and accounted for virtually all U.S. production.[54] Solvay imported subject merchandise from China in ***.[55] The ratio of its subject imports to domestic production was *** percent in *** and *** percent in ***.[56] Solvay reported that it ***.[57] Given the low ratio of Solvay's subject imports to production, and its position as by far the largest U.S. producer and sole petitioner in these investigations, Solvay's primary interest appears to be in domestic production. There is also no indication in the record that its domestic production operations benefitted from, or was shielded from competition with, subject imports to such an extent that its inclusion in the domestic industry would skew industry data. For these reasons, we find that appropriate circumstances do not exist to exclude Solvay from the domestic industry.

Therefore, consistent with our definition of the domestic like product, we define the domestic industry as all domestic producers of vanillin products.

IV. Material Injury by Reason of Subject Imports

Based on the record in the final phase of these investigations, we find that an industry in the United States is materially injured by reason of imports of vanillin products from China that Commerce has found to be sold in the United States at LTFV and subsidized by the government of China.

A. Legal Standards

In the final phase of antidumping and countervailing duty investigations, the Commission determines whether an industry in the United States is materially injured or

[52] Petitioner's Prehearing Br. at 8.

[53] CR/PR at 3.2, 3.14. Solvay is ***. *Id.* at 3.2. *See* 19 U.S.C. § 1677(4)(B)(ii).

[54] CR/PR at Table 3.1.

[55] CR/PR at Table 3.13. Solvay *** pounds of subject merchandise in 2022 and *** pounds in 2024. *Id.*

[56] CR/PR at Table 3.13.

[57] CR/PR at Table 3.14.

threatened with material injury by reason of the imports under investigation.[58] In making this determination, the Commission must consider the volume of subject imports, their effect on prices for the domestic like product, and their impact on domestic producers of the domestic like product, but only in the context of U.S. production operations.[59] The statute defines "material injury" as "harm which is not inconsequential, immaterial, or unimportant."[60] In assessing whether the domestic industry is materially injured by reason of subject imports, we consider all relevant economic factors that bear on the state of the industry in the United States.[61] 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."[62]

Although the statute requires the Commission to determine whether the domestic industry is "materially injured or threatened with material injury by reason of" unfairly traded imports,[63] 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.[64] 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.[65]

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[58] 19 U.S.C. §§ 1671d(b), 1673d(b).

[59] 19 U.S.C. § 1677(7)(B). The Commission "may consider such other economic factors as are relevant to the determination" but shall "identify each {such} factor ... and explain in full its relevance to the determination." 19 U.S.C. § 1677(7)(B).

[60] 19 U.S.C. § 1677(7)(A).

[61] 19 U.S.C. § 1677(7)(C)(iii).

[62] 19 U.S.C. § 1677(7)(C)(iii).

[63] 19 U.S.C. §§ 1671d(b), 1673d(b).

[64] *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).

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

(Continued...)

In many investigations, there are other economic factors at work, some or all of which may also be having adverse effects on the domestic industry. Such economic factors might include nonsubject imports; changes in technology, demand, or consumer tastes; competition among domestic producers; or management decisions by domestic producers. The legislative history explains that the Commission must examine factors other than subject imports to ensure that it is not attributing injury from other factors to the subject imports, thereby inflating an otherwise tangential cause of injury into one that satisfies the statutory material injury threshold.[66] In performing its examination, however, the Commission need not isolate the injury caused by other factors from injury caused by unfairly traded imports.[67] 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.[68] It is

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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).

[66] Statement of Administrative Action (SAA) to the Uruguay Round Agreements Act 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.

[67] 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.").

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

clear that the existence of injury caused by other factors does not compel a negative determination.[69]

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."[70] The Commission ensures that it has "evidence in the record" to "show that the harm occurred 'by reason of' the LTFV imports," and that it is "not attributing injury from other sources to the subject imports." [71] The Federal Circuit has examined and affirmed various Commission methodologies and has disavowed "rigid adherence to a specific formula."[72]

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

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

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

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

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

[72] *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.").

[73] We provide in our discussion 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.").

1. Demand Conditions

Demand for vanillin products in the United States is driven by demand for downstream products incorporating vanillin, namely foods, flavorings, and fragrances.[75] Demand for the downstream products is determined by personal consumption, which generally tracks non-durable goods personal consumption expenditures.[76] The seasonally adjusted personal consumption expenditure generally declined in 2022, but increased in six of the eight quarters from 2023 through 2024.[77] The responding U.S. producer reported that demand had *** during the POI, and more responding importers and purchasers reported that demand had steadily increased or fluctuated upward than reported that it fluctuated downward or steadily decreased.[78]

Apparent U.S. consumption of vanillin products decreased from *** pounds in 2022 to *** pounds in 2023 before increasing to *** pounds in 2024, an overall increase of *** percent.[79]

2. Supply Conditions

The domestic industry was the second or third largest source of supply in the U.S. market during the POI, depending on the year. Its share of apparent U.S. consumption increased from *** percent in 2022 to *** percent in 2023 before declining to *** percent in 2024, an overall decline of *** percentage points.[80]

Solvay reported that it *** supply constraints during the POI.[81] On the other hand, 10 of 35 purchasers reported that a domestic producer had refused, declined, or been unable to supply their firm with vanillin products.[82] Purchasers primarily reported that these supply issues occurred in 2022.[83] The domestic industry's practical production capacity remained steady at *** pounds from 2022 to 2024, and its practical capacity utilization rate decreased

[75] CR/PR at 2.12. Respondents submitted an industry report indicating that the food and beverage industry is the largest consumer of vanillin products, accounting for 75.2 percent of consumption. Respondents' Prehearing Br. at Exh. 1; CR/PR at 2.10.

[76] CR/PR at 2.12.

[77] CR/PR at 2.12 and Table 2.7.

[78] CR/PR at Table 2.6.

[79] CR/PR at Tables 4.10, C.1.

[80] CR/PR at Tables 4.10, C.1.

[81] CR/PR at 2.8

[82] CR/PR at 2.9; *see* Purchasers' Questionnaire at III-15.

[83] CR/PR at 2.9. Eight of 35 responding purchasers reported experiencing constraints on domestic supply in 2022, compared with one of 33 responding purchasers in 2023 and three of 33 responding purchasers in 2024 prior to the filing of the petitions. *Id*. at Table 2.5.

from *** percent in 2022 to *** percent in 2023 before increasing to *** percent in 2024, still below its level in 2022.[84] Solvay devoted between *** percent of its U.S. production to export shipments during the POI.[85] Most of its export sales were to related firms in France and Singapore.[86]

Subject imports were the largest source of supply to the U.S. market throughout the POI. Subject imports' share of apparent U.S. consumption increased by *** percentage points over POI, from *** percent in 2022 to *** percent in 2023 and *** percent in 2024.[87] Purchasers also reported experiencing constraints on the supply of imports.[88]

Nonsubject imports alternated with domestic supply as the second or third largest supply source for the U.S. market. Nonsubject imports' share of apparent U.S. consumption declined from *** percent in 2022 to *** percent in 2023 before increasing to *** percent in 2024, an overall decline of *** percentage points.[89] The largest sources of nonsubject imports were France, Canada, Germany, the Netherlands, and Sweden.[90]

3. Substitutability and Other Conditions

We find that there is generally a high degree of substitutability between domestically produced vanillin products and subject imports, although in circumstances where purchasers seek to use "natural" labeling, synthetic vanillin may not be substituted for natural vanillin.[91] As noted previously, all vanillin products, regardless of source, are food grade and food safe, with similar purity levels due to food safety certification or other customer requirements.[92] The *** and a majority of responding importers (13 of 14) and purchasers (25 of 31) reported that domestically produced vanillin products are always or frequently interchangeable with subject imports.[93] When asked to compare subject imports with domestically produced vanillin products with respect to 20 purchasing factors, a majority of responding purchasers reported that U.S.-produced vanillin products were comparable to subject imports for every factor

[84] CR/PR at Table 3.5.

[85] CR/PR at Table 3.7.

[86] CR/PR at 6.1 n.4. Solvay's export transfer shipments accounted for between *** and *** percent of its exports during the POI. CR/PR at Table 3.8.

[87] CR/PR at Tables 4.10, C.1.

[88] CR/PR at 2.9 and Table 2.5. Five of 35 responding purchasers experienced constraints with subject imports in 2022, one of 33 in 2023, and one of 33 in 2024 prior to the filing of the petitions.

[89] CR/PR at Tables 4.10, C.1.

[90] CR/PR at 2.8.

[91] *See* CR/PR at 2.14.

[92] CR/PR at 1.9-10.

[93] CR/PR at Table 2.14.

except price.[94] Nearly all responding purchasers reported that the quality of U.S.-produced vanillin products and subject imports always or usually met minimum quality standards.[95] In addition, the responding U.S. producer and a majority of responding importers (eight of 15) and purchasers (20 of 29) reported that differences other than price were only sometimes or never significant when deciding whether to purchase domestically produced vanillin products or subject imports.[96]

As referenced above, synthetic vanillin may not be used in downstream products labeled "natural".[97] Reflecting a divide among the purchasers based on whether their products will be labeled "natural," 25 purchasers reported that the availability of synthetic methylvanillin was a "very important" purchasing factor, while seven reported that its availability was "not important" as a factor.[98] Similarly, 18 purchasers reported that the availability of natural vanillin was a "very important" purchasing factor, while ten reported that its availability was "not important" as a factor.[99] Synthetic vanillin products, however, comprise the large majority of the U.S. market,[100] thereby limiting the practical significance of the natural labeling distinction for our overall finding on the degree of substitutability between subject imports and the domestic like product.

The record also indicates that price is an important factor in purchasing decisions for vanillin products. Responding purchasers ranked price among their top three purchasing factors more frequently than any other factor, and most frequently ranked quality as their most important purchasing factor, followed by price.[101] Twenty-eight responding purchasers rated price as a very important purchasing factor, eight rated it as somewhat important, and none rated it as not important.[102]

In 2024, Solvay primarily sold its vanillin products to fragrance end users (*** percent), followed by distributors (*** percent) and food end users (*** percent). Importers sold subject merchandise through the same three channels, as well as to other end users, with *** percent

[94] CR/PR at 2.20, Table 2.13.

[95] CR/PR at Table 2.11.

[96] CR/PR at Table 2.15.

[97] *See* CR/PR at 2.14 and Tables D.4 and D.5.

[98] CR/PR at Table 2.10.

[99] CR/PR at 2.16, Table 2.10.

[100] U.S. shipments of synthetic vanillin products accounted for *** percent of apparent U.S. consumption in 2022, *** percent in 2023, and *** percent in 2024. *Calculated from* CR/PR at Tables 3.9, 4.7, 4.8, and 4.10.

[101] CR/PR at Table 2.9.

[102] CR/PR at Table 2.10. Purchasers rated several other factors as very important more frequently than price, including quality, reliability of supply, product consistency, delivery time, availability of ethylvanillin, and flavor. *Id.*

of their shipments to food end users, *** percent to fragrance end users, *** percent to distributors, and *** percent to other end users.[103]

Vanillin products, regardless of source, are primarily sold from inventory held in the United States. Solvay reported lead times averaging *** days. Most importers reported lead times between two days and two weeks. For the 12.2 percent of importers' sales from foreign inventories, lead times were between 50 and 90 days.[104]

Solvay made *** of its U.S. sales pursuant to contracts in 2024. It sold *** percent of its vanillin products pursuant to long-term contracts, *** percent pursuant to annual contracts, *** percent pursuant to short-term contracts, and the remaining *** percent in the spot market.[105] Importers, in contrast, sold 45.4 percent of their subject merchandise in the spot market, 47.6 percent pursuant to annual contracts, and 7.0 percent pursuant to short-term contracts. Importers did not report making sales pursuant to long-term contracts.[106]

Raw materials represented the largest component of the domestic industry's cost of goods sold ("COGS") for vanillin products during the POI.[107] The primary raw materials used to produce synthetic methylvanillin and ethylvanillin, by value, are glyoxylic acid, followed by caustic soda, phenol, and other material inputs.[108] Solvay reported that raw material prices *** over the POI, while nine 14 responding importers reported that raw material prices steadily declined or fluctuated downward.[109] The record indicates that domestic prices for caustic soda and phenol generally declined during the POI, and were 11.8 percent and 11.5 percent lower, respectively, in December 2024 than in January 2022.[110] As a share of the domestic industry's total COGS, raw materials declined from *** percent in 2022, to *** percent in 2023, and *** percent in 2024.[111]

[103] CR/PR at Table 2.2.

[104] CR/PR at 2.17.

[105] CR/PR at 5.5, Table 5.4. Solvay's ***. *Id.* at 5.6.

[106] CR/PR at Table 5.4. Importers did not report indexing their contract pricing to raw materials. *Id.* at 5.6.

[107] CR/PR at Table 6.1.

[108] CR/PR at Table 6.5. In 2024, glyoxylic acid accounted for *** percent of Solvay's total raw material costs, followed by caustic soda, phenol and hydrogen peroxide, accounting for *** percent, respectively. Other raw materials accounted for the remaining *** percent and include ***. *Id.* at 6.10.

[109] CR/PR at 5.1.

[110] CR/PR at Table 5.1, Figure 5.1.

[111] CR/PR at Table 6.1.

Imports of methylvanillin and ethylvanillin were subject to additional duties under Section 301 of the Trade Act of 1974 ("Section 301") throughout the POI.[112] In addition, effective February 4, 2025, all subject merchandise became subject to an additional 10 percent *ad valorem* duty under the International Emergency Economic Powers Act ("IEEPA"), which on March 4, 2025, increased to 20 percent *ad valorem*. Then, effective April 5, 2025, subject merchandise became subject to an additional 10 percent *ad valorem* duty under IEEPA, which was increased to 84 percent *ad valorem* effective April 9, 2025, to 125 percent *ad valorem* effective April 10, 2025, and then subsequently lowered to 10 percent *ad valorem* effective May 14, 2025.[113]

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."[114]

The volume of subject imports decreased from 5.4 million pounds in 2022 to 4.1 million pounds in 2023 before increasing to 6.5 million pounds in 2024, for an overall increase of 19.2 percent.[115] As a share of apparent U.S. consumption, U.S. shipments of subject imports increased from *** percent in 2022 to *** percent in 2023 and *** percent in 2024, an overall gain of *** percentage points.[116]

Based on these data, we find that the volume of subject imports, and the increase in that volume, are significant in absolute terms and relative to consumption in the United States.

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[112] Methylvanillin originating in China was initially subject to an additional 15 percent *ad valorem* duty under Section 301, effective September 1, 2019, but the duty was subsequently reduced to 7.5 percent *ad valorem* effective February 14, 2020. CR/PR at 1.7-8.

Ethylvanillin originating in China was initially subject to an additional 10 percent *ad valorem* duty under Section 301, but the duty was subsequently increased to 25 percent *ad valorem* effective May 10, 2019. *Id.*

[113] This duty is in addition to the 20 percent duty under IEEPA that went into effect on March 4, 2025. CR/PR at 1.7-8.

[114] 19 U.S.C. § 1677(7)(C)(i).

[115] CR/PR at 4.3 and Table 4.2. U.S. shipments of subject imports, which are used to calculated apparent U.S. consumption, followed the trend in import volumes, decreasing from 5.0 million pounds in 2022 to 4.3 million pounds before increasing to 6.0 million pounds in 2024, for an overall increase of 20.6 percent. *Id.* at Tables 4.10, C.1.

[116] CR/PR at Tables 4.10, C.1.

D. Price Effects of the Subject Imports

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

> (I) there has been significant price underselling by the imported merchandise as compared with the price of domestic like products of the United States, and
>
> (II) the effect of imports of such merchandise otherwise depresses prices to a significant degree or prevents price increases, which otherwise would have occurred, to a significant degree.[117]

As addressed in section IV.B.3, above, we have found that there is generally a high degree of substitutability between the domestic like product and subject imports and that price is an important factor in purchasing decisions for vanillin products.

We have examined several sources of data for our underselling analysis. The Commission collected quarterly quantity and f.o.b. pricing data on sales of three products shipped to unrelated U.S. customers from January 2022 to December 2024.[118] Solvay and 11 importers provided useable pricing data for sales of the requested products, although not all firms reported pricing for all products in all quarters.[119] Pricing data reported by these firms

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[117] 19 U.S.C. § 1677(7)(C)(ii).

[118] CR/PR at 5.3. The four pricing products are:

Product 1.-- Synthetic methylvanillin (excluding biosynthetic vanillin and natural vanillin), or 4-Hydroxy-3-methoxybenzaldehyde, with the chemical formula C8H8O3, sold to end users.

Product 2.-- Ethylvanillin (excluding biosynthetic vanillin and natural vanillin), or 3-Ethoxy-4-hydroxybenzaldehyde, with the chemical formula C9H10O3, sold to end users.

Product 3.-- Biosynthetic or natural methylvanillin (4-Hydroxy-3-methoxybenzaldehyde, with the chemical formula C8H8O3), sold to end users.

[119] CR/PR at 5.8. Solvay did not produce or ship product 3, natural vanillin/biovanillin. *Id.* Respondents have argued that the Commission's analysis should account for the absence of underselling with respect to product 3. Respondents Final Comments at 7-8; Respondents' Prehearing Br. at 9-10. We see no reason to deviate from our standard practice of considering quarterly prices of products sold by both the domestic industry and importers of the subject merchandise for the underselling analysis. *See LG Elecs., Inc. v. U.S. Int'l Trade Comm'n,* 26 F. Supp. 3d 1338 (Ct. Int'l Trade 2014) (holding that because "the Commission's purpose in collecting quarterly price data was to make 'apples-to-apples price comparisons based on specifically defined {large residential washer} models' . . . it was therefore reasonable for it to have only collected data for the specific models for which there were imports to compare"). We, however, consider the absence of domestic production and sales of natural vanillin/biovanillin in the context of subject import market share gains below.

accounted for *** the domestic industry's U.S. shipments of vanillin products, and 96.3 percent of U.S. shipments of subject imports in 2024.[120]

The pricing data show majority underselling by subject imports during the POI. Subject imports undersold the domestic like product in 14 of 24 quarterly comparisons, or 58.3 percent of the time, at margins ranging between 0.7 and 41.9 percent and averaging 20.2 percent.[121] Subject imports oversold the domestic like product in the remaining 10 quarterly comparisons, or 41.7 percent of the time, at margins ranging from *** to *** percent and averaging *** percent.[122] Further, quarters in which there was underselling accounted for *** percent of reported subject import sales volume (*** pounds), while quarters in which there was overselling accounted for *** percent of reported subject import sales volume (*** pounds).[123]

The Commission also collected landed duty-paid ("LDP") import purchase cost data for the same three pricing products from end users that directly imported these products from subject sources. Eleven such importers reported import purchase cost data, which accounted for approximately 30.1 percent of vanillin products imported from China in 2024.[124] These data show that LDP costs for subject imports were below the sales prices for the domestic like product in 19 of 24 quarterly comparisons, or 79.2 percent of the time, at price-cost differentials ranging from *** to *** percent and averaging *** percent.[125] LDP costs for subject imports were higher than the sales prices for the domestic like product in the remaining five quarterly comparisons, or 20.8 percent of the time, at price-cost differentials ranging from *** to *** percent and averaging *** percent.[126] Quarters in which import purchase costs were lower than domestic sales prices accounted for the vast majority (*** pounds, or *** percent) of the quantity of reported subject import purchases.[127]

We recognize that the import purchase cost data may not reflect the total cost of importing and we therefore requested additional information regarding the costs and benefits of importing vanillin products directly. Six of 10 responding importers reported that they incurred additional costs beyond the LDP costs associated with importing vanillin products, and two importers estimated that such additional costs ranged from 0.1 to 5.0 percent compared to

[120] CR/PR at 5.8.
[121] CR/PR at Table 5.9.
[122] CR/PR at Table 5.9.
[123] *Calculated from* CR/PR at Table 5.9.
[124] CR/PR at 5.16.
[125] CR/PR at Table 5.14.
[126] CR/PR at Table 5.14.
[127] *Calculated from* CR/PR at Table 5.14.

the LDP value.[128] When including these additional costs, four of seven responding importers reported that their costs from importing directly would be higher than when purchasing vanillin from a U.S. producer or importer, although the other three importers estimated that they saved between *** percent of the purchase price by importing vanillin products directly.[129] Given that the price-cost differential was greater than five percent in all but five of 24 quarterly comparisons, the inclusion of the estimated additional costs of up to 5.0 percent would still show that subject import purchase costs were lower than domestic sales prices in most instances, consistent with the evidence of underselling in the pricing data.[130]

We have also considered lost sales information, which further corroborates the evidence of underselling in the pricing and purchase cost data. The Commission received responses from 36 purchasers, whose purchases accounted for 25.9 million pounds of vanillin products over the POI, when aggregate apparent U.S. consumption was *** pounds.[131] Twenty-six of these responding purchasers reported purchasing subject imports instead of domestically produced vanillin products, with 20 of them also reporting that subject import prices were lower than domestic prices.[132] Moreover, 13 responding purchasers reported that they purchased *** pounds of subject imports instead of domestic product primarily because of their lower price, equivalent to *** percent of responding purchasers' total purchases, and *** percent of apparent U.S. consumption during the POI.[133]

Based on the generally high degree of substitutability between subject imports and the domestic like product, the importance of price in purchasing decisions, the majority underselling by subject imports, the purchase cost data showing that subject import purchase costs were generally lower than domestic sales prices, and confirmed lost sales, we find that subject import underselling was significant during the POI.[134]

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[128] CR/PR at 5.21. Reported additional costs include brokerage, customs clearance and freight, handling charges, import logistics costs, inland freight, and warehousing costs. *Id.*

[129] CR/PR at 5.22.

[130] *Calculated from* CR/PR at Tables 5.11, 5.12, 5.14.

[131] CR/PR at 5.25, Tables 5.17, C.1.

[132] CR/PR at 5.25, Table 5.18.

[133] *Calculated from* CR/PR at Tables 5.17, 5.18 and C.1.

[134] We note that market share shifted from the domestic industry to subject imports from 2022 to 2024, as the domestic industry lost *** percentage points of apparent U.S. consumption and subject imports gained *** percentage points. CR/PR at Tables 4.10, C.1.

Respondents argued that most of the increase in imports during the POI consisted of natural vanillin, which they allege cannot injure the domestic industry, as it only produces synthetic vanillin products. Respondents' Prehearing Br. at 6-7. However, the increase in subject import volume and corresponding increase in market share consists of increased volume of both synthetic and natural (Continued...)

We have also considered whether subject imports depressed the domestic industry's prices or prevented price increases that otherwise would have occurred to a significant degree. Between the first and last quarters of the POI, domestic prices for product 1 decreased by *** percent and by *** percent for product 2.[135] Subject import prices declined to a greater extent than prices for the domestically produced products from the first quarter of 2022 through the fourth quarter of 2024, by 52.5 percent for product 1 and *** percent for product 2.[136]

Responses from purchasers indicate that domestic producers reduced their prices as a direct result of subject import competition. Two purchasers reported that domestic producers reduced their prices in order compete with lower-priced subject imports by an estimated *** percent, according to one purchaser, and by *** percent, according to the other.[137]

Declines in the domestic industry's net sales AUVs outpaced declines in its unit COGS over the POI. Between 2022 and 2024, the domestic industry's net sales AUV irregularly declined by $*** per pound, or *** percent, while the industry's unit COGS declined by only $*** per pound, or *** percent, driven by a decline in the industry's unit raw material costs of $*** per pound, or *** percent.[138] At the same time, apparent U.S. consumption irregularly increased to a level in 2024 that was *** percent higher than in 2022.[139] But even with the overall increase in apparent U.S. consumption, the domestic industry's net sales AUV declined by more than its unit COGS and its COGS to net sales ratio progressively worsened over the POI.[140] Based on its aggregate sales, the domestic industry's COGS-to-net-sales ratio increased from *** percent in 2022 to *** percent in 2024, a level *** percentage points higher than in

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vanillin products. Subject imports of synthetic vanillin products increased by *** pounds from 2022 to 2024, accounting for *** percentage points of subject imports' gain in apparent U.S. consumption, while imports of natural vanillin/biovanillin increased by *** pounds, accounting for the remaining *** percentage points. *Calculated from* CR/PR at Tables 4.7, 4.10, C.1.

[135] CR/PR at Table 5.8.

[136] CR/PR at Tables 5.5, 5.6, 5.8. Product 3 decreased by *** percent from January 2022 to December 2024. *Id.* at 5.13.

[137] CR/PR at 5.27.

[138] CR/PR at Table 6.2. The industry's net sales' AUVs increased from $*** per pound in 2022 to $*** per pound in 2023 before decreasing by *** percent to $*** per pound in 2024, while its per-unit COGS increased from $*** per pound in 2022 to $*** per pound in 2023 before decreasing by *** percent to $*** per pound in 2024. *Id.* The industry's per-unit raw material costs increased from $*** per pound in 2022 to $*** per pound in 2023 before decreasing to $*** per pound in 2024.

[139] CR/PR at Tables 4.10, C.1.

[140] CR/PR/PR at Tables 6.2, C.1. Apparent U.S. consumption of vanillin products decreased from *** pounds in 2022 to *** pounds in 2023 (*** percent) before increasing to *** pounds in 2024 (*** percent), an overall increase of *** percent. *Id.* at Tables 4.10, C.1.

2022.[141] Given that the significant declines in domestic prices, including the domestic industry's net sales unit values declining to a greater degree than the domestic industry's unit COGS, occurred during a period in which subject imports significantly undersold the domestic like product, coupled with our findings on the degree of substitutability between subject imports and the domestic like product and the importance of price in purchasing decisions, as well as reports of domestic producer price reductions due to subject import competition, we find that subject imports depressed prices for the domestic like product to a significant degree.[142]

In sum, we find that low-priced subject imports significantly undersold the domestic like product, placing sustained downward pressure on domestic prices, which depressed prices for the domestic like product to a significant degree.[143] We therefore find that subject imports had significant price effects.

[141] CR/PR at Tables 6.2, C.1. We note that the industry's COGS decreased from 2022 to 2024 in total and per-unit terms, notwithstanding increases in other factory and SG&A costs that Respondents have suggested as an alternative source of injury. Respondents' Prehearing Br. at 15.

[142] As noted in section IV.B.2, Solvay devoted most of its U.S. production to exports, with the vast majority – between *** and *** percent – to related firms. CR/PR at Table 3.8. As exports are reported as a component of net sales, Solvay's export shipments are included in the domestic industry's net sales and net sales AUV, among other financial indicia. The record does not contain the costs and expenses associated with the domestic industry's U.S. sales that would permit analysis of its financial performance based exclusively on that sales category. However, the available data does allow for the exclusion of Solvay's transfers to related firms and associated costs, thus providing a reasonable proxy for its domestic sales given that the *** of its exports were transfer shipments. If we conduct such an alternative analysis, we reach the same conclusion.

Between 2022 and 2024, the domestic industry's commercial sales' AUV irregularly declined by $*** per pound, or *** percent, while the industry's unit COGS, unchanged from the preceding analysis, declined by only $*** per pound, or *** percent. CR/PR at Table 6.4. Based on its commercial sales, the domestic industry's COGS-to-commercial-sales ratio increased from *** percent in 2022 to *** percent in 2024, a level *** percentage points higher than in 2022. *Id.* at Table 6.3.

[143] Chair Karpel also finds that subject import underselling resulted in significant lost sales to the domestic industry.

E. Impact of the Subject Imports[144] [145]

Section 771(7)(C)(iii) of the Tariff Act provides that examining the impact of subject imports, the Commission "shall evaluate all relevant economic factors which have a bearing on the state of the industry."[146] These factors include output, sales, inventories, capacity utilization, market share, employment, wages, productivity, gross profits, net profits, operating profits, cash flow, return on investment, return on capital, ability to raise capital, ability to service debts, research and development, and factors affecting domestic prices. No single factor is dispositive and all relevant factors are considered "within the context of the business cycle and conditions of competition that are distinctive to the affected industry."[147]

[144] The statute instructs the Commission to consider the "magnitude of the dumping margin" in an antidumping proceeding as part of its consideration of the impact of imports. 19 U.S.C. § 1677(7)(C)(iii)(V). In its final determination of sales at less value Commerce found antidumping duty margins of 190.20 percent for seven producers and seven exporters of subject merchandise, and 379.87 percent for all other firms. We take into account in our analysis the fact that Commerce has made final findings that all subject producers in China are selling subject imports in the United States at less than fair value. Further, our analysis of the significant underselling of subject imports, described in both the price effects discussion and below, is particularly probative to an assessment of the impact of the subject imports.

[145] Petitioner argues that, but for the filing of the petitions, the volume of subject imports would have been higher, and the price effects caused by subject imports would have been more severe. Petitioner's Posthearing Br. at Exh. 1, p.11. Petitioner argues this supports a finding of post-petition effects. We decline, however, to find post-petition effects. The record in these investigations lacks U.S import data specific to the post-petition period, containing only annual U.S. import and U.S. shipment data for 2024, whereas the petition was filed in June 2024. *See* CR/PR at Tables 4.2, 4.7. As petitioner correctly observes, *** reported in reference to supply constraints either an absence of post-petition imports in 2024 or uncertainty in the marketplace during this time and that certain purchasers reported decreased availability. *Id.* at 2.8-9; Petitioner's Posthearing Br. at Exh. 1, p. 11. However, we find this information insufficient to reach a conclusion of post-petition effects, particularly where subject imports steadily increased in volume over the full year 2024 and subject import prices, though increasing slightly, were relatively flat in the third and fourth quarter of 2024. *Id.* at Tables 5.5, 5.6, and 5.7. *See* 19 U.S.C. § 1677(7)(I).

[146] 19 U.S.C. § 1677(7)(C)(iii); *see also* SAA at 851 and 885 ("In material injury determinations, the Commission considers, in addition to imports, other factors that may be contributing to overall injury. While these factors, in some cases, may account for the injury to the domestic industry, they also may demonstrate that an industry is facing difficulties from a variety of sources and is vulnerable to dumped or subsidized imports").

[147] 19 U.S.C. § 1677(7)(C)(iii). This provision was amended by the Trade Preferences Extension Act of 2015, Pub. L. 114-27.

By almost every measure, the domestic industry's performance declined over the POI. As the domestic industry's production capacity held steady,[148] its production[149] and capacity utilization rate[150] decreased from 2022 to 2023 before increasing in 2024, albeit to lower levels than in 2022.

Following its trend in output, the domestic industry's U.S. shipments decreased from *** pounds in 2022 to *** pounds in 2023 before increasing to *** pounds in 2024, a level *** percent lower than in 2022.[151] The industry's share of apparent U.S. consumption declined by *** percentage points overall, first increasing from *** percent in 2022 to *** percent in 2023 before decreasing to *** percent in 2024.[152] End-of-period inventories irregularly increased.[153]

The domestic industry's number of production related workers ("PRWs"),[154] total hours worked,[155] and productivity[156] also declined from 2022 to 2024. Total wages paid,[157] hourly wages, [158] and unit labor costs increased.[159]

[148] CR/PR at Tables 3.5, C.1. The domestic industry's practical production capacity was *** pounds from 2022 to 2024. *Id.*

[149] CR/PR at Table 3.5, C.1. The domestic industry's production decreased from *** pounds in 2022 to *** pounds in 2023 before increasing to *** pounds in 2024, a level *** percent lower than in 2022. *Id.*

[150] CR/PR at Table 3.5, C.1. The industry's capacity utilization rate declined from *** percent in 2022 to *** percent in 2023 before increasing to *** percent in 2024, an overall decrease of *** percentage points. *Id.*

[151] CR/PR at Table 3.7, C.1.

[152] CR/PR at Tables 4.10, C.1.

[153] CR/PR at Table 3.12, C.1. The industry's end-of-period inventories decreased from *** pounds in 2022 to *** pounds in 2023 before increasing to *** pounds in 2024, a level *** percent higher than in 2022. *Id.*

[154] CR/PR at Tables 3.15, C.1. The industry's PRWs decreased from *** in 2022 to *** in 2023 and 2024. *Id.*

[155] CR/PR at Tables 3.15, C.1. Total hours worked in the industry (in thousands of hours) decreased from *** in 2022 to *** in 2023 and 2024, a *** percent decline. *Id.*

[156] CR/PR at Tables 3.15, C.1. Productivity decreased from *** pounds per hour in 2022 to *** pounds per hour in 2023 before increasing to *** pounds per hour in 2024, an overall decrease of *** percent. *Id.*

[157] CR/PR at Tables 3.15, C.1. Total wages paid in the industry decreased from $*** in 2022 to $*** in 2023 before increasing to $*** in 2024, an overall increase of *** percent. *Id.*

[158] CR/PR at Tables 3.15, C.1. The industry's hourly wages increased from $*** per hour in 2022 to $*** per hour in 2023 and $*** per hour in 2024, an increase of *** percent. *Id.*

[159] CR/PR at Tables 3.15, C.1. The industry's unit labor costs increased from $*** per pound in 2022 to $*** per pound in 2023 before decreasing to $*** per pound in 2024, an overall increase of *** percent. *Id.*

The domestic industry's financial indicia universally show deteriorating performance over the POI. The domestic industry's operating income,[160] net income,[161] gross profits,[162] and net sales[163] all steadily declined or worsened from 2022 to 2024. The industry's operating and net income margins, which were *** in 2022, continued to worsen through 2024.[164] Financial data that exclude Solvay's *** also show deteriorating performance from 2022 to 2024. These data, which primarily reflect U.S. market operations,[165] indicate that the domestic industry's operating income,[166] net income,[167] gross profits[168] and commercial sales[169] all declined or worsened from 2022 to 2024, and that its *** in 2022 became *** by 2023 and *** in 2024.[170]

[160] CR/PR at Tables 6.1, C.1. The industry's operating income worsened from *** in 2022 to *** in 2023 and $*** in 2024. *Id.*

[161] CR/PR at Tables 6.1, C.1. The industry's net income worsened from *** in 2022 to *** in 2023 t and $*** in 2024. *Id.*

[162] CR/PR at Tables 6.1, C.1. The domestic industry's gross profit declined from $*** in 2022 to *** in 2023 that worsened to *** in 2024. *Id.*

[163] CR/PR at Tables 6.1, C.1. The industry's net sales declined from $*** in 2022 to $*** in 2023 and $*** in 2024, an overall decrease of *** percent. *Id.*

Per-unit net sales values increased from $*** per pound in 2022 to $*** per pound in 2023 before decreasing to $*** per pound in 2024, an overall decline of *** percent. *Id.* at Tables 6.2, C.1.

[164] CR/PR at Tables 6.1, C.1. Operating income as a ratio to net sales declined from *** percent in 2022 to *** percent in 2023 and *** percent in 2024.

Net income as a ratio to net sales declined from *** percent in 2022 to *** percent in 2023 and *** percent in 2024. *Id.*

[165] As noted in in section IV.B.2, Solvay devoted most of its U.S. production to exports. Solvay's commercial sales data exclude its export shipments to related firms, which, as noted previously, accounted for between *** and *** percent of its exports during the POI. CR/PR. at Table 3.8.

[166] CR/PR at Table 6.3. The industry's operating income from commercial sales declined from $*** in 2022 to *** in 2023 that worsened to a *** in 2024. *Id.*

[167] CR/PR at Table 6.3. The industry's net income from commercial sales declined from $*** in 2022 to a *** in 2023 that worsened to *** in 2024. *Id*

[168] CR/PR at Tables 6.1, C.1. The domestic industry's gross profit from commercial sales declined from $*** in 2022 to $*** in 2023 before reporting *** in 2024. *Id.*

[169] CR/PR at Table 6.3. The domestic industry's commercial sales declined from $*** in 2022 to $*** in 2023 and $*** in 2024, an overall decrease of *** percent. *Id.*

Per-unit net commercial sales values declined from $*** per pound in 2022 to $*** per pound in 2023 and $*** per pound in 2024, an overall decline of *** percent. *Id.* at Table 6.4.

[170] CR/PR at Table 6.3. Operating income as a ratio to commercial sales declined from *** percent in 2022 to *** percent in 2023 and *** percent in 2024.

Net income as a ratio to commercial sales declined from *** percent in 2022 to *** percent in 2023 and *** percent in 2024. *Id.*

The industry's total assets and return on assets declined.[171] Capital expenditures[172] and ("R&D") spending also declined overall.[173] Finally, Solvay reported that subject imports *** and anticipates that ***.[174]

Thus, the record indicates that significant volumes of low-priced subject imports depressed prices for the domestic like product to a significant degree, reducing the domestic industry's revenues to lower levels than they otherwise would have been. As a result, despite increasing apparent U.S. consumption from 2022 to 2024, the domestic industry's financial condition steadily deteriorated, and it recorded its poorest financial results of the period in 2024.

We are unpersuaded by Respondents' argument that Solvay's declining export sales and export sales prices injured the domestic industry rather than subject imports.[175] We have considered that Solvay devoted a majority of its U.S. production to exports, and that declines in its export market sales contributed to declines in its U.S. production, financial indicia, and employment data.[176] However, as explained above, when we remove the vast majority of export sales data from Solvay's performance indicia, the resulting data again indicate increasingly poor performance over the course of the POI.[177] In addition, the declines in its U.S. shipments, the significant underselling by subject imports, and confirmed lost sales and revenue all occurred in the U.S. market, irrespective of exports. Therefore, we conclude that the declining volume and value of the domestic industry's exports do not attenuate the causal link between subject imports and the injury to the domestic industry.

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[171] CR/PR at Table 6.8. The industry's return on assets declined from *** percent in 2022 to *** percent in 2023 to *** percent in 2024. *Id.*

The industry's total assets declined from $*** in 2022 to $*** and $*** in 2024. *Id.* at Tables 6.9, C.1.

[172] CR/PR at Tables 6.8, C.1. Capital expenditures declined from $*** in 2022 to $*** in 2023 and $*** in 2024. *Id.*

[173] CR/PR at Tables 6.8, C.1. R&D expenses declined overall, increasing from $*** in 2022 to $*** in 2023 and then decreasing to $*** in 2024. *Id.*

[174] CR/PR at Tables 6.10 and 6.11.

[175] Respondents' Prehearing Br. at 11-12.

[176] Exports accounted for between *** and *** percent of Solvay's total shipments during the POI, and its export shipments irregularly declined by *** percent, from *** pounds in 2022 to *** pounds in 2024. CR/PR at 3.6 and Table 3.7. The unit value of its export shipments, which was consistently lower than those of U.S. shipments, irregularly decreased by *** percent from 2022 to 2024. *Id.*

[177] In this regard, we note that the AUVs of Solvay's U.S. shipments decreased by *** percent from 2022 to 2023, and by *** percent in 2024. *Calculated from* CR/PR at Table 3.9. The AUVs of its export shipments increased by *** percent from 2022 to 2023, and then decreased by *** percent in 2024. *Calculated from* CR/PR at Table 3.8.

We are also unpersuaded by Respondents' contention that the decline in domestic prices from 2022 to 2024 reflects normalizing to price levels that existed prior to a market disruption caused by the COVID-19 pandemic, rather than competition with low-priced subject imports.[178] Respondents submitted historical import pricing data in support of their contention, but pricing data in a vacuum fails to account for the factors that drive pricing, including demand and costs. In these investigations, apparent U.S. consumption increased over the POI – a trend that is unsupportive of Respondents' theory of a normalizing market that induced price declines, as we would normally see prices increase with increasing consumption. Further, the decline in the domestic industry's prices was greater than the decline in its unit COGS, to the point that the domestic industry was selling below its costs. Respondents have presented no evidence to support the idea that the domestic industry sells below its costs in a normal market, which is an unlikely business strategy.

We have also considered Respondents' argument that purchasers were forced to seek supply from imported sources because of constraints on Solvay's supply, supported by allegations that Solvay did not respond to sales inquiries, refused to sell product, and withheld pricing as a result of constraints on Solvay's supply that it did not disclose.[179] As discussed in section IV.B.2, we acknowledge that market participants reported experiencing supply issues. However, the record indicates that the supply constraints largely occurred in 2022 and pertained to both domestically produced and subject imports.[180] As such, we do not consider that the alleged domestic supply constraints explain the significant volume of subject imports throughout the entirety of the POI. Nor do they explain the decline in domestic producer prices or the sales the domestic industry lost to subject imports on the basis of price. Moreover, Solvay's inventory levels do not suggest the existence of meaningful supply constraints, as they stood at *** pounds in 2022, decreased to *** pounds in 2023, then increased to *** pounds in 2024 and exceeded *** percent as a ratio to its total shipments throughout the POI.[181] The domestic industry also had available capacity throughout the POI.[182]

We have also considered whether there are any other factors that may have had an impact on the domestic industry to ensure that we are not attributing injury from other factors to subject imports. As noted above, apparent U.S. consumption increased overall during the POI, and therefore demand trends do not explain the declines in the domestic industry's

[178] Respondents' Prehearing Br. at 13.
[179] Respondents' Prehearing Br. at 10.
[180] *See* CR/PR at 2.8-2.10 and Table 2.5.
[181] CR/PR at Table 3.12.
[182] CR/PR Table 3.5.

performance. We have also considered the role of nonsubject imports. Nonsubject imports cannot explain the declines in domestic prices, as their AUVs were higher than the AUVs for both the domestic like product and subject imports.[183] Moreover, as discussed previously, responding purchasers confirmed that domestic producers reduced their prices expressly as a result of competition with subject imports, and also reported purchasing *** pounds of subject imports instead of domestically produced vanillin products because of their lower prices.[184]

Consequently, we conclude that other causes do not explain the injury we have attributed to the subject imports. We accordingly determine that the domestic industry is materially injured by reason of subject imports.

V. Conclusion

For the reasons stated above, we determine that an industry in the United States is materially injured by reason of subject imports of vanillin products from China that are sold in the United States at less than fair value and subsidized by the government of China.

[183] The AUVs for U.S. shipments of synthetically produced nonsubject methylvanillin imports were $*** per pound in 2022, $*** per pound in 2023, and $*** per pound in 2024, and were $*** per pound in 2022, $*** per pound in 2023, and $*** per pound in 2024 for nonsubject ethylvanillin. CR/PR at Table 4.8. The AUVs for the domestic like product were lower, at $*** per pound in 2022, $*** per pound in 2023, and $*** per pound in 2024 for methylvanillin, and $*** per pound in 2022, $*** per pound in 2023, and $*** per pound in 2024 for ethylvanillin. *Id.* at Table 3.9. The AUVs for subject imports' U.S. shipments of synthetically produced methylvanillin were also lower, at $*** per pound in 2022, $*** per pound in 2023, and $*** per pound in 2024, and $*** per pound in 2022, $*** per pound in 2023, and $*** per pound in 2024 for ethylvanillin. *Id.* at Table 4.7.

[184] CR/PR at 5.27 and Table 5.18.

Part 1: Introduction

Background

These investigations result from petitions filed with the U.S. Department of Commerce ("Commerce") and the U.S. International Trade Commission ("USITC" or "Commission") by Solvay USA LLC ("Solvay"), Baton Rouge, Louisiana, on June 5, 2024, 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 vanillin[1] from China. Table 1.1 presents information relating to the background of these investigations.[2] [3]

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

Effective date	Action
June 5, 2024	Petitions filed with Commerce and the Commission; institution of the Commission's investigations (89 FR 49192, June 11, 2024)
June 25, 2024	Commerce's CVD notice of initiation (89 FR 54421, July 1, 2024);
June 25, 2024	Commerce's AD notice of initiation (89 FR 54424, July 1, 2024)
July 22, 2024	Commission's preliminary determinations (89 FR 60658, July 26, 2024)
November 18, 2024	Commerce's preliminary CVD determination and alignment of final determination with final AD determination (89 FR 90671, November 18, 2024, as corrected in 90 FR 8267, January 28, 2025)
January 16, 2025	Commission's preliminary AD determination and postponement of final determination (90 FR 4720, January 16, 2025); scheduling of final phase of Commission investigations (90 FR 9082, February 6, 2025)
May 29, 2025	Scheduled date for the Commission's hearing. The hearing was subsequently cancelled (90 FR 23567, June 3, 2025)
June 6, 2025	Commerce's final AD and CVD determinations (90 FR 24093 and 90 FR 24095, June 6, 2025)
June 30, 2025	Commission's vote
July 18, 2025	Commission's views

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

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

[3] Appendix B presents the Federal Register notice cancelling the Commission's hearing.

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 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.*

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

In addition, Section 771(7)(J) of the Act (19 U.S.C. § 1677(7)(J)) provides that—[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 1 of this report presents information on the subject merchandise, subsidy rates/dumping margins, and domestic like product. Part 2 of this report presents information on conditions of competition and other relevant economic factors. Part 3 presents information on the condition of the U.S. industry, including data on capacity, production, shipments, inventories, and employment. Parts 4 and 5 present the volume of subject imports and pricing of domestic and imported products, respectively. Part 6 presents information on the financial experience of U.S. producers. Part 7 presents the statutory requirements and information obtained for use in the Commission's consideration of the question of threat of material injury as well as information regarding nonsubject countries.

Market summary

Vanillin is a chemical found in vanilla beans and gives the typical vanilla fragrance and flavor. These investigations cover various vanillin products: vanillin (also known as "methylvanillin") produced synthetically; natural and biosynthetic vanillin; and ethylvanillin, a synthetic homologue of vanillin, containing the same functional chemical group and characteristics.[6] Synthetic vanillin and ethylvanillin are the most common vanillin products. Vanillin products are generally used in flavorings, foods, perfumes, and pharmaceuticals. The largest U.S. producer of vanillin is Solvay.[7] Leading producers of vanillin in China include Jiaxing Guihua Import and Export Co., Ltd. ("Jiaxing Guiha") and ***

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

[6] Note that the similarly named product vanilla extract may include vanillin, but is a mixture of multiple compounds, and, as a separated product, is imported under HTS 1302.19.9140. DeCarlo, Samantha, "Alright Stop, Collaborate and Listen: Vanillin, Not Vanilla," USITC, February 2022, p. 7. https://www.usitc.gov/publications/332/alright_stop_collaborate_and_listen_vanillin_not.htm. Petitioner's postconference brief, p. 1. Conference transcript, pp. 19 (Pickard), 12 (Jorge). Ethylvanillin has 2 to 4 times more intense flavor and aroma than synthetic vanillin. Conference transcript, p. 31 (Kraemer).

[7] One firm, ***, reported it produced small amounts of natural vanillin for commercial use in the United States.

***.[8] The leading U.S. importers of vanillin from China are ***. Leading importers of vanillin from nonsubject countries (primarily Norway, Indonesia, and France) include ***. Leading U.S. purchasers include ***.

Apparent U.S. consumption of vanillin totaled approximately *** pounds ($***) in 2024. Currently, two firms are known to produce vanillin in the United States, but only Solvay, which accounts for virtually all U.S. production, completed a U.S. producers' questionnaire. U.S. producer's U.S. shipments of vanillin totaled *** pounds ($***) in 2024 and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value. U.S. imports from China totaled 6.0 million pounds ($65.5 million) in 2024 and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value. U.S. imports from nonsubject sources totaled 3.3 million pounds ($51.2 million) in 2024 and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value.

Summary data and data sources

A summary of data collected in these investigations is presented in appendix C, table C.1. The Commission's questionnaires collected data for the years 2022 to 2024. Except as noted, U.S. industry data are based on questionnaire responses of one firm that accounted for nearly all of U.S. production of vanillin during 2024.[9] U.S. imports are based on questionnaire data.

Previous and related investigations

Vanillin has not been the subject of prior countervailing or antidumping duty investigations in the United States.

[8] Conference transcript, pp. 19, 23 (Pickard).

[9] *** refused to complete a U.S. producers' questionnaire.

Nature and extent of subsidies and sales at LTFV

Subsidies

On June 6, 2025, Commerce published a notice in the Federal Register of its final determination of countervailable subsidies for producers and exporters of vanillin from China.[10]

Table 1.2 presents Commerce's findings of subsidization of vanillin in China.

Table 1.2 Vanillin: Commerce's final subsidy determination with respect to imports from China

Entity	Final countervailable subsidy rate (percent)
Jiaxing Guihua Chemical Import and Export Co., Ltd.	42.10
All others	42.10

Source: 90 FR 24095, June 6, 2025.

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

Sales at LTFV

On June 6, 2025, Commerce published a notice in the Federal Register of its final determination of sales at LTFV with respect to imports of vanillin from China.[11]

[10] 90 FR 24095, June 6, 2025.
[11] 90 FR 24093, June 6, 2025.

Table 1.3 present Commerce's final dumping margins with respect to imports of vanillin from China.

Table 1.3 Vanillin: Commerce's final weighted-average LTFV margins with respect to imports from China

Exporter	Producer	Final dumping margin (percent)
Jiangxi Brother Pharmaceutical Co., Ltd	Jiangxi Brother Pharmaceutical Co., Ltd	190.20
Chongqing Thrive Fine Chemicals Co., Ltd	Chongqing Thrive Fine Chemicals Co., Ltd	190.20
HongKong Wictive Merchants Co., Ltd	Kunshan Asia Aroma Corp., Ltd	190.20
Kunshan Asia Aroma Corp., Ltd	Kunshan Asia Aroma Corp., Ltd	190.20
Mianyang Sunshine Bio-Tech Co., Ltd	Mianyang Sunshine Bio-Tech Co., Ltd	190.20
Shanghai Fuxin Fine Chemical Co., Ltd	Jiaxing Zhonghua Chemical Co., Ltd	190.20
Shenzhen Siyomicro Bio-Tech Co., Ltd	Shenzhen Siyomicro Bio-Tech Co., Ltd	190.20
Wuxi Lotus Essence Co., Ltd	Jiaxing Zhonghua Chemical Co., Ltd	190.20
Xiamen Bestally Biotechnology Co., Ltd	Xiamen Oamic Biotech Co., Ltd	190.20
All others		379.87

Source: 90 FR 24093, June 6, 2025.

The subject merchandise

Commerce's scope

In the current proceeding, Commerce has defined the scope as follows:[12]

> *The merchandise covered by the investigation is vanillin, with the molecular formula $C_8H_8O_3$ or $C_9H_{10}O_3$. For purposes of this investigation, vanillin consists of natural vanillin, synthetic vanillin, bio-sourced synthetic vanillin (biovanillin) (each also known as 4-Hydroxy-3- methoxybenzaldehyde), and ethylvanillin (also known as 3-Ethoxy-4- hydroxybenzaldehyde). Vanillin covered by this investigation is a chemical compound with the Chemical Abstracts Service (CAS) number 121–33–5 or 121–32–4. Vanillin is covered by the investigation regardless of whether it is in a crystalline powder or crystal form. Vanillin is covered by the scope of the investigation, irrespective of purity, particle size, or physical form.*

[12] 90 FR 24093 and 24095, June 6, 2025.

Tariff treatment

Methylvanillin is currently imported under Harmonized Tariff Schedule of the United States ("HTS") statistical reporting number 2912.41.0000[13] and ethylvanillin is currently imported under HTS statistical reporting number 2912.42.0000.[14] The general rate of duty is 5.5 percent ad valorem for HTS subheadings 2912.41.00 and 2912.42.00. Decisions on the tariff classification and treatment of imported goods are within the authority of U.S. Customs and Border Protection.

Effective September 1, 2019, methylvanillin originating in China was subject to an additional 15 percent ad valorem duty under section 301 of the Trade Act of 1974. Effective February 14, 2020, the section 301 duty for methylvanillin was reduced to 7.5 percent.[15]

Effective September 24, 2018, ethylvanillin originating in China was subject to an additional 10 percent ad valorem duty under section 301 of the Trade Act of 1974. Effective May 10, 2019, the section 301 duty for ethylvanillin was increased to 25 percent.[16]

Effective February 4, 2025, methylvanillin and ethylvanillin originating in China were subject to an additional 10 percent ad valorem duty under the International Emergency Economic Powers Act ("IEEPA"), and on March 4, 2025, that additional duty increased to 20 percent ad valorem.[17]

Effective April 5, 2025, methylvanillin and ethylvanillin originating in China were subject to an additional 10 percent ad valorem reciprocal duty under IEEPA. That reciprocal duty rose

[13] HTS 2912.41.0000 covers methylvanillin produced by any method (natural extraction, synthesis from industrial chemicals, or biosynthesis).

[14] HTS 2912.41.0000 and 2912.42.0000 are both eo nominee statistical reporting numbers defined as methylvanillin and ethylvanillin, respectively. USITC, HTS (2025) Revision 10, Publication 5615, April 2025, p. 29.37.

[15] 84 FR 45821, August 30, 2019; 85 FR 3741, January 22, 2020. See also HTS heading 9903.88.15 and U.S. notes 20(r) and 20(s) to subchapter III of chapter 99 and related tariff provisions for this duty treatment. USITC, HTS (2025) Revision 10, Publication 5615, April 2025, pp. 99.3.106 to 99.3.119, 99.3.356.

[16] 83 FR 47974, September 21, 2018; 84 FR 20459, May 9, 2019. See also HTS headings 9903.88.03 and 9903.88.04 and U.S. notes 20(e), 20(f), and 20(g) to subchapter III of chapter 99 and related tariff provisions for this duty treatment. USITC, HTS (2025) Revision 10, Publication 5615, April 2025, pp. 99.3.46 to 99.3.71, 99.3.354. Goods exported from China to the United States prior to May 10, 2019, and entering the United States prior to June 1, 2019, were not subject to the escalated 25 percent duty (84 FR 21892, May 15, 2019).

[17] 90 FR 9121, February 7, 2025; 90 FR 11426, March 6, 2025; 90 FR 11463, March 7, 2025. See also HTS heading 9903.01.20 and U.S. note 2(s) and HTS heading 9903.01.24 and U.S. note 2(u) to subchapter III of chapter 99 and related tariff provisions for this duty treatment. USITC, HTS (2025) Revision 10, Publication 5615, April 2025, pp. 99.3.3 to 99.3.4, 99.3.297 to 99.3.298.

to 84 percent ad valorem effective April 9, 2025, and rose again to 125 percent effective April 10, 2025.[18] However, effective May 14, 2025, the duty rate for reciprocal tariffs on products originating in China was reduced to 10 percent.[19]

Table 1.4 Vanillin: Current additional tariff treatment for China

Tariffs in percent ad valorem

Additional tariff	Methylvanillin (including synthetic, natural and biosynthetic)	Ethylvanillin
Section 301	7.5	25
IEEPA – effective February 4, 2025	20	20
IEEPA – effective April 5, 2025	10	10
Total additional ad valorem rate	37.5	55

Source: Federal Register notices and other sources cited in this section (Tariff treatment).

Note: IEEPA tariffs are referred to in the table by the date of first implementation, not by the date of subsequent changes to the duty rate. However, the duty rates reported in the text are the duty rates as of the writing of this report.

The product

Description and applications

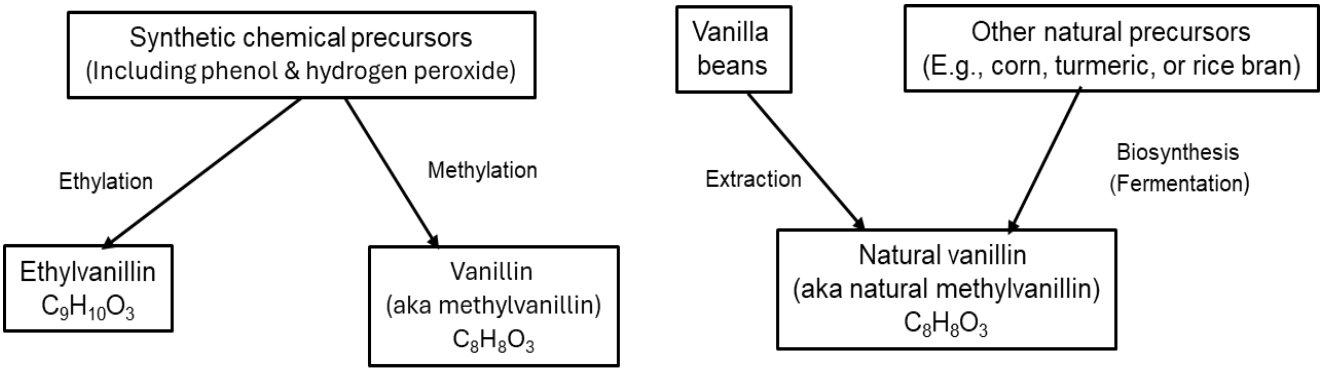
This report covers various vanillin products: methylvanillin (also known as simply "vanillin") synthesized chemically, methylvanillin extracted from natural substrates (also known as "natural vanillin"), and ethylvanillin.[20] Figure 1.1 shows a summary of the three products, their substrates, and their production processes.

[18] The reciprocal duty is in addition to the 20 percent ad valorem duty under IEEPA that went into effect on March 4, 2025, for China. 90 FR 15041, April 7, 2025; 90 FR 15509, April 14, 2025; 90 FR 15625, April 15, 2025. See also HTS headings 9903.01.25 and 9903.01.63 and U.S. note 2(v) to subchapter III of chapter 99 and related tariff provisions for this duty treatment. USITC, HTS (2025) Revision 10, Publication 5615, April 2025, pp. 99.3.1 to 99.3.12, 99.3.278.

[19] The reciprocal duty is in addition to the 20 percent ad valorem duty under IEEPA that went into effect on March 4, 2025, for China. 90 FR 15041, April 7, 2025; 90 FR 15509, April 14, 2025; 90 FR 15625, April 15, 2025; 90 FR 21831, May 21, 2025. See also HTS headings 9903.01.25 and 9903.01.63 and U.S. note 2(v) to subchapter III of chapter 99 and related tariff provisions for this duty treatment. USITC, HTS (2025) Revision 8, Publication 5613, April 2025, pp. 99.3.1 to 99.3.10, 99.3.278.

[20] Note that the similarly named product vanilla extract may include vanillin products, but is a mixture of multiple compounds, and, as a separated product, is imported under HTS 1302.19.9140. DeCarlo, Samantha, "Alright Stop, Collaborate and Listen: Vanillin, Not Vanilla," USITC, February 2022, p. 7. https://www.usitc.gov/publications/332/alright_stop_collaborate_and_listen_vanillin_not.htm.

Figure 1.1 Vanillin products: Summary precursors and production processes



Source: Compiled by staff.

Note: Synthetic and natural methylvanillin are chemically identical; their precursors and production process differ.

Methylvanillin (molecular formula $C_8H_8O_3$) is the compound that gives vanilla beans their flavor and fragrance.[21] However, demand for methylvanillin far exceeds what could be produced from vanilla beans, so most methylvanillin is synthetic.[22] Ethylvanillin (molecular formula $C_9H_{10}O_3$) is a homologue of methylvanillin, containing the same functional chemical group and characteristics.[23] Methylvanillin and ethylvanillin are typically food grade and are used to provide vanilla flavor and fragrance in products including food, beverages, perfumes, vitamins, and laundry detergents.[24] Petitioner's vanillin products have FSSC-22000 certification for food safety and vanillin products imported from China likely have similar certification.[25] Petitioner reports its final product is typically 99.95 percent or higher purity.[26] Imported vanillin products likely have similar purity levels, due to requirements for food safety certification and

[21] Conference transcript, p. 5 (Kraemer).

[22] Petition, p. 3.

[23] Petitioner's post-conference brief, p. 1. Conference transcript, pp. 19 (Pickard), 12 (Jorge). Ethylvanillin has 2–4 times more intense flavor and aroma. Conference transcript, p. 31 (Kraemer).

[24] Conference transcript, pp. 8 (Kraemer), 12 (Jorge), 19 (Pickard) and 77 (Kraemer).

[25] Conference transcript, pp. p. 64 (Kraemer), 65 (Jorge). FSSC is a certification "…to ensure the provision of safe food, feed, and packaging to the consumer goods industry." FSSC company website, www.fssc.com. Petitioner states that FSSC-22000 has requirements for product quality and also processes, including pest control, facilities, product handling, and packaging. Conference transcript, pp. 72 to 73 (Kraemer).

[26] The main impurity for methylvanillin is ethylvanillin, and the main impurity for ethylvanillin is methylvanillin. Conference transcript, p. 44 (Kraemer).

additional customer requirements.[27] Synthetic methylvanillin and ethylvanillin are sold in the same channels of distribution, either through distributors or directly to customers.[28]

Manufacturing processes

Production of synthetic methylvanillin and ethylvanillin typically follows three major steps.[29] First, phenol is reacted with hydrogen peroxide, using perchloric acid as a catalyst. This reaction produces pyrocatechol, which is used to produce vanillin products and the coproduct hydroquinone, which can be sold.[30] In place of this first step, pyrocatechol can be purchased instead of produced.[31]

In the second step, pyrocatechol undergoes either methylation to produce guaiacol, (along with the coproduct veratrole), or ethylation to produce guetol (and the coproduct orthodiethoxybenze, commonly referred to as ODEB).[32] In the third step, the intermediate products guaiacol and guetol are reacted with glyoxylic acid to produce vanillylmandelic acid and mandelic acid, respectively. Oxidative decarboxylation is then used to convert vanillylmandelic acid to methylvanillin or mandelic acid to ethylvanillin. The final products are composed of small crystals, which are packaged for delivery to customers and have a shelf life of at least five years.[33] Petitioner reportedly employs the same workers using the same production facility and equipment to produce both methylvanillin and ethylvanillin[34] but does not produce other products using the same equipment and machinery.[35]

Methylvanillin and ethylvanillin are typically produced in a continuous production process.[36] Petitioner's facilities can only produce one product, either methylvanillin or ethylvanillin, at a time.[37] Shifting between methylvanillin and ethylvanillin requires shutting down production to clean machinery thoroughly.[38] To minimize shutdown duration, petitioner

[27] Conference transcript, p. 57 (Kraemer).
[28] Conference transcript, p. 8 (Kraemer).
[29] Petition, p. 4.
[30] Conference transcript, p. 61 (Kraemer).
[31] Conference transcript, p. 61 (Kraemer).
[32] Conference transcript, p. 76 (Kraemer).
[33] Conference transcript, pp. 6 to 7 (Kraemer) and 33 to 34 (Kraemer).
[34] Conference transcript, p. 9 (Kraemer) and p. 19 (Pickard).
[35] Conference transcript, p. 50 (Kraemer).
[36] Petition, p. 4.
[37] Conference transcript, p. 6 (Kraemer).
[38] Conference transcript, p. 50. (Kraemer).

limits the number of production runs, called "campaigns" to two per year.[39] Campaigns can vary by length and are geared towards producing 90 days of inventory.[40]

While the petitioner produces methylvanillin from synthetic substrates, there are other production methods. As mentioned above, a limited quantity of methylvanillin is available naturally through extraction from vanilla beans. A third type of production is biosynthesis, which uses microbial transformation (e.g., fermentation) to process methylvanillin from natural sources, such as corn, turmeric, and rice bran.[41] In some cases biosynthetic methylvanillin (also known as biovanillin) is accepted as natural by regulators in the EU and the United States.[42] Methylvanillin molecules are the same regardless of production method and the choice of synthetic, extracted, or biosynthetic methylvanillin likely depends on consumer preferences.[43] According to the petitioner, there is no known commercial production of natural methylvanillin or biovanillin in the United States.[44] The petitioner states that it has equipment in place to produce natural methylvanillin in the United States, but did not produce it during the POI.[45]

Domestic like product issues

In the preliminary phase, the petitioner proposed that the Commission define a single like product coextensive with the scope in these investigations.[46] In its preliminary phase

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[39] Conference transcript, pp. 6 (Kraemer).

[40] Conference transcript, pp. 6, 33 (Kraemer).

[41] DeCarlo, Samantha, "Alright Stop, Collaborate and Listen: Vanillin, Not Vanilla," USITC, February 2022, p. 7. https://www.usitc.gov/publications/332/alright_stop_collaborate_and_listen_vanillin_not.htm.

[42] DeCarlo, Samantha, "Alright Stop, Collaborate and Listen: Vanillin, Not Vanilla," USITC, February 2022, p. 10. https://www.usitc.gov/publications/332/alright_stop_collaborate_and_listen_vanillin_not.htm. The U.S. regulatory requirement for a natural flavor requires derivation from a natural source. The EU requires both a natural source and an extraction method that does not use catalysts (other than enzymes). Grocholl, Luke, "Vanilla Regulations," Millipore Sigma website, accessed June 17, 2025. https://www.sigmaaldrich.com/US/en/technical-documents/technical-article/food-and-beverage-testing-and-manufacturing/flavor-and-fragrance-formulation/vanilla-regulations#2; 21 CFR 101.22(a)(3). https://www.govinfo.gov/content/pkg/CFR-2024-title21-vol2/pdf/CFR-2024-title21-vol2-sec101-22.pdf; Regulation (EC) No 1334/2008 Art. 3.2(c). https://eurlex.europa.eu/eli/reg/2008/1334/oj/eng.

[43] DeCarlo, Samantha, "Alright Stop, Collaborate and Listen: Vanillin, Not Vanilla," USITC, February 2022, p. 10. https://www.usitc.gov/publications/332/alright_stop_collaborate_and_listen_vanillin_not.htm.

[44] Conference transcript, p. 26 (Kraemer), pp. 26 to 27 (Pickard).

[45] Petitioner's posthearing brief, pp. 5 to 6.

[46] Petition, p. 8. ***. Email from ***, April 15, 2025.

determinations, the Commission defined a single domestic like product, coextensive with the scope.[47] In their comments on draft questionnaires, no party requested data or other information necessary for the analysis of the domestic like product. The petitioner continues to propose that the Commission should define a single like product coextensive with the scope in these investigations.[48] Respondent parties have argued that synthetic vanillin and natural vanillin should be considered separate domestic like products..[49] The Commission requested U.S. producers, importers, and purchasers to provide comparative and narrative information regarding the domestic like product factors comparing synthetic vanillin to natural and biosynthetic vanillin. Their responses are provided in appendix D.

[47] Vanillin from China (Preliminary), USITC Publication 5527, July 2024.
[48] Petitioner's prehearing brief, p. 3 and petitioner's posthearing brief, p. 3.
[49] Respondent prehearing brief, p.1.

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

U.S. market characteristics

Vanillin is an organic compound that is the main flavor component found in vanilla beans and is responsible for its typical vanilla taste. It can be found naturally and produced synthetically. More than 99 percent of global vanillin demand is served by synthetically produced vanillin. Types of vanillin produced synthetically include ethylvanillin, methylvanillin, and biosynthetic vanillin.[1] Vanillin is used in many types of products in which taste and smell are important: foods, perfumes, flavorings, and pharmaceuticals.[2] There is currently one domestic producer that responded, which accounted for between *** of domestic apparent consumption in 2022 to 2024, and imports from China satisfied *** of domestic apparent consumption during that period.[3]

***, 15 of 21 importers,[4] and 25 of 34 purchasers indicated that the market was not subject to distinctive conditions of competition. Of the firms that noted distinctive conditions, *** noted that market stability varies from year to year, typically because plants have failures some years, which it noted has happened to both domestic and foreign producers "repeatedly for the past seven to eight years." It also noted that feedstock prices fluctuate, which has an effect on vanillin prices.[5] Purchaser *** noted a

[1] As noted in Part 1, biosynthetic vanillin is produced using microbial transformation (e.g., fermentation) to process vanillin precursors from other sources in which they occur naturally, such as corn, turmeric, and rice bran. Purchaser *** stated that "'Biosynthetic' is not a term commonly used in the flavor industry. Either the products are defined as natural or synthetic in guidelines with the FDA.

[2] Petition, p. 4.

[3] There is also one other small producer which *** that refused to fill out a producer's questionnaire in the final phase. See Parts 1 and 3.

[4] ***.

[5] *** stated that business cycles are apparent for natural vanillin, but not ethylvanillin. It provided further detail regarding raw materials for natural vanillin: "The vanillin products market, particularly for natural vanillin, is primarily driven by fluctuations in the market prices of key feedstocks-ferulic acid and eugenol. Ferulic Acid ({aka} EU Natural Vanillin): Ferulic acid is extracted from rice bran oil. The availability and price of rice bran oil can be influenced by agricultural cycles, particularly the rice harvest seasons. During peak harvest periods, the supply of rice bran oil increases, potentially lowering the cost of ferulic acid. Conversely, during off-peak seasons, reduced supply can lead to higher prices. These seasonal variations can affect the production cost of EU Natural vanillin. Eugenol ({aka} US Natural Vanillin): Eugenol is extracted from clove. Clove production is subject to agricultural cycles and climatic conditions. Like ferulic acid, the availability and price of clove can vary throughout the year. Seasonal harvests and climatic conditions can lead to fluctuations in eugenol prices, thereby affecting the cost of US Natural vanillin." Email from ***, April 9, 2025.

number of changes since 2022 distinctive to the vanillin market: New producers/increased capacity in China, India, Thailand, France, and Indonesia; raw material availability issues; regulatory changes; shifting consumer preferences towards natural and sustainable products; supply chain disruptions including plant closures, the COVID-19 pandemic, and geopolitical tensions; and technological advancements. Purchaser *** described differences in the definition of "natural" that have led suppliers to begin differentiating vanillin types (i.e., "U.S. Natural" versus "EU Natural"); both U.S. natural and EU natural vanillin require the production feedstock material to be natural, the EU maintains additional restrictions on production feedstock materials as well as on the production process.

Apparent U.S. consumption of vanillin fluctuated during 2022 to 2024, decreasing by *** percent in 2023 from 2022 levels, but increasing by *** percent in 2024. The decrease in 2023 purchases reflect a reported inventory correction after high levels of purchasing in 2022 in response to COVID-19/post-COVID-19 pandemic-related buying patterns.[6] Overall, U.S. apparent consumption increased *** percent between 2022 and 2024.

[6] Vanillin from China (Preliminary), USITC Publication 5527, July 2024, p. II-7.

U.S. purchasers

The Commission received 36 usable questionnaire responses from firms that had purchased vanillin during January 2022 to December 2024.[7] [8] [9] Thirteen responding purchasers are distributors, 24 are food manufacturers, 7 are perfume/cosmetics manufacturers, 3 are flavor/fragrance manufacturers, and 1 is a pharmaceutical manufacturer.[10] Nearly all (35 of 36) reported purchasing ethylvanillin, 28 reported purchasing synthetic methylvanillin, 28 reported purchasing natural vanillin, and 9 reported purchasing biosynthetic vanillin. Responding U.S. purchasers were located throughout the continental United States. Thirty-one purchasers are familiar with domestic vanillin, 32 are familiar with vanillin imported from China, and 28 are familiar with vanillin imported from other countries, most frequently France, India, Indonesia, and Norway. Large purchasers of vanillin include ***. *** purchasers—***—are also importers of vanillin which completed the Commission's importer questionnaire.

[7] The following firms provided purchaser questionnaire responses: ***. In addition, the Commission received one purchaser questionnaire from a firm located in Canada, which only had Canadian purchases.

[8] Of the 35 responding purchasers, 26 purchased domestic vanillin, 32 purchased imports of the subject merchandise or imported directly from China, and 21 purchased imports of vanillin from other sources.

[9] Thirty-one purchasers indicated they had marketing/pricing knowledge of domestic product, 32 of product imported from China, and 28 of nonsubject countries (India (18 firms), Norway (8), France (7), Indonesia (6), Thailand (2), and Belgium, Finland, Italy, and Malaysia (1 firm each).

[10] Some purchasers identified their firm as more than one type of purchaser.

Impact of section 301 tariffs

The U.S. producer, importers, and purchasers were asked to report the impact of section 301 tariffs on overall demand, supply, prices, or raw material costs (tables 2.1). ***, more than two-thirds of importers and purchasers indicated that section 301 tariffs had an effect in the vanillin market. Most importers and purchasers indicated that the tariffs affected pricing in the U.S. market. Importer *** reported that changes in the tariffs were "quickly reflected in the market price in the United States" but that the tariffs did not have "a big impact on demand for the Chinese material simply, because the domestically produced material was never sufficient to satisfy the market… Only pricing changed." Importer *** indicated that imports from China decreased and *** reported it would need to import from India. *** stated that the U.S. producer raised prices and Chinese imports are no longer an option, so the tariffs possibly created a 'no competition' situation in the synthetic ethylvanillin market. It also relayed that it has heard in the market that ***. Other purchasers reported needing to switch suppliers due to the section 301 tariffs. Purchaser *** noted the section 301 tariffs only impacted imports of ethylvanillin, which has a 25 percent duty; methylvanillin has 7.5 percent duties.

Table 2.1 Vanillin: Count of firms' responses regarding the impact of the 301 tariffs on Chinese origin products

Firm type	Yes	No	Don't know
U.S. producer	***	***	***
Importers	12	5	4
Purchasers	15	7	14

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

Channels of distribution

The U.S. producer sold mainly to fragrance end users, while importers of Chinese vanillin sold mostly to food end users and importers of vanillin from nonsubject sources sold mostly to other end users in each year, as shown in table 2.2.[11]

Table 2.2 Vanillin: Share of U.S. shipments by source, channel of distribution, and period

Shares in percent

Source	Channel	2022	2023	2024
United States	Distributor	***	***	***
United States	Food end user	***	***	***
United States	Fragrance end user	***	***	***
United States	Other end users	***	***	***
China	Distributor	***	***	***
China	Food end user	***	***	***
China	Fragrance end user	***	***	***
China	Other end users	***	***	***
Nonsubject sources	Distributor	***	***	***
Nonsubject sources	Food end user	***	***	***
Nonsubject sources	Fragrance end user	***	***	***
Nonsubject sources	Other end users	***	***	***
All import sources	Distributor	***	***	***
All import sources	Food end user	***	***	***
All import sources	Fragrance end user	***	***	***
All import sources	Other end users	***	***	***

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

Note: Zeroes, null values, and undefined calculations are suppressed and shown as "—".

Geographic distribution

The U.S. producer reported selling vanillin to ***. Importers reported selling to all regions in the United States, most frequently to the Northeast, Midwest, and Southeast. For the U.S. producer, *** percent of sales were within 100 miles of their production facility, *** percent between 101 and 1,000 miles,

[11] Detailed data regarding the volumes of shipments to each channel by source and type of vanillin are presented in Appendix E.

and *** percent over 1,000 miles. Importers sold 25.7 percent within 100 miles of their U.S. point of shipment, 44.6 percent between 101 and 1,000 miles, and 29.6 percent over 1,000 miles.

Table 2.3 Vanillin: Count of U.S. producer's and U.S. importers' geographic markets

Region	U.S. producer	China
Northeast	***	14
Midwest	***	11
Southeast	***	12
Central Southwest	***	7
Mountain	***	3
Pacific Coast	***	8
Other	***	1
All regions (except Other)	***	1
Reporting firms	1	15

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

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

Supply and demand considerations

U.S. supply

Table 2.4 provides a summary of the supply factors regarding vanillin from the U.S. producer and from subject countries.

Table 2.4 Vanillin: Supply factors that affect the ability to increase shipments to the U.S. market, by country

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

Factor	Measure	United States	China
Capacity 2022	Quantity	***	***
Capacity 2024	Quantity	***	***
Practical capacity utilization 2022	Ratio	***	***
Practical capacity utilization 2024	Ratio	***	***
Inventories to total shipments 2022	Ratio	***	***
Inventories to total shipments 2024	Ratio	***	***
Home market shipments 2024	Share	***	***
Non-US export market shipments 2024	Share	***	***
Ability to shift production (firms reporting "yes")	Count	***	***

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

Note: The responding U.S. producer accounted for all or virtually all U.S. production of vanillin in 2024. Responding foreign producer/exporter firms accounted for approximately *** of U.S. imports of vanillin from China during 2024. For additional data on the number of responding firms and their share of U.S. production and of U.S. imports from each subject country, please refer to Parts 3 and 7.

Domestic production

Based on available information, the U.S. producer of vanillin has the ability to respond to changes in demand with large changes in the quantity of shipments of U.S.-produced vanillin to the U.S. market. The main contributing factors to this degree of responsiveness of supply are ***. Factors mitigating domestic supply changes include a limited ability to shift shipments from ***.

Capacity remained the same throughout the period, but production first decreased by *** percent in 2023 but increased by *** percent in 2024. More than *** percent of Solvay's export shipments were *** in 2022 and 2024. These shipments comprise more than *** of Solvay's production during each year. Its principal export markets are ***. Other products *** produced on the same equipment as vanillin.

Subject imports from China

Based on available information, producers of vanillin from China have the ability to respond to changes in demand with large changes in the quantity of shipments of vanillin to the U.S. market. The main contributing factors to this degree of responsiveness of supply are the availability of unused capacity or inventories and the ability to shift shipments from non-U.S. export markets. Factors mitigating responsiveness of supply include limited and no reported ability to shift production to or from alternate products.

Although capacity utilization was reported to be *** of practical capacity during the period, this includes data for foreign producer ***[12] and data for ***. Practical capacity utilization for the other responding foreign producer (***) was around *** percent in both 2022 and 2024, though

[12] ***

it was at *** percent during 2023. Major export markets noted by foreign producers included ***. Foreign producers reportedly cannot produce other products on the same equipment as vanillin.

Imports from nonsubject sources

Nonsubject imports accounted for 37.9 percent of total U.S. imports of vanillin in 2024, a decline from 40.7 percent in 2022. Based on HTS import data, the largest sources of nonsubject imports during January 2022 to December 2024 were France, Canada, Germany, the Netherlands, and Sweden. Combined, these countries accounted for 77.2 percent of these imports in 2024 from nonsubject countries.

Supply constraints

The domestic producer reported *** supply constraints ***; 7 of 21 responding importers reported that they had experienced supply constraints since January 1, 2022. Of those that reported they had experienced supply constraints, five reported the constraints occurred during 2022, two reported they occurred during 2023, three during 2024 before the petition was filed, and four in the period after the petition was filed (table 2.5). Constraints reported by importers included production issues in 2021 and 2022 in the United States and China and the shutdown of Wanglong in China (reported by ***); forces majeures at manufacturers in 2022 (reported by ***); a shortage in supply of less than nine months and a manufacturing shutdown in China during 2022 (reported by ***); some delays in shipments in 2022 through mid-2024 if inbound shipments arrive late (reported by ***); delays due to port congestion in 2022, short supply in China in 2023, inventory rationing in early 2024, and no post-petition imports in 2024 (reported by ***); uncertainty in the marketplace in post-petition 2024 (reported by *** and ***).[13]

[13] *** explained, "***."

Table 2.5 Vanillin: Count of firms' responses regarding timing of supply constraints, by firm type and source

Firm type	Source	2022	2023	January 1 – June 5, 2024	June 5, 2024 - present
U.S. producer	Domestic	*** of 1	*** of 1	*** of 1	*** of 1
Importers	Imported	5 of 19	2 of 16	3 of 17	4 of 18
Purchasers	Domestic	8 of 35	1 of 33	3 of 33	2 of 34
Purchasers	Imported	5 of 35	1 of 33	1 of 33	7 of 34

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

Ten of 35 responding purchasers reported that they had experienced supply constraints from domestic producers, 10 experienced supply constraints for vanillin imported from China, and 5 experienced supply constraints for vanillin imported from nonsubject countries. Most frequently, purchasers reported supply constraints from domestic producers in 2022 and for imports in 2022 and post-petition 2024. Purchaser *** noted that it is "harder to procure" product from Solvay, purchaser *** noted that Solvay does not respond to inquiries, purchaser *** noted that Solvay is unwilling to sell to it, and purchaser *** stated, "…sales representatives of Solvay USA, LLC will engage in gathering customer interest and demand but stop short of offering any materially useful information regarding actual product availability or pricing." Purchaser *** noted that it was placed on a quarterly allocation post-COVID-19 in late 2021/early 2022. Multiple purchasers noted that Solvay faced supply constraints leading into and in 2022, with one purchaser relating that Solvay cited the COVID-19 pandemic. Three other purchasers noted difficulties buying from Solvay in 2022. Purchaser *** stated with respect to all vanillin sources, "Vanillin prices tripled from beginning of 2021 to end of 2022 due to tariffs. In some cases, I'm assuming stock piling occurred and inflated prices were the result. Generally, there was very little inventory and what was available was expensive. Purchaser *** noted that the tightness in the market prevalent in early 2022 has eased. With respect to imported product, purchasers reporting changes in availability noted: decreased availability from China after the petition was filed, Brother Chemical Company in China, Camlin in India, and Borregaard in Norway entering the market, local stocking of material, increased availability in 2023 compared with 2022, and Solvay providing additional supply of vanillin from its French manufacturing facility after the COVID-19 pandemic subsided. Purchaser *** reported that commercially available quantities are not yet available from Camlin in India. Purchaser *** indicated that it was told by Sysenqo (Solvay) that it had no stock availability in November 2024 to January 2025. Purchaser *** has been unable to qualify domestic product, and two other purchasers stated that since the filing of the petition, they have been sourcing Chinese product

from *** due to the pendency of the investigation. Purchaser *** noted supply constraints from Indonesia since it has been unable to qualify U.S. natural vanillin.

New suppliers

Twelve of 36 purchasers indicated that new suppliers entered the U.S. market since January 1, 2022. Nine purchasers cited Camlin Fine Sciences (or Camlin India, or India-based manufacturers), three cited KS Asia Aroma (or new manufacturer of natural vanillin) in Thailand. Brother Holding US Inc, Thrive Fine Chemicals Co., Ltd, Siyomicro Bio-Tech Co., Ltd., and Borregaard in Norway were also mentioned.

U.S. demand

Based on available information, the overall demand for vanillin 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 vanillin in most of its end-use products.

End uses and cost share

U.S. demand for vanillin depends on the demand for U.S.-produced downstream products. Reported end uses include flavoring, vanilla flavoring, fragrance compounds, food and beverage products, and smokeless tobacco. The food and beverage industry is the largest consumer of vanillin, and reportedly consumes 75.2 percent of total vanillin production.[14]

Vanillin accounts for a small or variable share of the cost of the ultimate end-use products in which it is used. For these end uses, the cost shares are low. For example, purchasers reported that vanillin accounts for approximately 1 percent of the cost of honey buns, brownies, and powdered donuts; beauty care, fabric care, and home care perfumes; and fresh and clean fragrance. For intermediate flavorings and fragrances,[15] the cost share of vanillin varies substantially based on the formulation to create the ultimate flavor or fragrance in which it is used, and purchasers reported cost shares ranging from less than 1 percent to 78 percent.

[14] "Vanillin Market Size, Share, Growth, and Industry Analysis, By Types, By Applications, Regional Insights and Forecast to 2033," Global Growth Insights, Respondents' prehearing brief, exh. 1.

[15] Some products enumerated by purchasers included flavors, fragrances, liquids, and oils that are vanilla-scented or flavored as well as others that include other scents/flavors (e.g., caramel, chocolate, hazelnut, piña colada, strawberry coconut, tropical punch, and natural and artificial flavors).

Business cycles

***, 5 of 21 importers, and 13 of 35 purchasers indicated that the market was subject to business cycles. *** reported there are annual production shutdowns for seasonal producers like confectionery and baking purchasers. Purchaser *** stated, "Economic fluctuations can impact vanillin product demand. Expansion during the pandemic led to overstocking in 2022 followed by destocking later in 2022 and 2023."[16] Six purchasers noted yearly seasonality in the demand for vanillin, especially with regard to the holiday season having higher demand.

[16] Purchaser *** provided a larger description of the market dynamic related to the COVID-19 pandemic: "As was the case across all scope of products and manufactured goods, there was a trend amongst buyers/brokers/importers in commodities and raw material markets to order excessive volumes to hedge against the risk of shutdowns/logistics delays once it was apparent the Covid pandemic was imminent. This led to an ordering frenzy immediately preceding the initiation of local, state, and national government mandated shutdowns. Once Covid began to close all aspects of business that March, it disrupted not only the flow of goods from sources all over the world, but access to those goods, as even if products were available, there were limited avenues to procure those goods in the midst of mass global shutdowns. These shutdowns, in conjunction with the limited availability of containers and vessels globally, led to a 10-fold increase in shipping costs via vessel (and to a lesser degree, airfreight). This exacerbated the already scarce and expensive products that were available to U.S. consumers. Even once businesses in the U.S. started reopening, China was still following very strict Covid protocols, causing supply shortages on thousands of materials necessary to the U.S. manufacturing complex. With relatively few chemical/commodity manufacturers operating in the U.S., domestic producers could barely make a dent in the volumes required for standard U.S. manufacturing, in particular, the U.S. manufacturer of Vanillin/Ethyl Vanillin could meet only a small fraction of the requirement, and, refused to sell to importers, period. This was made clear by the lack of response from the U.S. producer after multiple phone call attempts made by *** to request offers and place potential orders. The combination of limited Chinese imports coupled with zero access to the U.S. producer left many importers scrambling for little to no material. Those reliant on Vanillin and Ethyl Vanillin as sizable chunks of revenue were forced to cut costs, diversify offerings, adjust business models, or worse, adversely affecting these companies and creating a domino effect down the line through brokers, manufacturers, suppliers, retail establishments, and ultimately, U.S. consumers. As restrictions eased as the Covid years passed and almost all restrictions evaporated, the supply chain regained some normalcy, commodity products and ingredients came back to their pre-covid demand and prices stabilized. However, as the industry at large increased orders exponentially to 'stock up' and cover any potential issues with future shutdowns and mandates, there was an excess of material brought into the U.S., creating high volumes (in some cases double annual usage) in importer's, manufacturer's and retailer's stocks, resulting in limited importing/reorders over the next 12-18 months until such stocks were depleted amongst easing fears of any Covid reemergence."

Demand trends

Most firms reported an increase in U.S. demand for vanillin since January 1, 2022 (table 2.6). Importers' responses regarding foreign demand were relatively evenly distributed between fluctuating downward and increasing steadily, whereas a majority of purchasers indicated that foreign demand had not changed or changed but ended near the same level as it was at the beginning of the period. More purchasers reported increasing demand for products incorporating vanillin than indicated demand had decreased or ended near the same level as it began the period. Twenty of 28 responding purchasers noted that demand for their end-use product affect their demand for vanillin.

Table 2.6 Vanillin: Count of firms' responses regarding overall domestic and foreign demand, by firm type

Market	Firm type	Steadily increase	Fluctuate upward	No change	Fluctuate downward	Steadily decrease
Domestic demand	U.S. producer	***	***	***	***	***
Domestic demand	Importers	5	4	4	7	0
Domestic demand	Purchasers	4	10	9	0	2
Foreign demand	U.S. producer	***	***	***	***	***
Foreign demand	Importers	4	3	3	4	0
Foreign demand	Purchasers	3	6	10	0	0
Demand for end use products	Purchasers	9	6	9	4	0

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

Note: "No change" includes responses in which demand fluctuated but was near the same level at the beginning and end of the period.

Demand for vanillin is derived from demand for goods incorporating vanillin, which is driven by personal expenditures on goods such as food, flavorings, fragrances, and generally tracks general economic conditions.[17] As shown in table 2.7 and figure 2.1, seasonally-adjusted non-durable goods personal consumption expenditure was generally decreasing in 2022, but increased in six of the last eight quarters. One industry report indicated it expects growth averaging 4.9 percent in the vanillin market through 2033. The same industry report has noted that the vanillin market "is witnessing a strong shift toward natural and bio-based products, driven by increasing consumer demand for clean-label ingredients."[18]

[17] At the preliminary staff conference, counsel for petitioners stated that demand generally tracks GDP. Conference transcript, p. 20 (Pickard).

[18] "Vanillin Market Size, Share, Growth, and Industry Analysis, By Types, By Applications, Regional Insights and Forecast to 2033," Global Growth Insights, Respondents' prehearing brief, exh. 1.

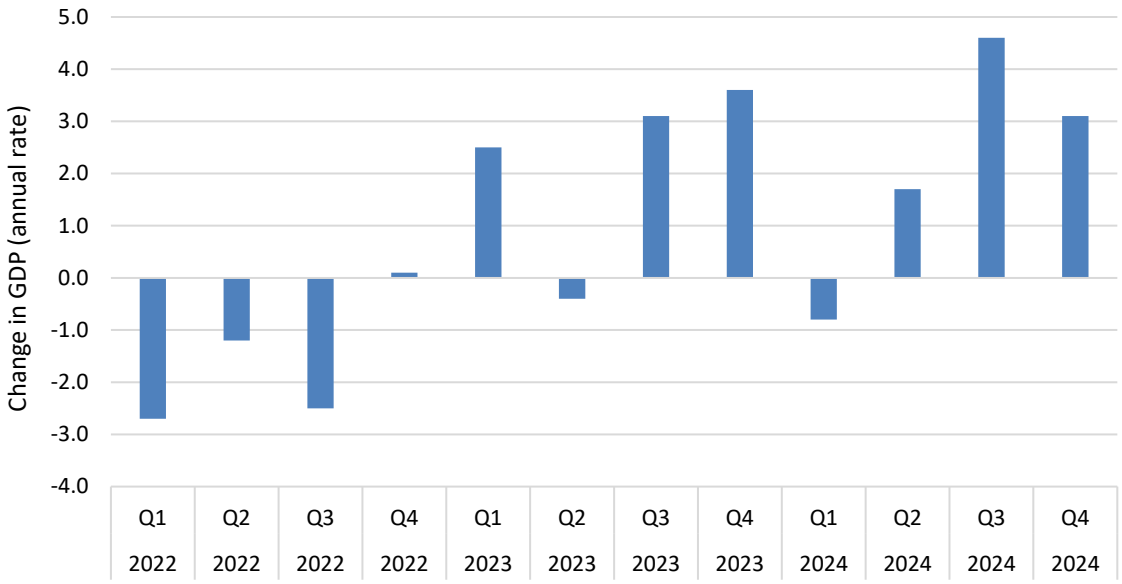
Table 2.7 Vanillin: Percent change from preceding period in real non-durable goods personal consumption expenditure, seasonally adjusted at annual rates, January 2022 to December 2024

Change in percent.

Quarter	2022	2023	2024
Quarter 1	-2.7	2.5	-0.8
Quarter 2	-1.2	-0.4	1.7
Quarter 3	-2.5	3.1	4.6
Quarter 4	0.1	3.6	3.1

Source: Bureau of Economic Analysis, "Table 1. Real Gross Domestic Product and Related Measures: Percent Change from Preceding Period," https://www.bea.gov/data/gdp/gross-domestic-product, retrieved April 22, 2025.

Figure 2.1 Vanillin: Percent change from preceding period in real non-durable goods personal consumption expenditure, seasonally adjusted at annual rates, January 2022 to December 2024



Source: Bureau of Economic Analysis, "Table 1. Real Gross Domestic Product and Related Measures: Percent Change from Preceding Period," https://www.bea.gov/data/gdp/gross-domestic-product, retrieved June 3, 2025.

Substitute products

Substitutes for vanillin are very limited. Seventeen of the 18 responding importers, and 31 of 35 responding purchasers indicated that there are no substitutes for vanillin. *** indicated that vanilla bean or vanilla extract could be used but their prices are significantly higher than vanillin. Purchasers *** stated that decreasing vanilla bean prices could have had an impact upon vanillin pricing and that usage shifts between the two materials as costs change, respectively. *** indicated that *** could be a substitute ***. Purchaser *** indicated three possible substitutes: oleoresin vanilla (for high-end

flavor where color does not matter), propenyl guaethol (for low-vanilla percent products), and coumarin (for low-end fragrances).

Substitutability issues

This section assesses the degree to which U.S.-produced vanillin and imports of vanillin from subject countries can be substituted for one another by examining the importance of certain purchasing factors and the comparability of vanillin from domestic and imported sources based on those factors. Based on available data, staff believes that there is a high degree of substitutability between domestically produced vanillin and subject vanillin imported from China for synthetic vanillin and low substitutability for imported natural vanillin; natural vanillin is not produced in large volumes domestically and may only be substituted in specific instances.[19] Factors contributing to this level of substitutability for synthetic vanillin include comparability on nearly all factors between countries, broad interchangeability for vanillin sourced from different countries, little preference for one country's product over another country's product, few domestic content requirements, domestic and imports always or usually meeting quality requirements, and limited significant factors other than price. While there are reported instances of certain purchasers being unable to qualify vanillin from certain sources or manufacturers, most purchasers noted at least frequent interchangeability.

Factors affecting purchasing decisions

Purchaser decisions based on source

As shown in table 2.8, most purchasers and their customers seldom make purchasing decisions based on the producer or country of origin. Of the purchasers that reported that they at least sometimes make decisions based on manufacturer, most referenced supplier or material quality approval, long-term agreements, and reliability as driving factors. Purchasers that at least sometimes base decisions on the country of origin noted a variety of factors influencing their decisions: customer service, domestic and/or non-Chinese origin material preference, dual-sourcing, logistics, price, regulatory compliance, qualification, quality, relationships/agreements, supply reliability, and payment terms.

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

Table 2.8 Vanillin: Count of purchasers' responses regarding frequency of purchasing decisions based on producer and country of origin

Firm making decision	Decision based on	Always	Usually	Sometimes	Never
Purchaser	Producer	4	5	7	20
Customer	Producer	1	2	5	21
Purchaser	Country	1	3	10	22
Customer	Country	0	0	8	20

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

Importance of purchasing domestic product

All 34 responding purchasers reported that most or all of their purchases did not require purchasing U.S.-produced product. Two purchasers that reported that some of their purchases (3 and 7 percent) require domestic product indicated that these purchases are driven by their customers' preferences. These purchases accounted for 1.0 percent of total reported purchases in 2024.

Most important purchase factors

The most often cited top three factors firms consider in their purchasing decisions for vanillin were price (31 firms), quality (28 firms), and availability/lead time (25 firms) as shown in table 2.9. Although price was the most frequently cited factor among the top three, quality was by far the most frequently cited most important factor (cited by 19 firms), compared with price, which had only 5 firms reporting it as the most important factor. Availability/lead times was the most frequently reported second-most important factor (12 firms); and price was the most frequently reported third-most important factor (17 firms). Half of the purchasers (18 of 36) reported that they usually purchase the lowest-priced product, 11 sometimes do, 6 never do, and 1 always does.

Table 2.9 Vanillin: Count of ranking of factors used in purchasing decisions as reported by purchasers, by factor

Factor	First	Second	Third	Total
Quality	19	8	1	28
Price	5	9	17	31
Availability/lead times	3	12	10	25
Production Capacity	2	1	0	3
Regulatory compliance	2	0	0	2
Reliability	1	3	1	5
Traditional supplier	1	1	1	3
Strategic relationship	1	1	0	2
Total cost of ownership	1	0	0	1
Payment terms	0	0	2	2
All other factors	1	2	1	4

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

Note: Some firms reported more than one factor for at least one of the categories. Other factors include "distribution mandate" as a most important factor, "local stocking" and "sensory" for second-most important factors, and "audit reports and sustainability certificates/scores" as third-most important factors. In addition, purchasers noted some factors that did not make it into their top three factors but were important to their purchase decisions. Five purchasers noted payment terms, two noted customer service and the reputation of a supplier, and one each noted availability, delivery terms, ethical practices, GMP programs, logistics, regulatory compliance, supplier performance, and "other risk factors."

Importance of specified purchase factors

Purchasers were asked to rate the importance of 20 factors in their purchasing decisions (table 2.10). The factors rated as very important by more than half of responding purchasers were quality meets industry standards (cited by 34 purchasers), reliability of supply (33 purchasers), product consistency (32 purchasers), delivery time, availability of ethylvanillin, and flavor concentration or profile (29 purchasers each), price (28 purchasers), and availability of synthetic methylvanillin (25 purchasers). Although the availability of natural vanillin was very important for 18 purchasers, it was not important for 10 purchasers, reflecting the bifurcation of needs among the breadth of responding purchasers; only 5 purchasers reported it as somewhat important.

Seven of 31 responding purchasers noted that certain types of vanillin are only available from one source. Purchaser *** stated that natural vanillin (both EU natural and U.S. natural varieties) is not available from the domestic manufacturer. *** indicated that ethylvanillin is only available from Solvay and China. *** stated that lignin vanillin originates from Norway and has not been readily available in the United States for three years. *** suggested that there could be a preference for certain types of natural vanillin only available from certain sources: natural vanillin ex-clove is available from Indonesia, while natural vanillin ex-turmeric is available from India. *** noted that Madagascar has "top of the line" Grade A vanillin, but China also has high-quality vanillin.

Table 2.10 Vanillin: Count of purchasers' responses regarding importance of purchase factors, by factor

Factor	Very important	Somewhat important	Not important
Quality meets industry standards	34	1	1
Reliability of supply	33	1	1
Product consistency	32	4	0
Delivery time	29	6	0
Availability of ethylvanillin	29	3	4
Flavor concentration or profile	29	2	4
Price	28	8	0
Availability of synthetic methylvanillin	25	3	7
Availability of natural methylvanillin	18	5	10
Delivery terms	17	15	4
Technical support/service	16	18	1
Payment terms	14	16	5
Quality exceeds industry standards	14	15	6
Produced from natural inputs	13	13	9
U.S. transportation costs	12	18	5
Produced using natural processes	11	15	8
Packaging	7	18	10
Product range	7	13	15
Minimum quantity requirements	6	20	8
Discounts offered	5	17	12

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

Lead times

Vanillin is primarily sold from inventory. The U.S. producer reported that *** are from inventory with lead times averaging ***. U.S. importers reported that 87.8 percent of their commercial shipments were made from U.S.-held inventories, with lead times between 2 and 90 days. Nine of the 14 responding importers reported lead times between 2 days and 2 weeks, while the other four reported lead times of at least 20 days. The remaining 12.2 percent came from foreign inventories, with lead times ranging between 50 and 90 days.

Supplier certification

Thirty-four of 36 responding purchasers require their suppliers to become certified or qualified to sell vanillin to their firm. Purchasers reported that the time to qualify a new supplier ranged from 1 to 275 days. Nine purchasers reported certification times of two weeks or less, 13 reported certification times between two weeks and two months, and 7 reported certification times of three months or greater. Six purchasers reported that a domestic or foreign supplier had failed in its attempt to qualify vanillin, or had lost its approved status since 2022. Two purchasers reported a domestic supplier did not qualify, three reported an Indian supplier did not qualify, one reported an Indonesian supplier did not qualify, and one reported

that every supplier except Solvay did not qualify. These purchasers noted reasons related to quality (e.g., taste, odor, particle size, and purity), service issues, sensory issues, and not meeting regulatory requirements.

Minimum quality specifications

As shown in table 2.11, the vast majority of responding purchasers reported that domestically produced vanillin and vanillin imported from China and nonsubject sources always met minimum quality specifications, and nearly all others reported that suppliers usually met minimum quality specifications.

Table 2.11 Vanillin: Count of purchasers' responses regarding suppliers' ability to meet minimum quality specifications, by source

Source of purchases	Always	Usually	Sometimes	Rarely or never	Don't Know
United States	25	6	0	1	3
China	23	6	0	0	6
Nonsubject sources	14	6	0	0	6

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

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

Nearly all responding purchasers reported factors that determined quality. A large number of different factors were included, ranging from organoleptic/sensory factors (appearance, color, flavor, odor, taste, etc.), chemistry factors (assay, boiling point, heavy metals, organoleptic characteristics, particle size, pH, purity, strength, etc.), and certification/regulatory issues (compliance with Global Food Safety Initiative quality requirements, documentation, and food grade declarations).

Changes in purchasing patterns

Nineteen purchasers reported that they had changed suppliers since January 1, 2022, while 16 reported that they had not. Purchasers noted a wide mix of adding and decreasing vendors. For example, four firms shifted away from Solvay (for price, quality, and "code consolidation" reasons), two changed to different distributors of Solvay's product, and one added Solvay as a supplier. One purchaser added OSF France and Jiaxing to reduce exposure to price hikes experienced in 2022.[20] Purchaser *** enumerated seven new suppliers which it added because of price, availability, quality, supplier performance, customer service, payment terms and/or risk factors. Two purchasers added an Indian source in place of Chinese sources, with one adding India due to 2025 tariff increases.

Purchasers were also asked about changes in their purchasing patterns from different countries since January 1, 2022 (table 2.12). Purchasers indicated mixed patterns of increases, decreases, and having similar purchase levels at the start and end of the period for domestic vanillin. Purchasers most frequently noted changes in downstream demand for their products, but also noted inventory fluctuations, quality, availability, pricing, and formulation changes to account for changes in purchasing patterns of domestic vanillin. Purchaser *** related that Solvay has become "{l}ess price competitive over time. {It} still kept some supply until 2024 for business continuity plan reasons as Solvay is in {Los Angeles, California} with risk of hurricanes and floods. Note that prices increased during COVID, {it} went with domestic supply - post COVID, {it} saw a drastic price reduction industry-wide, with China reducing price faster and more aggressively than Solvay. {It} Also noted that Solvay is challenging to work with from a relationship standpoint, leading buyers away from the company in general, which is the only producer of this material in the {United States}."

[20] *** elaborated on this response. ***.

Table 2.12 Vanillin: Count of purchasers' responses regarding changes in purchase patterns from U.S., subject, and nonsubject countries

Source of purchases	Steadily increase	Fluctuate upward	No change	Fluctuate downward	Steadily decrease	Did not purchase
United States	5	5	7	6	4	6
China	4	10	7	6	5	4
Nonsubject sources	1	8	8	2	1	9
Sources unknown	0	1	2	1	0	14

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

Slightly more purchasers noted steadily increasing or purchases fluctuating upward for imports from China and nonsubject sources than decreases in purchases (table 2.12). Purchaser *** indicated it built up inventories from all suppliers during the COVID-19 pandemic. *** stated that the global shortage in 2022 impacted availability that it was difficult to compete with prices from China in 2023 and 2024. *** described a return to normal purchasing patterns after the pandemic. Purchaser *** described that the last time it bought Chinese material *** was in 2021 and in 2022 it only received product manufactured ***.

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

Purchasers were asked a number of questions comparing vanillin produced in the United States, subject countries, and nonsubject countries. First, purchasers were asked for a country-by-country comparison on the same 20 factors (table 2.13) for which they were asked to rate the importance.

Most purchasers reported that U.S.-produced vanillin and vanillin imported from China were comparable on all factors except price, for which China was rated as superior. When comparing U.S. and China to nonsubject imports, most purchasers rated all factors as comparable.

Table 2.13 Vanillin: Count of purchasers' responses comparing U.S.-produced and imported product, by factor and country pair

Factor	Country pair	Superior	Comparable	Inferior
Availability of synthetic methylvanillin	U.S. v. China	1	18	7
Availability of natural methylvanillin	U.S. v. China	4	13	5
Availability of ethylvanillin	U.S. v. China	1	20	7
Delivery terms	U.S. v. China	3	23	0
Delivery time	U.S. v. China	9	15	2
Discounts offered	U.S. v. China	0	17	3
Flavor concentration or profile	U.S. v. China	0	24	0
Minimum quantity requirements	U.S. v. China	1	22	3
Packaging	U.S. v. China	0	24	1
Payment terms	U.S. v. China	1	24	1
Price	U.S. v. China	1	11	16
Produced from natural inputs	U.S. v. China	2	16	2
Produced using natural processes	U.S. v. China	2	15	1
Product consistency	U.S. v. China	1	25	1
Product range	U.S. v. China	1	20	2
Quality meets industry standards	U.S. v. China	1	26	0
Quality exceeds industry standards	U.S. v. China	1	20	0
Reliability of supply	U.S. v. China	2	22	3
Technical support/service	U.S. v. China	3	22	1
Transportation costs	U.S. v. China	8	16	0

Table continued.

Table 2.13 (Continued) Vanillin: Count of purchasers' responses comparing U.S.-produced and imported product, by factor and country pair

Factor	Country pair	Superior	Comparable	Inferior
Availability of synthetic methylvanillin	U.S. v. nonsubject	1	20	2
Availability of natural methylvanillin	U.S. v. nonsubject	0	16	3
Availability of ethylvanillin	U.S. v. nonsubject	1	18	2
Delivery terms	U.S. v. nonsubject	3	20	0
Delivery time	U.S. v. nonsubject	8	15	1
Discounts offered	U.S. v. nonsubject	0	16	1
Flavor concentration or profile	U.S. v. nonsubject	1	22	0
Minimum quantity requirements	U.S. v. nonsubject	1	22	0
Packaging	U.S. v. nonsubject	0	23	0
Payment terms	U.S. v. nonsubject	1	21	1
Price	U.S. v. nonsubject	1	15	8
Produced from natural inputs	U.S. v. nonsubject	0	16	2
Produced using natural processes	U.S. v. nonsubject	0	15	1
Product consistency	U.S. v. nonsubject	1	22	0
Product range	U.S. v. nonsubject	1	18	0
Quality meets industry standards	U.S. v. nonsubject	1	23	0
Quality exceeds industry standards	U.S. v. nonsubject	1	18	0
Reliability of supply	U.S. v. nonsubject	3	19	1
Technical support/service	U.S. v. nonsubject	2	21	0
Transportation costs	U.S. v. nonsubject	6	15	0

Table continued.

Table 2.13 (Continued) Vanillin: Count of purchasers' responses comparing U.S.-produced and imported product, by factor and country pair

Factor	Country pair	Superior	Comparable	Inferior
Availability of synthetic methylvanillin	China v. nonsubject	7	13	3
Availability of natural methylvanillin	China v. nonsubject	4	10	6
Availability of ethylvanillin	China v. nonsubject	7	13	3
Delivery terms	China v. nonsubject	2	17	1
Delivery time	China v. nonsubject	2	17	2
Discounts offered	China v. nonsubject	1	17	0
Flavor concentration or profile	China v. nonsubject	2	19	1
Minimum quantity requirements	China v. nonsubject	1	20	0
Packaging	China v. nonsubject	0	22	0
Payment terms	China v. nonsubject	0	22	0
Price	China v. nonsubject	9	13	2
Produced from natural inputs	China v. nonsubject	1	12	5
Produced using natural processes	China v. nonsubject	1	11	4
Product consistency	China v. nonsubject	4	16	3
Product range	China v. nonsubject	2	17	1
Quality meets industry standards	China v. nonsubject	1	19	0
Quality exceeds industry standards	China v. nonsubject	1	15	1
Reliability of supply	China v. nonsubject	4	17	1
Technical support/service	China v. nonsubject	0	19	2
Transportation costs	China v. nonsubject	0	20	0

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

Note: With respect to cost/price factors, a rating of superior means that the cost/price for the first source in the country pair is generally lower. For example, if a firm reported "U.S. superior," it meant that the U.S. product was generally priced lower than the imported product.

Comparison of U.S.-produced and imported vanillin

In order to determine whether U.S.-produced vanillin can generally be used in the same applications as imports from China, the U.S. producer, importers, and purchasers were asked whether the products can always, frequently, sometimes, or never be used interchangeably. As shown in table 2.14, the U.S. producer indicated that ***. Nearly all importers and most purchasers indicated that vanillin is always or frequently interchangeable among sources. Importers mostly reference the difference between natural and synthetic vanillin, noting that the United States does not produce natural vanillin. Multiple purchasers also noted the difference, with synthetic vanillin only being interchangeable with other synthetic vanillin.[21] Purchaser *** noted between the United States, China, France, India, and Indonesia, there are sensory and regulatory differences. Purchaser *** noted the high sensitivity to quality nature of the industry, with some users

[21] For more information comparing natural to synthetic vanillin, along with comparisons between synthetic vanillin types, see Part 1.

only being able to use domestic product and others (***) only being able to use material imported from China.

Table 2.14 Vanillin: Count of responding firms reporting the interchangeability between product produced in the United States and in other countries, by country pair

Country pair	Firm type	Always	Frequently	Sometimes	Never
U.S. vs. China	U.S. producer	***	***	***	***
U.S. vs. Other	U.S. producer	***	***	***	***
China vs. Other	U.S. producer	***	***	***	***
U.S. vs. China	Importers	9	4	1	0
U.S. vs. Other	Importers	7	5	1	0
China vs. Other	Importers	7	5	1	1
U.S. vs. China	Purchasers	13	12	5	1
U.S. vs. Other	Purchasers	10	11	6	1
China vs. Other	Purchasers	10	10	7	0

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

In addition, the U.S. producer, importers, and purchasers were asked to assess how often differences other than price were significant in sales of vanillin from the United States, subject, or nonsubject countries. As seen in table 2.15, the domestic producer indicated ***. Importers were somewhat split with respect to these other factors, while a majority or plurality of purchasers noted that differences other than price are sometimes significant when comparing vanillin across sources. Importers noted differences in availability, domestic capacity constraints, jumbo bag packaging (not available from the domestic producer), lead times, quality, service, and supply reliability. Purchasers most frequently highlighted quality differences (both general and organoleptic), but also noted differences in availability, domestic capacity constraints, freight costs, minimum order quantities, passing regulatory and OSHA reviews, and some product range limits for domestic or European products.

Table 2.15 Vanillin: Count of responding firms reporting the significance of differences other than price between product produced in the United States and in other countries, by country pair

Country pair	Firm type	Always	Frequently	Sometimes	Never
U.S. vs. China	U.S. producer	***	***	***	***
U.S. vs. Other	U.S. producer	***	***	***	***
China vs. Other	U.S. producer	***	***	***	***
U.S. vs. China	Importers	4	3	4	4
U.S. vs. Other	Importers	3	1	5	3
China vs. Other	Importers	3	1	5	4
U.S. vs. China	Purchasers	6	3	15	5
U.S. vs. Other	Purchasers	3	4	13	6
China vs. Other	Purchasers	3	5	14	4

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

Elasticity estimates

This section discusses elasticity estimates; parties were encouraged to comment on these estimates in their prehearing briefs, but no comments on estimates were presented.

U.S. supply elasticity

The domestic supply elasticity for vanillin measures the sensitivity of the quantity supplied by the U.S. producer to changes in the U.S. market price of vanillin. The elasticity of domestic supply depends on several factors including the level of excess capacity, the ease with which producers can alter capacity, producers' ability to shift to production of other products, the existence of inventories, and the availability of alternate markets for U.S.-produced vanillin. Analysis of these factors above indicates that the U.S. industry has the ability substantially increase or decrease shipments to the U.S. market; an estimate in the range of 5 to 7 is suggested.

U.S. demand elasticity

The U.S. demand elasticity for vanillin measures the sensitivity of the overall quantity demanded to a change in the U.S. market price of vanillin. This estimate depends on factors discussed above such as the existence, availability, and commercial viability of substitute products, as well as the component share of the vanillin in the production of any downstream products. Based on the available information, the aggregate demand for vanillin is likely to be very inelastic; a range of -0.2 to -0.4 is suggested.

Substitution elasticity

The elasticity of substitution depends upon the extent of product differentiation between the domestic and imported products.[22] Product differentiation, in turn, depends upon such factors as quality (e.g., chemistry, appearance, etc.) and conditions of sale (e.g., availability, sales terms/discounts/promotions, etc.). Based on available information, the elasticity of substitution between U.S.-produced vanillin and imported vanillin is likely to be in the range of 4 to 7 for synthetic vanillin based on inter-country interchangeability, factor comparability, purchaser's lack of country preferences, and most sources frequently meeting quality specifications. Substitution of domestic synthetic vanillin for imported natural vanillin (because domestic synthetic vanillin is not produced) would be extremely low as it would only occur in selected instances, and is influenced by domestic labeling requirements (e.g., "natural" vs. "artificial" flavoring).

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

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

The Commission analyzes a number of factors in making injury determinations (see 19 U.S.C. §§ 1677(7)(B) and 1677(7)(C)). Information on the subsidies and dumping margins was presented in Part 1 of this report and information on the volume and pricing of imports of the subject merchandise is presented in Part 4 and Part 5. Information on the other factors specified is presented in this section and/or Part 6 and (except as noted) is based on the questionnaire responses of one firm that accounted for nearly all of U.S. production of vanillin during 2024.[1]

U.S. producer

The Commission issued a U.S. producer questionnaire to two firms based on information contained in the petitions and staff research. One firm, petitioning firm Solvay, provided usable data on its operations. Table 3.1 lists this U.S. producer of vanillin, its production location, position on the petition, and share of total production.

Table 3.1 Vanillin: U.S. producer Solvay's position on the petition, location of production, and share of reported production, 2024

Shares in percent

Firm	Position on petitions	Production location(s)	Share of production
Solvay	Petitioner	Baton Rouge, LA	100.0

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

[1] ***, July 1, 2024. Despite repeated attempts by staff, ***. Email from ***, April 15, 2025.

Table 3.2 presents information on U.S. producer Solvay's ownership, and its related and/or affiliated firms. Solvay is related to two foreign producers of the subject merchandise, Solvay Zhenjiang in China and Specialty Operations France SAS.[2] In addition, as discussed in greater detail below, Solvay directly imported the subject merchandise in 2022 and 2024.

Table 3.2 Vanillin: U.S. producer Solvay's ownership, related and/or affiliated firms

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

Source: Compiled from data submitted in response to Commission questionnaires and email from ***, April 4, 2025.

Table 3.3 presents events in the U.S. industry since January 1, 2022.

Table 3.3 Vanillin: Important industry events, since January 1, 2022

Item	Firm	Event
Plant closure	Solvay	In February 2023, Solvay announced the termination of its vanillin production at its Saint-Fons, France facility.

Source: Conference transcript, p. 15 (Jorge). "Fin de la production de vanilline à Saint-Fons: près de 50 emplois menaces" (End of vanillin production at Saint-Fons: nearly 50 jobs threatened). Franceinfo, February 14, 2024. https://france3-regions.francetvinfo.fr/auvergne-rhone-alpes/rhone/lyon/fin-de-la-production-de-vanilline-a-saint-fons-pres-de-50-emplois-menaces-292431.html.

[2] "Solvay-around-the-world." Solvay; May 6, 2025. https://www.solvay.com/en/solvay-around-the-world/china. ***. Email from ***, April 4, 2025.

Producers in the United States were asked to report any changes in the character of their operations or organization relating to the production of vanillin since 2022. Solvay indicated in its questionnaires that it had experienced such changes. Table 3.4 presents the changes identified by Solvay.

Table 3.4 Vanillin: U.S. producer Solvay's reported changes in operations, since January 1, 2022

Item	Firm name and narrative response on changes in operations
Prolonged shutdowns	***

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

Note: The facility ***. Email from ***, April 23, 2025.

U.S. production, capacity, and capacity utilization

Table 3.5 presents U.S. producer Solvay's installed and practical capacity and production on the same equipment. Solvay did not report any production of out-of-scope products on the same machinery it uses to produce vanillin. Solvay's installed overall capacity remained constant at *** pounds from 2022 to 2024 and its installed overall capacity utilization fluctuated, decreasing overall by *** percentage points from 2022 to 2024.

Practical vanillin capacity was steady at *** pounds in each year from 2022 to 2024.[3] The majority of Solvay's production was *** in each year from 2022 to 2024 and it reported no production of natural or biosynthetic vanillin in any year. Practical vanillin production fluctuated, decreasing by *** percent from 2022 to 2023 before increasing by *** percent from 2023 to 2024, decreasing overall by *** percent from 2022 to 2024.[4] As practical capacity held constant during the period, practical vanillin capacity utilization followed the same fluctuating trend as production, reaching a low of *** percent in 2023, ending 2024 *** percentage points lower than in 2022.

[3] Solvay ***. Email from ***, April 23, 2025, and conference transcript, p. 6 (Kraemer).
[4] Solvay reported the increase was a result of the ***. Email from ***, April 23, 2025.

Table 3.5 Vanillin: U.S. producer Solvay's installed and practical capacity, production, and utilization on the same equipment as subject production, by period

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

Item	Measure	2022	2023	2024
Installed overall	Capacity	***	***	***
Installed overall	Production	***	***	***
Installed overall	Utilization	***	***	***
Practical overall	Capacity	***	***	***
Practical overall	Production	***	***	***
Practical overall	Utilization	***	***	***
Practical Vanillin	Capacity	***	***	***
Practical Vanillin: Methylvanillin	Production	***	***	***
Practical Vanillin: Ethylvanillin	Production	***	***	***
Practical Vanillin: Natural and biosynthetic	Production	***	***	***
Practical Vanillin: all product types	Production	***	***	***
Practical Vanillin	Utilization	***	***	***

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

Table 3.6 presents Solvay's reported narratives regarding practical capacity constraints.

Table 3.6 Vanillin: U.S. producer Solvay's reported constraints to practical overall capacity, since January 1, 2022

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

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

Figure 3.1 Vanillin: U.S. producer Solvay's capacity, production, and capacity utilization, by period

* * * * * * *

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

Alternative products

Solvay did not report production of other products using the same equipment to produce vanillin.

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

Table 3.7 presents U.S. producer Solvay's U.S. shipments, export shipments, and total shipments. U.S. shipments accounted for a minority share of Solvay's total shipments by quantity but increased from *** percent in 2022 to *** percent in 2024.[5] The quantity of U.S. shipments fluctuated year to year, decreasing by *** percent from 2022 to 2023 and increasing by *** percent from 2023 to 2024, ending *** percent lower in 2024 than in 2022. The fluctuations coincided with the fluctuations in Solvay's production (i.e., the decrease from 2022 to 2023 and the increase from 2023 to 2024) (table 3.5). U.S. shipments also accounted for a minority but increasing share of total shipments by value, reaching a high of *** percent in 2024. The value of Solvay's U.S. shipments decreased yearly from 2022 to 2024, ending *** percent lower, largely accounted for by the decrease from 2022 to 2023. The unit value of Solvay's U.S. shipments also decreased yearly, decreasing overall by *** percent during 2022 to 2024, with most of the decrease occurring from 2023 to 2024.[6]

Export shipments accounted for a majority share of Solvay's total shipments during 2022 to 2024. The quantity of Solvay's export shipments fluctuated from 2022 to 2024, decreasing by *** percent from 2022 to 2023 but increasing by *** percent from 2023 to 2024, ending *** percent lower overall. The value of Solvay's export shipments decreased yearly from 2022 to 2024, decreasing overall by *** percent, with most of the decrease occurring from 2022 to 2023. The unit value of Solvay's export shipments, which was consistently lower than those of U.S. shipments, fluctuated from 2022 to 2024, increasing by *** percent from 2022 to 2023 before decreasing by *** percent from 2023 to 2024, decreasing overall by *** percent from 2022 to 2024.

[5] Solvay *** of reported exports were to related firms. See table 3.8 for more information.
[6] Solvay reported the decrease from 2023 to 2024 was because ***. Email from ***, April 4, 2024.

Table 3.7 Vanillin: U.S. producer Solvay's total shipments, by destination and period

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

Item	Measure	2022	2023	2024
U.S. shipments	Quantity	***	***	***
Export shipments	Quantity	***	***	***
Total shipments	Quantity	***	***	***
U.S. shipments	Value	***	***	***
Export shipments	Value	***	***	***
Total shipments	Value	***	***	***
U.S. shipments	Unit value	***	***	***
Export shipments	Unit value	***	***	***
Total shipments	Unit value	***	***	***
U.S. shipments	Share of quantity	***	***	***
Export shipments	Share of quantity	***	***	***
Total shipments	Share of quantity	100.0	100.0	100.0
U.S. shipments	Share of value	***	***	***
Export shipments	Share of value	***	***	***
Total shipments	Share of value	100.0	100.0	100.0

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

Table 3.8 presents Solvay's export shipments by type. Transfers to related firms accounted for *** of all export shipments, ranging between *** percent and *** percent of the total quantity of exports from 2022 to 2024. The quantity of transfers to related firms fluctuated, decreasing by *** percent from 2022 to 2023 and increasing by *** percent from 2023 to 2024, ending 2024 *** percent lower than in 2022. By value, transfers to related firms decreased yearly from 2022 to 2024, overall decreasing by *** percent, with nearly all of the decrease occurring from 2022 to 2023. The unit value of transfers to related firms of export shipments fluctuated, increasing by *** percent from 2022 to 2023, and decreasing by *** percent from 2023 to 2024, decreasing overall by *** percent from 2022 to 2024.

The quantity and value of commercial shipments of exports both similarly fluctuated from 2022 to 2024, decreasing overall by *** percent and *** percent, respectively. The unit value of commercial export shipments increased from 2022 to 2023 and from 2023 to 2024, decreasing overall by *** percent from 2022 to 2024.

Table 3.8 Vanillin: U.S. producer Solvay's export shipments, by type and period

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

Item	Measure	2022	2023	2024
Commercial	Quantity	***	***	***
Transfers to related firms	Quantity	***	***	***
All export shipments	Quantity	***	***	***
Commercial	Value	***	***	***
Transfers to related firms	Value	***	***	***
All export shipments	Value	***	***	***
Commercial	Unit value	***	***	***
Transfers to related firms	Unit value	***	***	***
All export shipments	Unit value	***	***	***
Commercial	Share of quantity	***	***	***
Transfers to related firms	Share of quantity	***	***	***
All export shipments	Share of quantity	100.0	100.0	100.0
Commercial	Share of value	***	***	***
Transfers to related firms	Share of value	***	***	***
All export shipments	Share of value	100.0	100.0	100.0

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

Table 3.9 and figure 3.2 presents U.S. producer Solvay's U.S. shipments of vanillin by product type.[7] Solvay did not report any shipments (or production) of natural or biosynthetic vanillin in any year during 2022 to 2024. In each year, the *** of Solvay's U.S. shipments of vanillin, by quantity, were ethylvanillin, ranging between *** percent and *** percent during 2022 to 2024. The quantity of U.S. shipments of ethylvanillin fluctuated, decreasing by *** percent from 2022 to 2023 and increasing by *** percent from 2023 to 2024, decreasing overall by *** percent from 2022 to 2024. The quantity of U.S. shipments of methylvanillin fluctuated from 2022 to 2024, increasing from 2022 to 2023 and decreasing from 2023 to 2024, ending *** percent higher overall.

The value of U.S. shipments of ethylvanillin decreased overall by *** percent from 2022 to 2024, driven by a *** percent decrease from 2022 to 2023. Moving in the opposite direction, the value of methylvanillin increased from 2022 to 2023 and decreased from 2022 to 2024, ending 2024 *** percent lower in 2022 than in 2024.

The unit value of ethylvanillin was consistently lower than methylvanillin from 2022 to 2024. The unit value of both ethylvanillin and methylvanillin decreased yearly from 2022 to 2024, decreasing overall by *** percent and by *** percent, respectively.

[7] Appendix E presents further information on U.S. shipments by product type and channel of distribution.

Table 3.9 Vanillin: U.S. producer Solvay's U.S. shipments, by type and period

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

Product type	Measure	2022	2023	2024
Methylvanillin	Quantity	***	***	***
Ethylvanillin	Quantity	***	***	***
Natural and biosynthetic	Quantity	***	***	***
All vanillin product types	Quantity	***	***	***
Methylvanillin	Value	***	***	***
Ethylvanillin	Value	***	***	***
Natural and biosynthetic	Value	***	***	***
All vanillin product types	Value	***	***	***
Methylvanillin	Unit value	***	***	***
Ethylvanillin	Unit value	***	***	***
Natural and biosynthetic	Unit value	***	***	***
All vanillin product types	Unit value	***	***	***
Methylvanillin	Share of quantity	***	***	***
Ethylvanillin	Share of quantity	***	***	***
Natural and biosynthetic	Share of quantity	***	***	***
All vanillin product types	Share of quantity	100.0	100.0	100.0
Methylvanillin	Share of value	***	***	***
Ethylvanillin	Share of value	***	***	***
Natural and biosynthetic	Share of value	***	***	***
All vanillin product types	Share of value	100.0	100.0	100.0

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

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

Figure 3.2 Vanillin: U.S. producer Solvay's U.S shipments, by product type and period

* * * * * * *

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

Table 3.10 and figure 3.3 presents U.S. producer Solvay's export shipments of vanillin by product type. *** accounted for the majority, but declining, share of export shipments in each year from 2022 to 2024.

Table 3.10 Vanillin: U.S. producer Solvay's exports, by product type and period

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

Product type	Measure	2022	2023	2024
Methylvanillin	Quantity	***	***	***
Ethylvanillin	Quantity	***	***	***
Natural and biosynthetic	Quantity	***	***	***
All vanillin product types	Quantity	***	***	***
Methylvanillin	Value	***	***	***
Ethylvanillin	Value	***	***	***
Natural and biosynthetic	Value	***	***	***
All vanillin product types	Value	***	***	***
Methylvanillin	Unit value	***	***	***
Ethylvanillin	Unit value	***	***	***
Natural and biosynthetic	Unit value	***	***	***
All vanillin product types	Unit value	***	***	***
Methylvanillin	Share of quantity	***	***	***
Ethylvanillin	Share of quantity	***	***	***
Natural and biosynthetic	Share of quantity	***	***	***
All vanillin product types	Share of quantity	100.0	100.0	100.0
Methylvanillin	Share of value	***	***	***
Ethylvanillin	Share of value	***	***	***
Natural and biosynthetic	Share of value	***	***	***
All vanillin product types	Share of value	100.0	100.0	100.0

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

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Zeroes, null values, and undefined calculations are suppressed and shown as "—". For more information on U.S. shipments by source, product type and channel of distribution see appendix E.

Figure 3.3 Vanillin: U.S. producer Solvay's exports, by product type and period

* * * * * * *

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

Transfers and sales of export shipments

Transfers of export shipments to related firms accounted for between *** percent and *** percent of U.S. producers' U.S. shipments of vanillin as previously shown in table 3.8. ***.[8]

[8] Email from ***, April 23, 2025.

Table 3.11 presents Solvay's captive production usage of exports to related firms.

Table 3.11 Vanillin: U.S. producer Solvay's captive production usage of exports to related firms

Quantity in 1,000 pounds; share in percent

Item	Measure	2022	2023	2024
Sold "as is"	Quantity	***	***	***
Processed into downstream	Quantity	***	***	***
All uses	Quantity	***	***	***
Sold "as is"	Share	***	***	***
Processed into downstream	Share	***	***	***
All uses	Share	100.0	100.0	100.0

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

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

U.S. producers' inventories

Table 3.12 presents U.S. producer Solvay's end-of-period inventories and the ratio of these inventories to U.S. producers' production, U.S. shipments, and total shipments. Solvay's end-of-period inventories fluctuated year to year between 2022 and 2024, decreasing by *** percent from 2022 to 2023 and increasing by *** percent from 2023 to 2024, increasing overall by *** percent from 2022 to 2024. The ratios of Solvay's end-of-period inventories to its U.S. production, U.S. shipments, and total shipments each increased in every year from 2022 to 2024, ending *** percentage points higher, respectively, in 2024 than in 2022.

Table 3.12 Vanillin: U.S. producer Solvay's inventories and their ratio to select items, by period

Quantity in 1,000 pounds; ratios in percent

Item	2022	2023	2024
End-of-period inventory quantity	***	***	***
Inventory ratio to U.S. production	***	***	***
Inventory ratio to U.S. shipments	***	***	***
Inventory ratio to total shipments	***	***	***

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

U.S. producers' imports from subject sources

U.S. producers' imports of vanillin are presented in table 3.13. Solvay reported importing vanillin from China in ***, which accounted for between *** percent and *** percent of its production in those periods.[9] [10]

Table 3.13 Vanillin: Solvay's U.S. production, U.S. imports from subject sources, and ratio of subject imports to production, by period

Quantity in 1,000 pounds; ratios in percent

Item	Measure	2022	2023	2024
U.S. production	Quantity	***	***	***
Imports from China	Quantity	***	***	***
Imports from China to U.S. production	Ratio	***	***	***

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

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

Table 3.14 presents Solvay's reasons for importing from subject sources.

Table 3.14 Vanillin: U.S. producer Solvay's reasons for importing

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

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

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

U.S. producer Solvay did not report purchases of vanillin from 2022 to 2024.

[9] Solvay imported from ***.

[10] Conference transcript, pp. 25-26 (Pickard).

U.S. employment, wages, and productivity

Table 3.15 shows U.S. producer Solvay's employment-related data. The number of production-related workers ("PRWs") decreased by *** percent from 2022 to 2023 and remained constant at *** PRWs from 2023 to 2024. Productivity decreased by *** percent from 2022 to 2023 and increased by *** percent from 2023 to 2024, decreasing overall by *** percent from 2022 to 2024. Unit labor cost increased by *** percent from 2022 to 2023, decreased by *** percent from 2023 to 2024, increasing overall by *** percent from 2022 to 2024.

Wages paid to PRWs decreased by *** percent from 2022 to 2023 but increased by *** percent from 2023 to 2024, increasing overall by *** percent during 2022 to 2024. Hours worked by PRWs decreased from 2022 to 2023 by *** percent and remained constant from 2023 to 2024. As a result, hourly wages increased in each year, overall increasing by *** percent from 2022 to 2024.

Table 3.15 Vanillin: U.S. producer Solvay's employment related information, by item and period

Item	2022	2023	2024
Production and related workers (PRWs) (number)	***	***	***
Total hours worked (1,000 hours)	***	***	***
Hours worked per PRW (hours)	***	***	***
Wages paid (1,000 dollars)	***	***	***
Hourly wages (dollars per hour)	***	***	***
Productivity (pounds per hour)	***	***	***
Unit labor costs (dollars per pound)	***	***	***

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

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

U.S. importers

The Commission issued importer questionnaires to 40 firms believed to be importers of subject vanillin, as well as to all U.S. producers of vanillin.[1] Usable questionnaire responses were received from 23 companies, representing 94.1 percent of U.S. imports from China in 2024 under HTS subheading 2912.41.0000 and 2912.42.0000 and virtually all imports from nonsubject sources.[2] Table 4.1 lists all responding U.S. importers of vanillin from China and other sources, their locations, and their shares of U.S. imports, in 2024.

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

[2] Three firms, *** submitted questionnaire responses certifying they did not import vanillin from any country during 2022 to 2024. ***. Email correspondence with ***.

Table 4.1 Vanillin: U.S. importers, their headquarters, and share of imports within each source, 2024

Shares in percent

Firm	Headquarters	China	Nonsubject sources	All import sources
Arylessence	Marietta, GA	***	***	***
Bell	Northbrook, IL	***	***	***
Berje	Carteret, NJ	***	***	***
Borregaard	Rothschild, WI	***	***	***
Centrome	Totowa, NJ	***	***	***
CFS	Urbandale, IA	***	***	***
Chemcorp	Charlotte, NC	***	***	***
Firmenich	Plainsboro, NJ	***	***	***
Givaudan Flavors	Cincinnati, OH	***	***	***
Givaudan Fragrances	Cincinnati, OH	***	***	***
Global Essence	Hamilton, NJ	***	***	***
Indesso	Singapore,	***	***	***
Ingredis	Plainsboro, NJ	***	***	***
International F&F	New York City, NY	***	***	***
Lucta	Mahwah, NJ	***	***	***
M&U	Branchburg, NJ	***	***	***
Mane	New York, NY	***	***	***
Oamic	Armonk, NY	***	***	***
Pearlchem	Parsippany, NJ	***	***	***
Prinova	Carol Stream, IL	***	***	***
Solvay	Baton Rouge, LA	***	***	***
Suzhou	Wellesley, MA	***	***	***
Tastepoint	Philadelphia, PA	***	***	***
All firms	Various	100.0	100.0	100.0

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

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

U.S. imports

Tables 4.2 and 4.3 present data for U.S. imports of vanillin from China and all other sources. Imports from China accounted for the majority of total imports in every year during 2022 to 2024, accounting for over 58 percent throughout the period. The quantity of imports from China increased throughout the period of investigation, first decreasing by 24.8 percent from 2022 to 2023 and then increasing by 58.5 percent from 2023 to 2024, largely reflecting import trends of ***. The quantity of imports from China overall increased by 19.2 percent during 2022 to 2024. Nonsubject imports followed a similar trend, from 2022 to 2024, decreasing by 50.3 percent from 2022 to 2023 then increasing by 104.9 percent from 2023 to 2024, increasing overall by 1.8 percent throughout the period of investigation. This was largely due to the fluctuations by ***.

The value of U.S. imports from China decreased by 50.1 percent during 2022 to 2023, then increased by 60.3 percent from 2023 to 2024, for an overall decrease by 20.0 percent from 2022 to 2024. The unit value of U.S. imports from China decreased by 33.6 percent from 2022 to 2023, increased by 1.1 percent during 2023 to 2024, and overall decreased by 32.9 percent over the period of investigation.

The value of U.S. imports for nonsubject sources, followed the same trend as the value of imports from China, first decreasing by 46.9 percent from 2022 to 2023, then increasing by 49.5 percent from 2023 to 2024, decreasing overall by 20.5 percent during the period of investigation. The unit value of U.S. imports from nonsubject sources increased by 6.9 percent from 2022 to 2023, decreased by 27.0 percent from 2023 to 2024, decreasing overall by 22.0 percent during 2022 to 2024.

The ratio of U.S. imports from China to U.S. production increased each year, ending in 2024 *** percentage points higher than in 2022, at a peak of *** percent. The ratio of U.S. imports from nonsubject sources to U.S. production increased from 2022 to 2024, decreased by *** percentage points from 2022 to 2023, then increased by *** percentage points from 2023 to 2024, for an overall increase of *** percentage points between 2022 and 2024.

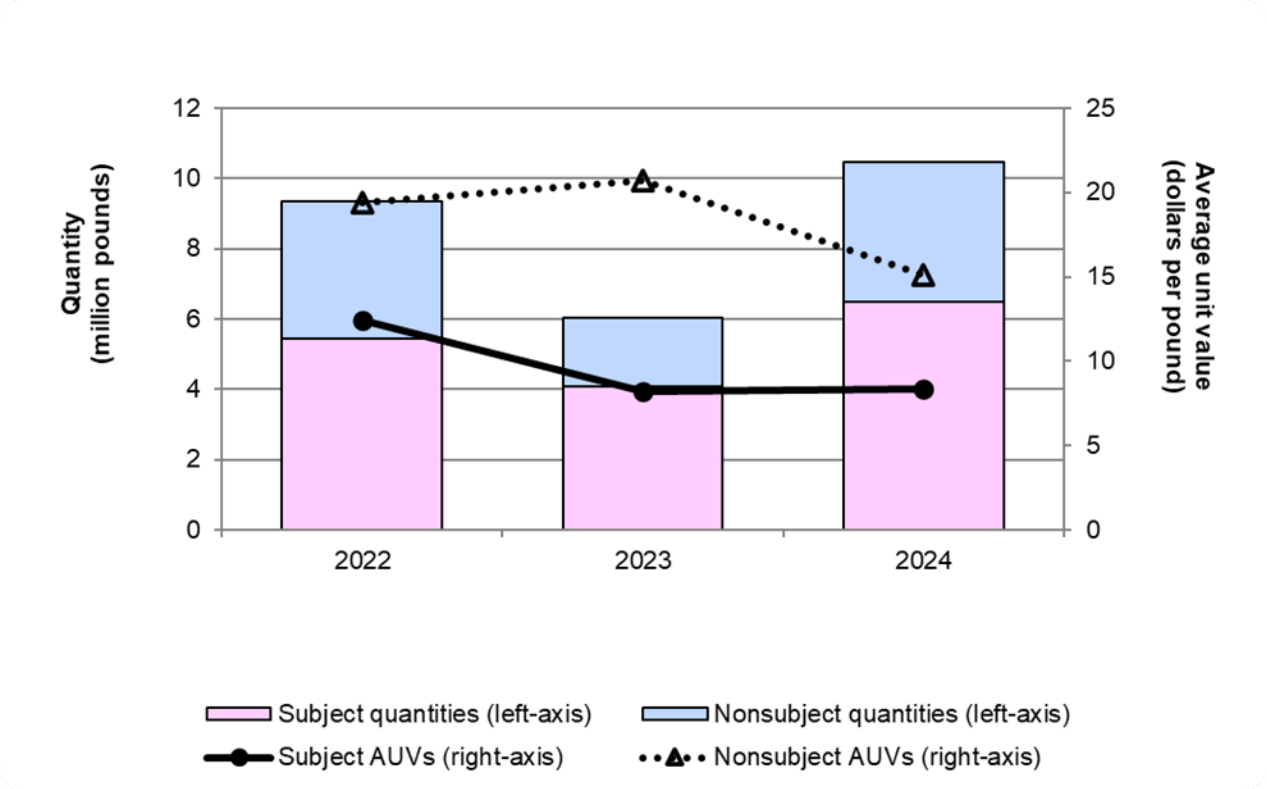
Table 4.2 Vanillin: U.S. imports by source and period

Quantity in 1,000 pounds: value in 1,000 dollars; unit values in dollars per pound; share and ratio in percent; ratio represents the ratio to U.S. production

Source	Measure	2022	2023	2024
China	Quantity	5,441	4,092	6,487
Nonsubject sources	Quantity	3,904	1,940	3,975
All import sources	Quantity	9,345	6,032	10,462
China	Value	67,474	33,681	54,000
Nonsubject sources	Value	75,649	40,197	60,113
All import sources	Value	143,123	73,878	114,113
China	Unit value	12.40	8.23	8.32
Nonsubject sources	Unit value	19.38	20.72	15.12
All import sources	Unit value	15.32	12.25	10.91
China	Share of quantity	58.2	67.8	62.0
Nonsubject sources	Share of quantity	41.8	32.2	38.0
All import sources	Share of quantity	100.0	100.0	100.0
China	Share of value	47.1	45.6	47.3
Nonsubject sources	Share of value	52.9	54.4	52.7
All import sources	Share of value	100.0	100.0	100.0
China	Ratio	***	***	***
Nonsubject sources	Ratio	***	***	***
All import sources	Ratio	***	***	***

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

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



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

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

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

Source	Measure	2022 to 2024	2022 to 2023	2023 to 2024
China	%Δ Quantity	▲19.2	▼(24.8)	▲58.5
Nonsubject sources	%Δ Quantity	▲1.8	▼(50.3)	▲104.9
All import sources	%Δ Quantity	▲12.0	▼(35.5)	▲73.4
China	%Δ Value	▼(20.0)	▼(50.1)	▲60.3
Nonsubject sources	%Δ Value	▼(20.5)	▼(46.9)	▲49.5
All import sources	%Δ Value	▼(20.3)	▼(48.4)	▲54.5
China	%Δ Unit value	▼(32.9)	▼(33.6)	▲1.1
Nonsubject sources	%Δ Unit value	▼(22.0)	▲6.9	▼(27.0)
All import sources	%Δ Unit value	▼(28.8)	▼(20.0)	▼(10.9)
China	ppt Δ Quantity	▲3.8	▲9.6	▼(5.8)
Nonsubject sources	ppt Δ Quantity	▼(3.8)	▼(9.6)	▲5.8
All import sources	ppt Δ Quantity	—	—	—
China	ppt Δ Value	▲0.2	▼(1.6)	▲1.7
Nonsubject sources	ppt Δ Value	▼(0.2)	▲1.6	▼(1.7)
All import sources	ppt Δ Value	—	—	—
China	ppt Δ Ratio	▲***	▲***	▲***
Nonsubject sources	ppt Δ Ratio	▲***	▼***	▲***
All import sources	ppt Δ Ratio	▲***	▲***	▲***

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

Note: Shares and ratios shown as "0.0" percent represent non-zero values less than "0.05" percent (if positive) and greater than "(0.05)" percent (if negative). Zeroes, null values, and undefined calculations are suppressed and shown as "—". Period changes preceded by a "▲" represent an increase, while period changes preceded by a "▼" represent a decrease.

Table 4.4 presents U.S. imports of methylvanillin, by source and period. U.S. imports of methylvanillin from China accounted for the majority of total U.S. imports of methylvanillin. The quantity of U.S. imports of methylvanillin from China decreased by *** percent overall during 2022 to 2024. U.S. imports of methylvanillin from nonsubject countries, by quantity, also decreased over the period, decreasing by *** percent overall during 2022 to 2024.

The value of U.S. imports of methylvanillin from China and nonsubject sources decreased during 2022 to 2024 by *** percent and *** percent, respectively. The unit value of U.S. imports of methylvanillin from China decreased each year, decreasing by a total of *** percent over the period. The unit value of U.S. imports of methylvanillin from nonsubject countries increased by *** percent from 2022 to 2023, decreased by *** percent from 2023 to 2024, overall decreasing by *** percent during 2022 to 2024.

Table 4.4 Methylvanillin: U.S. imports by source and period

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

Source	Measure	2022	2023	2024
China	Quantity	***	***	***
Nonsubject sources	Quantity	***	***	***
All import sources	Quantity	***	***	***
China	Value	***	***	***
Nonsubject sources	Value	***	***	***
All import sources	Value	***	***	***
China	Unit value	***	***	***
Nonsubject sources	Unit value	***	***	***
All import sources	Unit value	***	***	***
China	Share of quantity	***	***	***
Nonsubject sources	Share of quantity	***	***	***
All import sources	Share of quantity	100.0	100.0	100.0
China	Share of value	***	***	***
Nonsubject sources	Share of value	***	***	***
All import sources	Share of value	100.0	100.0	100.0

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

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

Table 4.5 presents U.S. imports of ethylvanillin, by source and period. U.S. imports of ethylvanillin from China account for nearly all of the total U.S. imports of ethylvanillin. The quantity of U.S. imports of ethylvanillin from China increased every year over the period, increasing by *** percent from 2022 to 2024. The quantity of U.S. imports of ethylvanillin from nonsubject countries increased over the period, increasing by *** percent from 2022 to 2024. This was largely due to ***.

The value of U.S. imports of ethylvanillin from China decreased over the period, however, decreasing by *** percent during 2022 to 2023, increasing by *** percent from 2023 to 2024, and decreasing overall by *** percent over the period. The value of U.S. imports of ethylvanillin from nonsubject countries increased by *** percent from 2022 to 2024. The unit value of U.S. imports of ethylvanillin from China decreased in each year, decreasing by *** percent from 2022 to 2024 while imports of ethylvanillin from nonsubject countries decreased by *** percent from 2022 to 2024.

Table 4.5 Ethylvanillin: U.S. imports by source and period

Quantity in 1,000 pounds: value in 1,000 dollars; unit values in dollars per pound; share and ratio in percent; ratio represents the ratio to U.S. production

Source	Measure	2022	2023	2024
China	Quantity	***	***	***
Nonsubject sources	Quantity	***	***	***
All import sources	Quantity	***	***	***
China	Value	***	***	***
Nonsubject sources	Value	***	***	***
All import sources	Value	***	***	***
China	Unit value	***	***	***
Nonsubject sources	Unit value	***	***	***
All import sources	Unit value	***	***	***
China	Share of quantity	***	***	***
Nonsubject sources	Share of quantity	***	***	***
All import sources	Share of quantity	100.0	100.0	100.0
China	Share of value	***	***	***
Nonsubject sources	Share of value	***	***	***
All import sources	Share of value	100.0	100.0	100.0

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

Note: Zeroes, null values, and undefined calculations are suppressed and shown as "—".

Table 4.6 presents U.S. imports of natural or biosynthetic vanillin, by source and period. The quantity of U.S. imports of natural or biosynthetic vanillin from China increased during the period, decreasing by *** percent from 2022 to 2023, increasing by *** percent from 2023 to 2024, for an overall increase of *** percent from 2022 to 2024. The quantity of U.S. imports of natural or biosynthetic vanillin from nonsubject countries followed the same trend, first decreasing by *** percent from 2022 to 2023, then increasing by *** percent from 2023 to 2024, for an increase totaling *** percent from 2022 to 2024.

The value of U.S. imports of natural or biosynthetic vanillin from China decreased by *** percent from 2022 to 2023 but increased by *** percent from 2023 to 2024, for an overall increase of *** percent from 2022 to 2024. The value of U.S. imports of natural or biosynthetic vanillin from nonsubject countries decreased by *** percent from 2022 to 2023, increased by *** percent from 2023 to 2024, and decreased by *** percent overall from 2022 to 2024. The unit values of U.S. imports of natural or biosynthetic vanillin from both China and nonsubject countries decreased yearly, ending 2024 *** percent and *** percent lower than in 2022, respectively.

Table 4.6 Natural or biosynthetic vanillin: U.S. Imports by source and period

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

Source	Measure	2022	2023	2024
China	Quantity	***	***	***
Nonsubject sources	Quantity	***	***	***
All import sources	Quantity	***	***	***
China	Value	***	***	***
Nonsubject sources	Value	***	***	***
All import sources	Value	***	***	***
China	Unit value	***	***	***
Nonsubject sources	Unit value	***	***	***
All import sources	Unit value	***	***	***
China	Share of quantity	***	***	***
Nonsubject sources	Share of quantity	***	***	***
All import sources	Share of quantity	100.0	100.0	100.0
China	Share of value	***	***	***
Nonsubject sources	Share of value	***	***	***
All import sources	Share of value	100.0	100.0	100.0

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

Figure 4.2 presents the average unit values of U.S. imports from China by product type.

Figure 4.2 Vanillin: Average unit values of U.S. importers' U.S. imports from China, by product type and period

* * * * * * *

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

Table 4.7 and figure 4.3 present U.S. importers' U.S. shipments of imports from China by product type and period.[3] Methylvanillin accounted for the majority of U.S. importers' U.S. shipments of imports from China from 2022 to 2024. The unit values of methylvanillin and ethylvanillin both decreased yearly from 2022 to 2024 by *** percent and *** percent, respectively. The unit value of natural or biosynthetic vanillin followed this trend, decreasing by *** percent from 2022 to 2024 but remained higher than the unit values of methylvanillin and ethylvanillin in each year.

[3] Additional information on U.S. shipments by source, product type and channel of distribution is presented in appendix E.

Table 4.7 Vanillin: U.S. importers' U.S. shipments of imports from China, by product type and period

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

Product type	Measure	2022	2023	2024
Methylvanillin	Quantity	***	***	***
Ethylvanillin	Quantity	***	***	***
Natural and biosynthetic	Quantity	***	***	***
All vanillin product types	Quantity	4,962	4,260	5,984
Methylvanillin	Value	***	***	***
Ethylvanillin	Value	***	***	***
Natural and biosynthetic	Value	***	***	***
All vanillin product types	Value	78,431	53,990	65,547
Methylvanillin	Unit value	***	***	***
Ethylvanillin	Unit value	***	***	***
Natural and biosynthetic	Unit value	***	***	***
All vanillin product types	Unit value	15.81	12.67	10.95
Methylvanillin	Share of quantity	***	***	***
Ethylvanillin	Share of quantity	***	***	***
Natural and biosynthetic	Share of quantity	***	***	***
All vanillin product types	Share of quantity	100.0	100.0	100.0
Methylvanillin	Share of value	***	***	***
Ethylvanillin	Share of value	***	***	***
Natural and biosynthetic	Share of value	***	***	***
All vanillin product types	Share of value	100.0	100.0	100.0

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

Figure 4.3 Vanillin: U.S. importers' U.S. shipments of imports from China, by product type and period

* * * * * * *

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

Table 4.8 presents U.S. importers' U.S. shipments of imports from nonsubject sources by product type and period. Methylvanillin accounted for the majority of U.S. importers' U.S. shipments of imports from nonsubject sources from 2022 to 2024. The unit values of methylvanillin and ethylvanillin both decreased from 2022 to 2024 by *** percent and *** percent, respectively. The unit value of natural or biosynthetic vanillin decreased by *** percent from 2022 to 2024 but remained higher than the unit values of methylvanillin and ethylvanillin in each year.

Table 4.8 Vanillin: U.S. importers' U.S. shipments of imports from nonsubject sources, by product type and period

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

Product type	Measure	2022	2023	2024
Methylvanillin	Quantity	***	***	***
Ethylvanillin	Quantity	***	***	***
Natural and biosynthetic vanillin	Quantity	***	***	***
All vanillin product types	Quantity	3,544	2,354	3,307
Methylvanillin	Value	***	***	***
Ethylvanillin	Value	***	***	***
Natural and biosynthetic vanillin	Value	***	***	***
All vanillin product types	Value	69,949	51,082	51,268
Methylvanillin	Unit value	***	***	***
Ethylvanillin	Unit value	***	***	***
Natural and biosynthetic vanillin	Unit value	***	***	***
All vanillin product types	Unit value	19.74	21.70	15.50
Methylvanillin	Share of quantity	***	***	***
Ethylvanillin	Share of quantity	***	***	***
Natural and biosynthetic vanillin	Share of quantity	***	***	***
All vanillin product types	Share of quantity	100.0	100.0	100.0
Methylvanillin	Share of value	***	***	***
Ethylvanillin	Share of value	***	***	***
Natural and biosynthetic vanillin	Share of value	***	***	***
All vanillin product types	Share of value	100.0	100.0	100.0

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

Figure 4.4 Vanillin: U.S. importers' U.S. shipments of imports from nonsubject sources, by product type and period

* * * * * * *

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

Negligibility

The statute requires that an investigation be terminated without an injury determination if imports of the subject merchandise are found to be negligible.[4] Negligible imports are generally defined in the Act, as amended, as imports from a country of merchandise corresponding to a domestic like product where such imports account for less than 3 percent of the volume of all such merchandise imported into the United States in the most recent 12-month period for which data are available that precedes the filing of the petition or the initiation of the investigation. However, if there are imports of such merchandise from a number of countries subject to investigations initiated on the same day that individually account for less than 3 percent of the total volume of the subject merchandise, and if the imports from those countries collectively account for more than 7 percent of the volume of all such merchandise imported into the United States during the applicable 12-month period, then

[4] 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)).

imports from such countries are deemed not to be negligible.[5] Imports from China accounted for 61.6 percent of total imports of vanillin by quantity from June 2023 through May 2024.

Table 4.9 Vanillin: U.S. imports in the twelve month period preceding the filing of the petition, June 2023 through May 2024

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

Source of imports	Quantity	Share of quantity
China	4,786	61.6
Nonsubject sources	2,986	38.4
All import sources	7,772	100.0

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

Apparent U.S. consumption and market shares

Quantity

Table 4.10 and figure 4.5 present data on apparent U.S. consumption and U.S. market shares by quantity for vanillin. Apparent U.S. consumption, by quantity, decreased by *** percent from 2022 to 2023, increased by *** percent from 2023 to 2024, overall increasing by *** percent from 2022 to 2024. The increase in apparent consumption from 2022 to 2024 largely reflects the increase in U.S. producer's U.S. shipments and imports from China from 2023 to 2024.[6]

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

[6] For more detailed discussion on the trends in U.S. producer's U.S. shipments, see Part 3 and for more detailed discussion on trends in subject and nonsubject imports, see the section entitled "U.S. imports."

Table 4.10 Vanillin: Apparent U.S. consumption and market shares based on quantity, by source and period

Quantity in 1,000 pounds; shares in percent

Source	Measure	2022	2023	2024
U.S. producer Solvay	Quantity	***	***	***
China	Quantity	4,962	4,260	5,984
Nonsubject sources	Quantity	3,544	2,354	3,307
All import sources	Quantity	8,506	6,614	9,291
All sources	Quantity	***	***	***
U.S. producer Solvay	Share	***	***	***
China	Share	***	***	***
Nonsubject sources	Share	***	***	***
All import sources	Share	***	***	***
All sources	Share	100.0	100.0	100.0

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

Note: ***.

Figure 4.5 Vanillin: Apparent U.S. consumption for the total and merchant market based on quantity data, by source and period

* * * * * * *

Source: Compiled from data submitted in response to Commission questionnaires

U.S. producer market share, by quantity, decreased between 2022 and 2024, increasing slightly from 2022 to 2023 then decreasing from 2023 to 2024, ending *** percentage points lower in 2024 than in 2022. The market shares of U.S. shipments of imports from China

increased in each year, overall increasing by *** percentage points from 2022 to 2024. The market share of imports from nonsubject sources decreased between 2022 and 2024, decreasing by *** percentage points from 2022 to 2023 and increasing by *** percentage points from 2023 to 2024, overall decreasing by *** percentage points from 2022 and 2024.

Value

Table 4.11 and figure 4.6 present data on apparent U.S. consumption and U.S. market shares by value for vanillin. Apparent U.S. consumption, by value, decreased by *** percent from 2022 to 2023, and increased by *** percent from 2023 to 2024, overall decreasing by *** percent during the period.

Table 4.11 Vanillin: Apparent U.S. consumption and market shares based on value, by source and period

Value in 1,000 dollars; Shares in precent

Source	Measure	2022	2023	2024
U.S. producer Solvay	Value	***	***	***
China	Value	78,431	53,990	65,547
Nonsubject sources	Value	69,949	51,082	51,268
All import sources	Value	148,380	105,072	116,816
All sources	Value	***	***	***
U.S. producer Solvay	Share	***	***	***
China	Share	***	***	***
Nonsubject sources	Share	***	***	***
All import sources	Share	***	***	***
All sources	Share	100.0	100.0	100.0

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

Note: ***.

Figure 4.6 Vanillin: Apparent U.S. consumption for the total and merchant market based on value data, by source and period

* * * * * * *

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

The U.S. producer's market share, by value, decreased from 2022 to 2024, increasing by *** percentage points from 2022 to 2023, decreasing by *** percentage points from 2023 to 2024, overall decreasing by *** percentage points from 2022 to 2024. The market shares of U.S. shipments of imports from China, by value, increased from 2022 to 2024, decreasing by *** percentage points from 2022 to 2023, increasing by *** percentage points from 2023 to 2024, overall increasing by *** percentage points from 2022 to 2024. The market share of U.S. shipments of imports from nonsubject sources increased by *** percentage points from 2022 to 2023 and decreased by *** percentage points from 2023 to 2024, overall decreasing by *** percentage points from 2022 to 2024.

Table 4.12 presents data on U.S. producer Solvay's and U.S. importers' U.S. shipments of methylvanillin, by source and period.

Table 4.12 Vanillin: U.S. producer Solvay's and U.S. importers' U.S. shipments of methylvanillin by source and period

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

Source	Measure	2022	2023	2024
U.S. producer Solvay	Quantity	***	***	***
China	Quantity	***	***	***
Nonsubject sources	Quantity	***	***	***
All import sources	Quantity	6,020	3,778	5,329
All sources	Quantity	***	***	***
U.S. producer Solvay	Share	***	***	***
China	Share	***	***	***
Nonsubject sources	Share	***	***	***
All import sources	Share	***	***	***
All sources	Share	100.0	100.0	100.0
U.S. producer Solvay	Ratio	***	***	***
China	Ratio	***	***	***
Nonsubject sources	Ratio	***	***	***
All import sources	Ratio	***	***	***
All sources	Ratio	***	***	***

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

Note: Ratio represents the ratio to U.S. production.

Table 4.13 presents data on U.S. producer Solvay's and U.S. importers' U.S. shipments of ethylvanillin, by source and period.

Table 4.13 Vanillin: U.S. producer Solvay's and U.S. importers' U.S. shipments of ethylvanillin, by source and period

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

Source	Measure	2022	2023	2024
U.S. producer Solvay	Quantity	***	***	***
China	Quantity	***	***	***
Nonsubject sources	Quantity	***	***	***
All import sources	Quantity	609	973	1,506
All sources	Quantity	***	***	***
U.S. producer Solvay	Share	***	***	***
China	Share	***	***	***
Nonsubject sources	Share	***	***	***
All import sources	Share	***	***	***
All sources	Share	100.0	100.0	100.0
U.S. producer Solvay	Ratio	***	***	***
China	Ratio	***	***	***
Nonsubject sources	Ratio	***	***	***
All import sources	Ratio	***	***	***
All sources	Ratio	***	***	***

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

Note: Ratio represents the ratio to U.S. production.

Table 4.14 presents data on U.S. producer's and U.S. importers' U.S. shipments of natural or biosynthetic vanillin.[7]

Table 4.14 Vanillin: U.S. producer Solvay's and U.S. importers' U.S. shipments of natural or biosynthetic vanillin, by source and period

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

Source	Measure	2022	2023	2024
U.S. producer ***	Quantity	***	***	***
China	Quantity	***	***	***
Nonsubject sources	Quantity	***	***	***
All import sources	Quantity	1,878	1,863	2,456
All sources	Quantity	***	***	***
U.S. producer ***	Share	***	***	***
China	Share	***	***	***
Nonsubject sources	Share	***	***	***
All import sources	Share	***	***	***
All sources	Share	100.0	100.0	100.0
U.S. producer ***	Ratio	***	***	***
China	Ratio	***	***	***
Nonsubject sources	Ratio	***	***	***
All import sources	Ratio	***	***	***
All sources	Ratio	***	***	***

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

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Zeroes, null values, and undefined calculations are suppressed and shown as "—". Ratio is the ratio to overall apparent consumption for all vanillin products. Data for U.S. producer *** is based on its reported production of ***. ***

[7] U.S. producer Solvay stated that it had no production of natural or biosynthetic vanillin in the United States. Conference transcript, p. 25 (Kraemer). ***.

Part 5: Pricing data

Factors affecting prices

Raw material costs

Two of the main raw materials used in the production of vanillin are phenol and caustic soda, which accounted for *** percent of the raw material costs of manufacturing vanillin in 2024 but had accounted for *** percent in 2023.[1] [2] U.S. producer Solvay reported that phenol accounted for *** percent and that caustic soda comprised *** percent of the value of its raw material costs in 2024. Prices for caustic soda and phenol for the United States, China, and Europe since January 2022 are presented in figure 5.1 and table 5.1. These raw material prices have generally decreased between January 2022 and December 2024, although caustic soda prices peaked in late 2022 and into early 2023, especially in Europe. Between January 2022 and March 2025, caustic soda prices were 23.7 percent lower in June 2025 than in January 2022 in the United States, and phenol prices were 14.9 percent lower.

The domestic producer stated that raw material prices ***. A majority of importers (9 of 14)[3] reported that the price of raw materials used to produce vanillin had either steadily decreased or fluctuated downward.[4]

Raw materials, as a share of the U.S. producer's cost of goods sold ("COGS"), declined from *** percent in 2022 to *** percent in 2024.

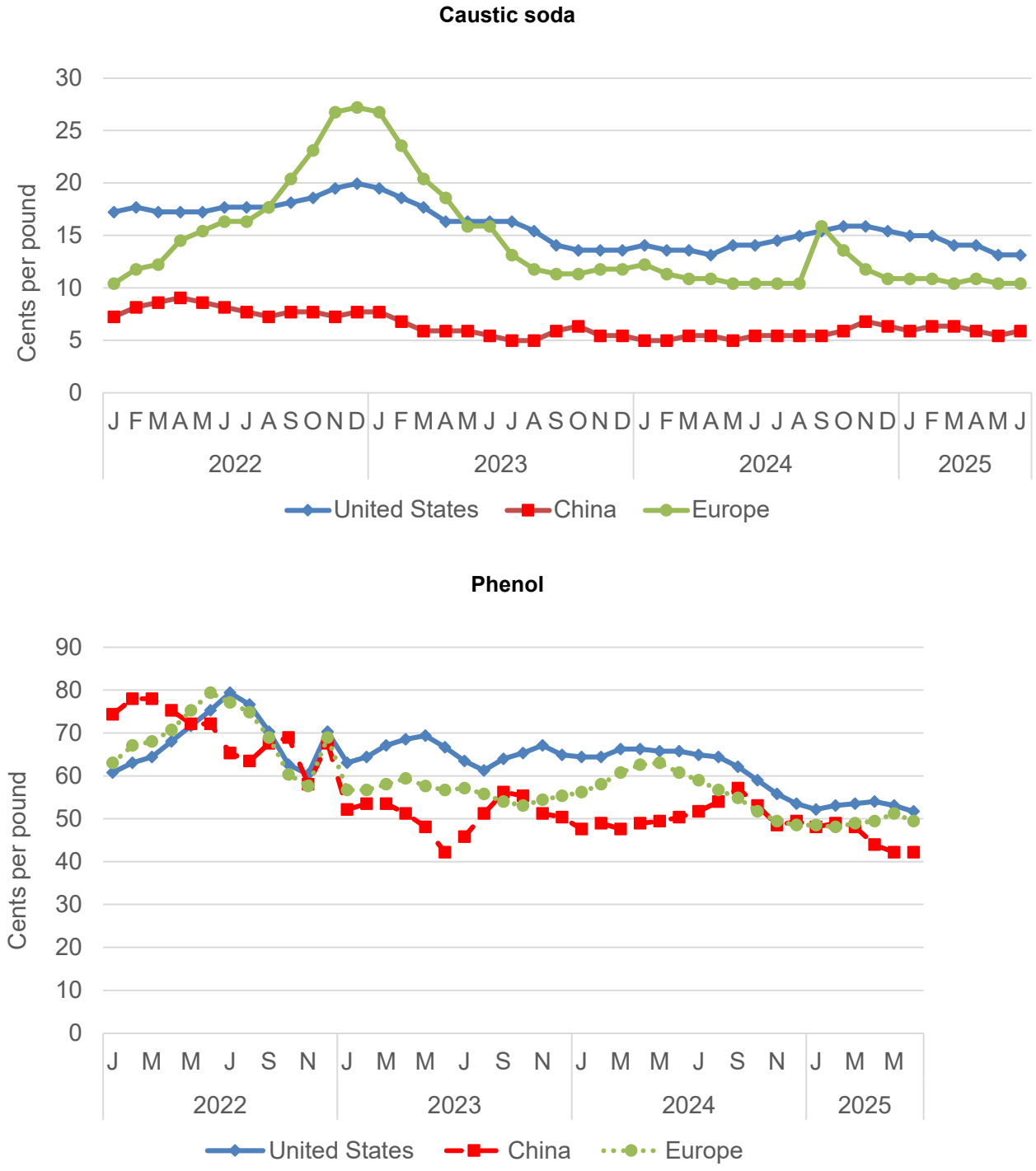
[1] Preliminary phase confidential staff report, Vanillin from China, INV-WW-078, July 15, 2024, p. V-1.

[2] For more information, please see Part 6.

[3] Tabulations of responses regarding importers *** are treated in Part 5 as they were in Part 2: only one instance of a response is included in importer tabulations.

[4] Only three purchasers (***) reported familiarity with raw material prices.

Figure 5.1 Raw materials: Prices per pound of caustic soda and phenol, monthly, January 2022 to March 2025 and April 2025 to June 2025 outlook



Source: Business AnalytIQ, “Caustic Soda Price Index” and “Phenol Price Index,” https://businessanalytiq.com/procurementanalytics/index/caustic-soda-price-index/ and https://businessanalytiq.com/procurementanalytics/index/phenol-price-index/, retrieved June 17, 2025.

Table 5.1 Raw materials: Prices per pound of caustic soda and phenol, monthly, January 2022 to June 2025

Caustic soda (cents per pound)

Source		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
U.S.	2022	17	18	17	17	17	18	18	18	18	19	20	20
U.S.	2023	20	19	18	16	16	16	16	15	14	14	14	14
U.S.	2024	14	14	14	13	14	14	15	15	15	16	16	15
U.S.	2025	15	15	14	14	13	13	—	—	—	—	—	—
China	2022	7	8	9	9	9	8	8	7	8	8	7	8
China	2023	8	7	6	6	6	5	5	5	6	6	5	5
China	2024	5	5	5	5	5	5	5	5	5	6	7	6
China	2025	6	6	6	6	5	6	—	—	—	—	—	—
Europe	2022	10	12	12	15	15	16	16	18	20	23	27	27
Europe	2023	27	24	20	19	16	16	13	12	11	11	12	12
Europe	2024	12	11	11	11	10	10	10	10	16	14	12	11
Europe	2025	11	11	10	11	10	10	—	—	—	—	—	—

Table continued.

Phenol (cents per pound)

Source		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
U.S.	2022	61	63	64	68	72	75	79	77	70	63	60	70
U.S.	2023	63	64	67	68	69	67	64	61	64	65	67	65
U.S.	2024	64	64	66	66	66	66	65	64	62	59	56	54
U.S.	2025	52	53	54	54	53	52	—	—	—	—	—	—
China	2022	74	78	78	75	72	72	65	64	68	69	58	68
China	2023	52	54	54	51	48	42	46	51	56	55	51	50
China	2024	48	49	48	49	49	50	52	54	57	53	49	49
China	2025	48	49	48	44	42	42	—	—	—	—	—	—
Europe	2022	63	67	68	71	75	79	77	75	69	60	58	69
Europe	2023	57	57	58	59	58	57	57	56	54	53	54	55
Europe	2024	56	58	61	63	63	61	59	57	55	52	49	49
Europe	2025	49	48	49	49	51	49	—	—	—	—	—	—

Source: Business AnalytIQ, “Caustic Soda Price Index” and “Phenol Price Index,” https://businessanalytiq.com/procurementanalytics/index/caustic-soda-price-index/ and https://businessanalytiq.com/procurementanalytics/index/phenol-price-index/, retrieved June 17, 2025.

Transportation costs to the U.S. market

Transportation costs for vanillin shipped from subject countries to the United States averaged 2.6 percent for China, during 2024. These estimates were derived from official import data and represent the transportation and other charges on imports.[5]

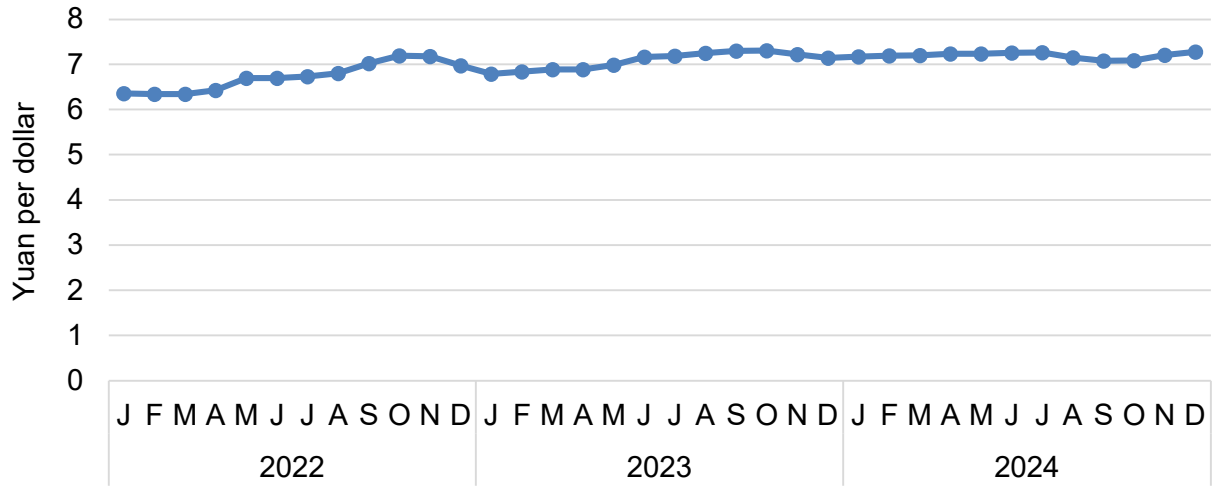
U.S. inland transportation costs

*** and 11 of 17 responding importers reported that they typically arrange transportation to their customers. Most firms reported very low transportation costs: *** 6 of 12 importers reported that its U.S. inland transportation costs averaged *** percent or less and 5 more importers reported transportation costs of 2 to 5 percent.

Exchange rates

Between January 2022 and December 2024, the Chinese yuan depreciated in value compared with the U.S. dollar by 14.6 percent (figure 5.2 and table 5.2).

Figure 5.2 Exchange rates: Chinese yuan per dollar, monthly, January 2022 to December 2024



Source: Federal Reserve Bank of St. Louis (FRED), "Chinese Yuan Renminbi to U.S. Dollar Spot Exchange Rate," https://fred.stlouisfed.org/series/DEXCHUS, retrieved April 28, 2025.

[5] The estimated transportation costs were obtained by subtracting the customs value from the c.i.f. value of the imports for 2024 and then dividing by the customs value based on the HTS statistical reporting numbers 2912.41.0000 and 2912.42.0000.

Table 5.2 Exchange rates: Chinese yuan per dollar, monthly, January 2022 to December 2024

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2022	6.36	6.34	6.34	6.43	6.70	6.70	6.74	6.80	7.02	7.19	7.18	6.97
2023	6.79	6.84	6.89	6.89	6.99	7.16	7.19	7.25	7.30	7.31	7.22	7.14
2024	7.17	7.19	7.20	7.24	7.23	7.25	7.26	7.15	7.08	7.09	7.21	7.28

Source: Federal Reserve Bank of St. Louis (FRED), "Chinese Yuan Renminbi to U.S. Dollar Spot Exchange Rate," https://fred.stlouisfed.org/series/DEXCHUS, retrieved April 28, 2025.

Pricing practices

Pricing methods

Importers of vanillin from China most frequently reported using contract pricing and transaction-by-transaction negotiations, although some reported using price lists and other methods. The domestic producer reported using multiple methods to define customer pricing on a customer-by-customer basis, noting contracts, spot sales, total volumes, services provided to customers, and other factors (table 5.3).

Table 5.3 Vanillin: Count of U.S. producer's and importers' reported price setting methods

Method	U.S. producer	Importers
Transaction-by-transaction	***	12
Contract	***	14
Set price list	***	5
Other	***	3
Responding firms	1	19

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

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

As noted above, the U.S. producer reported a mix of methods of sales but ***. Importers' reported sales were mostly via annual contracts or on the spot market; none reported selling via long-term contract. The share importers sold via annual contracts increased from 31.9 percent to 47.6 percent of sales during 2022 to 2024 (table 5.4). *** 4 of 12 importers indicated their contract types changed over the period. ***. Two importers stopped offering contracts in 2024 due to the filing of these investigations, one sold only on a contract basis in 2024, and one importer switch from annual blanket arrangements to short-term blanked arrangements in 2024.

Table 5.4 Vanillin: U.S. producer's and importers' shares of commercial U.S. shipments by type of sale, 2024

Share in percent

Type of sale	Type of firm	2022	2023	2024
Long-term contracts	U.S. producer	***	***	***
Annual contracts	U.S. producer	***	***	***
Short-term contracts	U.S. producer	***	***	***
Spot sales	U.S. producer	***	***	***
Total	U.S. producer	100.0	100.0	100.0
Long-term contracts	Importers	—	—	—
Annual contracts	Importers	31.9	46.3	47.6
Short-term contracts	Importers	11.3	9.1	7.0
Spot sales	Importers	56.7	44.6	45.4
Total	Importers	100.0	100.0	100.0

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

Note: Because of rounding, figures may not add to the totals shown.
Note: Zeroes, null values, and undefined calculations are suppressed and shown as "—".

Solvay reported that ***. It reported that ***. Importers' short-term and annual contracts typically do not allow for price negotiation, fix both quantity and price, and are not indexed to raw material prices.[6] Only importer *** reported any contract price.

Two purchasers reported that they purchase product weekly, 17 purchase monthly, 11 purchase quarterly, 1 purchases annually, and 6 at some other frequency. Twenty-nine of 35 responding purchasers reported that their purchasing frequency had not changed since 2022. On average, purchasers contact two to four suppliers before making a purchase. Half of the responding purchasers reported contacting as few as one supplier. Twenty-three of 36 purchasers noted contacting between three to five suppliers before making a purchase. *** noted that it maintains synthetic vanillin domestically via contract but can purchase on the spot market due to unexpected demand.

[6] Only importer *** reported any information regarding contract prices being tied to any other price. It noted, "any changes in price due to increased tariffs, duty rates, government mandates, freight rates, landing rates, and other rates and charges that are not within the control of Global Essence are the sole responsibility of the buyer."

Thirty of 36 purchasers indicated that their purchases involve negotiations, and typically involved the most important factors such as availability, delivery, payment terms, pricing, quality, and quantity. Purchasers were mixed with respect to whether they share competitors' prices while negotiating, though more purchasers noted not sharing pricing than those that did. Some firms provided usage projections and blanket agreements for quantity rather than exact amounts, particularly if a contract is for a year.

Sales terms and discounts

The U.S. producer typically quotes prices on *** basis, and 4 of 16 responding importers typically quote prices on an f.o.b. basis. The domestic producer reported that it ***. Thirteen of 17 responding importers reported not having a discount policy, but 3 reported offered total volume discounts, and 2 offered quantity discounts,

Price leadership

Twenty-two purchasers reported that there are no price leaders in the vanillin market,[7] whereas 14 noted at least one leader. Four reported that Solvay was a leader, three reported Advanced Biotech, and two each reported Borregaard, Brother, Jiaxing Zhongua, and Prinova. Seven other firms were reported as price leaders as well as "Chinese firms" in general. *** stated that Chinese producer Camlin's exit from the market caused shortages and price spikes, but Brother entered the market with large volumes, bringing balance to the market and pricing back to previous levels. *** further described the market dynamic: "Once Brother entered vanillin market, a competition between Jiaxing & Brother began. To win market share, both companies engaged in a continuous lowering of prices." Purchaser *** indicated that competition between importers Prinova and Tilley as driving market prices lower, but its customers' feedback has been that Solvay was "historically driving the market." Purchaser *** noted that Solvay sets the U.S. market price for synthetic vanillin, but Advanced Biotech sets it for U.S. natural vanillin and Xiamen Bestally for EU natural vanillin. Other purchasers indicating the presence of price leaders indicated that these price leaders led by having competitive or aggressive pricing, holding a substantial market share, or having available material.

[7] Four specifically noted did not know or "unknown."

Price and purchase cost data

The Commission requested U.S. producers and importers to provide quarterly data for the total quantity and f.o.b. value of the following vanillin products shipped to unrelated U.S. customers during January 2022 to December 2024. Firms that imported these products from China for their own use were requested to provide import purchase cost data.

Product 1.—Synthetic methylvanillin (excluding biosynthetic vanillin and natural vanillin), or 4-Hydroxy-3-methoxybenzaldehyde, with the chemical formula $C_8H_8O_3$, sold to end users.[8]

Product 2.—Ethylvanillin (excluding biosynthetic vanillin and natural vanillin), or 3-Ethoxy-4-hydroxybenzaldehyde, with the chemical formula $C_9H_{10}O_3$, sold to end users.[9]

Product 3.—Biosynthetic or natural methylvanillin (4-Hydroxy-3-methoxybenzaldehyde, with the chemical formula $C_8H_8O_3$), sold to end users.

Price data

The U.S. producer and 11 importers provided usable pricing data for sales of the requested products, although not all firms reported pricing for all products for all quarters.[10] Pricing data reported by these firms accounted for *** percent of U.S. producers' U.S. shipments of vanillin, and *** percent of commercial shipments of imports from China, in 2024.[11] Price data for products 1 to 3 are presented in tables 5.5 to 5.7 and figures 5.3 to 5.5. The U.S. producer had no production or shipments of product 3.

[8] For example, brand name Rhovanil®.

[9] For example, brand name Rhodiarome®.

[10] 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.

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

Table 5.5 Vanillin: Weighted-average f.o.b. prices and quantities of domestic and imported product 1 and margins of underselling/(overselling), by source and quarter

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

Period	U.S. price	U.S. quantity	China price	China quantity	China margin
2022 Q1	***	***	10.64	877,793	***
2022 Q2	***	***	11.02	1,024,155	***
2022 Q3	***	***	11.46	683,376	***
2022 Q4	***	***	12.91	347,696	***
2023 Q1	***	***	8.20	394,514	***
2023 Q2	***	***	7.51	454,350	***
2023 Q3	***	***	5.86	563,017	***
2023 Q4	***	***	5.97	311,356	***
2024 Q1	***	***	4.79	443,251	***
2024 Q2	***	***	4.92	740,560	***
2024 Q3	***	***	4.79	682,631	***
2024 Q4	***	***	5.05	601,829	***

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

Note: Product 1: Synthetic methylvanillin (excluding biosynthetic vanillin and natural vanillin), or 4-Hydroxy-3-methoxybenzaldehyde, with the chemical formula $C_8H_8O_3$, sold to end users.

Table 5.6 Vanillin: Weighted-average f.o.b. prices and quantities of domestic and imported product 2 and margins of underselling/(overselling), by source and quarter

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

Period	U.S. price	U.S. quantity	China price	China quantity	China margin
2022 Q1	***	***	14.01	337,119	***
2022 Q2	***	***	***	***	***
2022 Q3	***	***	***	***	***
2022 Q4	***	***	13.49	160,996	***
2023 Q1	***	***	10.98	172,224	***
2023 Q2	***	***	***	***	***
2023 Q3	***	***	***	***	***
2023 Q4	***	***	***	***	***
2024 Q1	***	***	***	***	***
2024 Q2	***	***	5.02	303,719	***
2024 Q3	***	***	6.57	158,317	***
2024 Q4	***	***	***	***	***

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

Note: Product 2: Ethylvanillin (excluding biosynthetic vanillin and natural vanillin), or 3-Ethoxy-4-hydroxybenzaldehyde, with the chemical formula $C_9H_{10}O_3$, sold to end users.

Table 5.7 Vanillin: Weighted-average f.o.b. prices and quantities of domestic and imported product 3 and margins of underselling/(overselling), by source and quarter

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

Period	U.S. price	U.S. quantity	China price	China quantity	China margin
2022 Q1	—	0	***	***	—
2022 Q2	—	0	***	***	—
2022 Q3	—	0	***	***	—
2022 Q4	—	0	***	***	—
2023 Q1	—	0	***	***	—
2023 Q2	—	0	***	***	—
2023 Q3	—	0	***	***	—
2023 Q4	—	0	***	***	—
2024 Q1	—	0	***	***	—
2024 Q2	—	0	***	***	—
2024 Q3	—	0	***	***	—
2024 Q4	—	0	***	***	—

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

Note: Product 3: Biosynthetic or natural methylvanillin (4-Hydroxy-3-methoxybenzaldehyde, with the chemical formula $C_8H_8O_3$), sold to end users.

Figure 5.3 Vanillin: Weighted-average f.o.b. prices and quantities of domestic and imported product 1, by source and quarter

Price of product 1

* * * * * * *

Volume of product 1

* * * * * * *

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

Note: Product 1: Synthetic methylvanillin (excluding biosynthetic vanillin and natural vanillin), or 4-Hydroxy-3-methoxybenzaldehyde, with the chemical formula $C_8H_8O_3$, sold to end users.

Figure 5.4 Vanillin: Weighted-average f.o.b. prices and quantities of domestic and imported product 2, by source and quarter

Price of product 2

* * * * * * *

Volume of product 2

* * * * * * *

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

Note: Product 1: Synthetic methylvanillin (excluding biosynthetic vanillin and natural vanillin), or 4-Hydroxy-3-methoxybenzaldehyde, with the chemical formula $C_8H_8O_3$, sold to end users.

Products 1 and 2 are both synthetically produced vanillin products and product 3 is a natural (or biosynthetic) vanillin product. As presented earlier in the report, the relative price of natural vanillin is typically higher than the price of synthetic vanillin. Figure 5.5 presents the price of imported Chinese product 3 in relation to the two synthetic products.

Figure 5.5 Vanillin: Weighted-average f.o.b. prices of imported products 1, 2, and 3, by product and quarter

* * * * * * *

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

Price trends

Prices decreased during January 2022 to December 2024. The beginning of the period exhibited the highest prices across the three years during the late/post COVID-19 pandemic time period.[12] Table 5.8 summarizes the price trends, by country and by product. As shown in the table, domestic price decreases were *** percent and *** percent for the two products during January 2022 to December 2024 while import price decreases were 52.5 and *** percent, respectively. The price decrease for product 3 was *** percent.

[12] For more information on the supply conditions caused by COVID-19 see the Supply constraints section in Part 2.

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

Volume in 1,000 pounds, price and cost in dollars per pound

Product	Source	Number of quarters	Volume of shipments	Low price/ cost	High price/ cost	First quarter price/ cost	Last quarter price/ cost	Percent change in price/cost over period
Product 1	United States	12	***	***	***	***	***	***
Product 1	China price	12	7,125	4.79	12.91	10.64	5.05	(52.5)
Product 1	China cost	12	***	***	***	***	***	***
Product 2	United States	12	***	***	***	***	***	***
Product 2	China price	12	***	***	***	***	***	***
Product 2	China cost	12	***	***	***	***	***	***
Product 3	United States	—	***	***	***	***	***	***
Product 3	China price	12	***	***	***	***	***	***
Product 3	China cost	12	***	***	***	***	***	***

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

Note: Percentage change from the first quarter in which data were available in 2022 to the last quarter in which data were available in 2024. Undefined calculations are suppressed and shown as "—".

Price comparisons

As shown in table 5.9, prices for product imported from China were below those for U.S.-produced product in 14 of 24 instances (6.2 million pounds); margins of underselling ranged from 0.7 to 41.9 percent and averaged 20.2 percent. In the remaining 10 instances (3.3 million pounds), prices for product from China were between 2.1 and 77.0 percent above prices for the domestic product, and averaged 33.7 percent. Table 5.10 presents underselling and overselling data by year. Thirteen of the 14 instances of underselling occurred in 2023 and 2024, whereas 7 of the 10 instances of overselling occurred in 2022. The average margins of underselling increased each year as well.

Table 5.9 Vanillin: Instances of underselling and overselling and the range and average of margins, by product

Quantity in pounds; margins in percent

Product	Type	Number of quarters	Quantity	Average margin	Min margin	Max margin
Product 1	Underselling	9	***	***	***	***
Product 2	Underselling	5	***	***	***	***
Total	Underselling	14	6,195,079	20.2	0.7	41.9
Product 1	Overselling	3	***	***	***	***
Product 2	Overselling	7	***	***	***	***
Total	Overselling	10	3,252,066	(33.7)	(2.1)	(77.0)

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

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

Table 5.10 Vanillin: Instances of underselling and overselling and the range and average of margins, by year

Quantity in pounds; margins in percent

Year	Type	Number of quarters	Quantity	Average margin	Min margin	Max margin
2022	Underselling	1	***	***	***	***
2023	Underselling	7	***	***	***	***
2024	Underselling	6	***	***	***	***
Total, all years	Underselling	14	6,195,079	20.2	0.7	41.9
2022	Overselling	7	***	***	***	***
2023	Overselling	1	***	***	***	***
2024	Overselling	2	***	***	***	***
Total, all years	Overselling	10	3,252,066	(33.7)	(2.1)	(77.0)

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

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

Import purchase cost data

Eleven importers reported useable import purchase cost data for products 1 to 3. Purchase cost data reported by these firms accounted for 30.1 percent of imports from China, in 2024. The largest importers reporting purchase cost data were ***. Landed duty-paid purchase cost data for imports from China are presented in tables 5.11 to 5.13, along with U.S. producers' sales prices.[13]

Table 5.11 Vanillin: Weighted-average f.o.b. prices and quantities of domestic and imported product 1 and margins of underselling/(overselling), by source and quarter

Price in dollars per pound, quantity in pounds, price-cost differential in percent.

Period	U.S. price	U.S. quantity	China LDP unit cost	China quantity	China price-cost differential
2022 Q1	***	***	8.88	75,643	***
2022 Q2	***	***	13.19	32,496	***
2022 Q3	***	***	9.23	46,580	***
2022 Q4	***	***	10.72	34,811	***
2023 Q1	***	***	***	***	***
2023 Q2	***	***	2.82	184,697	***
2023 Q3	***	***	4.35	192,198	***
2023 Q4	***	***	4.35	100,432	***
2024 Q1	***	***	6.77	350,553	***
2024 Q2	***	***	5.73	375,250	***
2024 Q3	***	***	5.06	298,128	***
2024 Q4	***	***	5.55	99,893	***

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

Note: Product 1: Synthetic methylvanillin (excluding biosynthetic vanillin and natural vanillin), or 4-Hydroxy-3-methoxybenzaldehyde, with the chemical formula $C_8H_8O_3$, sold to end users.

[13] LDP import value does not include any potential additional costs that a purchaser may incur by importing rather than purchasing from another importer or U.S. producer. Price-cost differences are based on LDP import values whereas margins of underselling/overselling are based on importer sales prices.

Table 5.12 Vanillin: Weighted-average f.o.b. prices and quantities of domestic and imported product 2 and margins of underselling/(overselling), by source and quarter

Price in dollars per pound, quantity in pounds, price-cost differential in percent.

Period	U.S. price	U.S. quantity	China LDP unit cost	China quantity	China price-cost differential
2022 Q1	***	***	***	***	***
2022 Q2	***	***	***	***	***
2022 Q3	***	***	***	***	***
2022 Q4	***	***	***	***	***
2023 Q1	***	***	***	***	***
2023 Q2	***	***	7.35	185,844	***
2023 Q3	***	***	5.34	163,021	***
2023 Q4	***	***	***	***	***
2024 Q1	***	***	4.96	141,914	***
2024 Q2	***	***	4.68	176,614	***
2024 Q3	***	***	5.16	177,802	***
2024 Q4	***	***	5.32	193,697	***

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

Note: Product 2: Ethylvanillin (excluding biosynthetic vanillin and natural vanillin), or 3-Ethoxy-4-hydroxybenzaldehyde, with the chemical formula $C_9H_{10}O_3$, sold to end users.

Table 5.13 Vanillin: Weighted-average f.o.b. prices and quantities of domestic and imported product 3 and margins of underselling/(overselling), by source and quarter

Price in dollars per pound, quantity in pounds, price-cost differential in percent.

Period	U.S. price	U.S. quantity	China LDP unit cost	China quantity	China price-cost differential
2022 Q1	—	0	***	***	—
2022 Q2	—	0	***	***	—
2022 Q3	—	0	***	***	—
2022 Q4	—	0	***	***	—
2023 Q1	—	0	***	***	—
2023 Q2	—	0	***	***	—
2023 Q3	—	0	***	***	—
2023 Q4	—	0	***	***	—
2024 Q1	—	0	81.63	5,068	—
2024 Q2	—	0	***	***	—
2024 Q3	—	0	***	***	—
2024 Q4	—	0	***	***	—

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

Note: Product 3: Biosynthetic or natural methylvanillin (4-Hydroxy-3-methoxybenzaldehyde, with the chemical formula $C_8H_8O_3$), sold to end users.

Figure 5.6 Vanillin: U.S. producer prices and import purchase costs and quantities of product 1, by quarter

U.S. price, import purchase cost of product 1

* * * * * * *

Volume of product 1

* * * * * * *

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

Note: Product 1: Synthetic methylvanillin (excluding biosynthetic vanillin and natural vanillin), or 4-Hydroxy-3-methoxybenzaldehyde, with the chemical formula $C_8H_8O_3$, sold to end users.

Figure 5.7 Vanillin: U.S. producer prices and import purchase costs and quantities of product 2, by quarter

U.S. price, import purchase cost of product 2

* * * * * * *

Volume of product 2

* * * * * * *

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

Note: Product 2: Ethylvanillin (excluding biosynthetic vanillin and natural vanillin), or 3-Ethoxy-4-hydroxybenzaldehyde, with the chemical formula $C_9H_{10}O_3$, sold to end users.

As with the sales price data, the purchase cost of Product 3 (the natural and biosynthetic product) was substantially higher than the purchase cost of the two synthetically produced products (figure 5.8). Purchase cost data for product 3 show a far greater per-pound cost than the sales price of the imported product in nearly every quarter and reached nearly *** per pound in one quarter. These high-cost quarters, however, were for quarters with the lowest volumes of vanillin across all products and may be indicative of higher proportions of natural vanillin than biosynthetic vanillin. For example, importer *** noted that its 2022 to 2024 price of biosynthetic vanillin was *** per pound compared with *** per pound for natural vanillin.[14] The three lowest-cost quarters (quarters 1 and 4 in 2022 and quarter 3 in 2024) all had volumes approaching some quarterly volumes of the import pricing data for product 3—at least *** pounds. Eight of the other nine quarters have volumes of less than *** pounds, with one quarter less than *** pounds.

Figure 5.8 Vanillin: Weighted-average f.o.b. prices of imported products 1, 2, and 3, by product and quarter

* * * * * * *

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

[14] Email from ***, June 10, 2025.

Price-cost comparisons

As shown in table 5.14, landed duty-paid costs for vanillin imported from China were below the sales price for U.S.-produced product in 19 of 24 instances (*** pounds); price-cost differentials ranged from *** to *** percent, averaging *** percent.[15] Average price differentials were highest in 2023. In the remaining five instances (*** pounds), all of which occurred in 2022, landed duty-paid costs for vanillin from China were between *** and *** percent above sales prices for the domestic product.

Table 5.14 Vanillin: Instances of subject import costs lower and higher than domestic prices and the range and average of margins, by year

Quantity in pounds; margin in percent

Year	Type	Number of quarters	Quantity	Average differential	Min differential	Max differential
2022	Priced Lower	3	***	***	***	***
2023	Priced Lower	8	***	***	***	***
2024	Priced Lower	8	***	***	***	***
Total, all years	Priced Lower	19	***	***	***	***
2022	Priced higher	5	***	***	***	***
2023	Priced higher	0	0	—	—	—
2024	Priced higher	0	0	—	—	—
Total, all years	Priced higher	5	***	***	***	***

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

Note: These data include only quarters in which there is a comparison between the U.S. and subject product. Undefined calculations are suppressed and shown as "—".

Importers that provided purchase cost data were asked to share other information regarding costs and benefits of importing vanillin directly rather than purchasing it from other sources. Six of ten responding importers reported that they incurred additional costs beyond landed duty-paid costs by importing vanillin themselves rather than purchasing from a U.S. producer or U.S. importer. Of these, two importers estimated the total additional cost incurred; estimates of each cost ranged from 0.1 to 5.0 percent compared to the landed duty-paid value. Firms were also asked to identify specific additional costs they incurred as a result of importing vanillin. Reported costs include brokerage (0.1 percent), customs clearance and freight costs (4.9 to 5.0 percent), handling charges (0.4 percent), import logistics costs (1.5 percent), inland freight (0.5 percent), warehousing costs (1.5 percent).

[15] Importer *** indicated that it reported its vendor invoice pricing which included freight costs, which may very slightly elevate the purchase cost data levels for both products 1 and 2.

Firms were also asked to describe how these additional costs incurred by importing vanillin themselves compares with additional costs incurred when purchasing from a U.S. producer or U.S. importer. *** stated that the extra costs, such as warehousing fees, would be similar to other fees that may occur from purchasing from domestic sources. *** noted that buying from US distributors will include the brokerage, freight, and the markup of the local distributor; these could range from 10 to 30 percent.[16]

All eight responding importers reported that they compare costs of importing to the cost of purchasing from other importers and six compare with the U.S. producer in determining whether to import vanillin. Seven importers identified benefits from importing vanillin themselves instead of purchasing from U.S. producers or importers. All seven reported that availability or the lack of sufficient domestic capacity as a benefit to importing. In addition, four reported price/cost, and one each noted customer service, quality, and risk mitigation.

Firms were also asked whether the import costs (both excluding and including additional costs) of vanillin they imported are lower than the price of purchasing vanillin from a U.S. producer or importer. Five of the seven reported that the costs would be lower by importing directly than buying from the U.S. producer or other importers if the extra charges noted above were not included, but four of the seven noted that their costs from importing directly are higher when including these costs. Three importers estimated that they saved between *** percent of the purchase price by importing vanillin directly rather than purchasing from a U.S. importer and saved between *** percent compared to purchasing the product from a U.S. producer.[17]

[16] This importer indicated that this range of values may also include duty rates.

[17] Four firms reported that they based their estimates on previous company transactions, and one reported basing their estimates on market research.

Lost sales and lost revenue

In the preliminary phase of these investigations, the Commission requested that U.S. producers of vanillin report purchasers with which they experienced instances of lost sales or revenue due to competition from imports of vanillin from China during 2021 to March 2024. The U.S. producer submitted both lost sales and lost revenue allegations, identifying 20 firms with which they lost sales or revenue (8 consisting of lost sales allegations and 12 consisting of both types of allegations). In the final phase of these investigations, the responding U.S. producer reported that *** to reduce prices, but that *** to roll back announced price increases.

Staff contacted 65 purchasers and received usable responses from 36 firms.[18] [19] Responding purchasers reported purchasing 25.9 million pounds of vanillin during January 2022 to December 2024. Their total purchases were highest in 2022, decreased by nearly one-third in 2023, but increased in 2024 to a level 2.6 percent below the 2022 level (table 5.15). Purchasers were also asked to report their end-of-year inventories of domestic or imported vanillin (table 5.16). Inventories of vanillin held by purchasers increased from 1.3 million pounds at the end of 2021 to 2.0 million pounds at the end of 2022. The decreased purchases in 2023 resulted in end-of year inventory levels decreasing by 20.3 percent in 2023, and the increased purchases in 2024 assisted in raising inventory levels to 1.8 million pounds in 2024. The domestic share of purchasers' purchases and imported declined from 2022 to 2024 by 12.4 percent, while the shares imported from China and other countries increased by 6.8 and 5.6 percent, respectively (table 5.17).

Table 5.15 Vanillin: Purchasers' reported purchases and imports, by source

Quantity in 1,000 pounds

Source	2022	2023	2024
United States	4,147	2,147	2,862
China	2,803	2,671	3,379
Nonsubject import sources	2,791	1,761	3,250
Unknown sources	8	27	8
All sources	9,748	6,606	9,499

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

[18] One purchaser submitted lost sales lost revenue survey responses in the preliminary phase, but did not submit purchaser questionnaire responses in the final phase.

[19] One additional purchaser located in Canada responded to the Commission purchaser questionnaire but had no U.S. purchases during 2022 to 2024.

Table 5.16 Vanillin: Purchasers' reported end-of-year inventories, by source

Quantity in 1,000 pounds, share in percent

Inventory origin	Measure	2021	2022	2023	2024
United States	Quantity	***	***	***	***
China	Quantity	***	***	***	***
Other	Quantity	***	***	***	***
Unknown	Quantity	***	***	***	***
All origins	Quantity	***	***	***	***
United States	Share	***	***	***	***
China	Share	***	***	***	***
Other	Share	***	***	***	***
Unknown	Share	***	***	***	***
All origins	Share	100.0	100.0	100.0	100.0

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

Note: Data for 2021 do not include inventory for ***, as its records do not extend back to 2021. In 2022 through 2024, its total inventories totaled *** pounds.

Table 5.17 Vanillin: Purchasers' reported purchases and imports, by firm and source

Quantity in thousand pounds, share in percentage points

Purchaser	Domestic quantity	China quantity	All other quantity	Change in domestic share	Change in China share	Change in all other share
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***

Table continued.

Table 5.17 (Continued) Vanillin: Purchasers' reported purchases and imports, by firm and source

Quantity in thousand pounds, share in percentage points

Purchaser	Domestic quantity	China quantity	All other quantity	Change in domestic share	Change in China share	Change in all other share
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
***	***	***	***	***	***	***
All firms	9,156	8,853	7,844	(12.4)	6.8	5.6

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

Note: All other includes all other sources and unknown sources. Change is the percentage point change in the share of the firm's total purchases of domestic and/or subject country imports between first and last years. Zeroes and undefined calculations are suppressed and shown as "—". Values less than 500 pounds are rounded down and presented as "0."

Of the 36 responding purchasers, 26 reported that, since 2022, they had purchased imported vanillin from China instead of U.S.-produced vanillin. Twenty of these purchasers reported that subject import prices were lower than U.S.-produced product, and 13 of these purchasers reported that price was a primary reason for the decision to purchase imported product rather than U.S.-produced product. Twelve purchasers estimated the quantity of vanillin from China purchased instead of domestic product; quantities ranged from 6,613 pounds to 599,320 pounds (table 5.18). In total, purchasers reported 1.7 million pounds of vanillin purchased from China instead of purchasing domestic product. Purchasers identified availability and potential supply concerns, competitiveness, complying with customers' approved suppliers, the domestic producer's refusal to sell to purchasers, not controlling where suppliers source vanillin, quality, and sourcing with a strategic partner as non-price reasons for purchasing imported rather than U.S.-produced product.

Table 5.18 Vanillin: Purchasers' responses to purchasing subject imports instead of domestic product, by firm

Quantity in thousand pounds

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

Table continued.

Table 5.18 (Continued) Vanillin: Purchasers' responses to purchasing subject imports instead of domestic product, by firm

Quantity in thousand pounds

Purchaser	Purchased subject imports instead of domestic	Imports priced lower	Choice based on price	Quantity	Explanation
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
All firms	Yes--26; No--10	Yes--20; No--4	Yes--13; No--13	1,731	NA

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

Of the 17 responding purchasers, 2 reported that U.S. producers had reduced prices in order to compete with lower-priced imports from China.[20] Purchaser *** estimated the price reduction to be 25 percent, noting there have been "more reductions recently than historically" and purchaser *** estimated a decrease of 80 percent.

[20] In addition, nineteen reported that they did not know whether domestic producers lowered prices to compete with imports from China.

Part 6: Financial experience of U.S. producers

Background[1]

The petitioner, Solvay, is the only U.S. producer of vanillin and provided usable financial results on its vanillin operations.[2] Solvay reported financial data on a calendar year and on the basis of IFRS.[3] Commercial domestic and export sales accounted for *** percent of total revenue, respectively, in 2024, and transfers to related firms (***) accounted for the remaining *** percent of total revenue.[4] [5]

Figure 6.1 presents Solvay's share of the total market net sales quantity by sales type in 2024.

Operations on vanillin

Table 6.1 presents data on the U.S. producer's operations in relation to vanillin in the total market (which includes commercial sales and transfers to related firms), while table 6.2 presents corresponding changes in AUVs. Financial results for the merchant market (which include commercial sales only) are presented in table 6.3, and table 6.4 presents the corresponding changes in AUVs for the merchant market.

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

[2] Solvay stated it was the sole producer of vanillin in the United States. Conference transcript, p. 18 (Pickard). ***. See part 3 of this report for additional details.

[3] Solvay completed the spin-off of its Specialty Chemical activities into a new company named Syensqo in December 2023. ***. https://cen.acs.org/business/Solvay-completes-spinspecialty-chemicals-new/101/i41, retrieved July 3, 2024, and email from ***, July 2, 2024.

[4] ***. Emails from ***, July 1, and July 9, 2024.

[5] Staff conducted a verification of Solvay's trade and financial data. All adjustments that resulted from the verification were incorporated into this report. The following items were revised in Solvay's U.S. producers questionnaire response: ***. Staff verification report, Solvay, May 27, 2025.

Figure 6.1 Vanillin: U.S. producer Solvay's share of total market net sales quantity in 2024, by sales type

* * * * * * *

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

Table 6.1 Vanillin: U.S. producer Solvay's results of total market operations, by item and period

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

Item	Measure	2022	2023	2024
Commercial sales	Quantity	***	***	***
Transfers to related firms	Quantity	***	***	***
Total net sales	Quantity	***	***	***
Commercial sales	Value	***	***	***
Transfers to related firms	Value	***	***	***
Total net sales	Value	***	***	***
COGS: Raw materials	Value	***	***	***
COGS: Direct labor	Value	***	***	***
COGS: Other factory	Value	***	***	***
COGS: Total	Value	***	***	***
Gross profit or (loss)	Value	***	***	***
SG&A expenses	Value	***	***	***
Operating income or (loss)	Value	***	***	***
Net other expenses or (income)	Value	***	***	***
Net income or (loss)	Value	***	***	***
Depreciation/amortization	Value	***	***	***
Cash flow	Value	***	***	***
COGS: Raw materials	Ratio to NS	***	***	***
COGS: Direct labor	Ratio to NS	***	***	***
COGS: Other factory	Ratio to NS	***	***	***
COGS: Total	Ratio to NS	***	***	***
Gross profit	Ratio to NS	***	***	***
SG&A expense	Ratio to NS	***	***	***
Operating income or (loss)	Ratio to NS	***	***	***
Net income or (loss)	Ratio to NS	***	***	***

Table continued.

Table 6.1 (Continued) Vanillin: U.S. producer Solvay's results of total market operations, by item and period

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

Item	Measure	2022	2023	2024
COGS: Raw materials	Share	***	***	***
COGS: Direct labor	Share	***	***	***
COGS: Other factory	Share	***	***	***
COGS: Total	Share	100.0	100.0	100.0
Commercial sales	Unit value	***	***	***
Transfers to related firms	Unit value	***	***	***
Total net sales	Unit value	***	***	***
COGS: Raw materials	Unit value	***	***	***
COGS: Direct labor	Unit value	***	***	***
COGS: Other factory	Unit value	***	***	***
COGS: Total	Unit value	***	***	***
Gross profit or (loss)	Unit value	***	***	***
SG&A expenses	Unit value	***	***	***
Operating income or (loss)	Unit value	***	***	***
Net income or (loss)	Unit value	***	***	***
Operating losses	Count	***	***	***
Net losses	Count	***	***	***
Data	Count	1	1	1

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

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

Table 6.2 Vanillin: Changes in AUVs between comparison periods for the total market

Changes in percent

Item	2022–24	2022–23	2023–24
Commercial sales	▼***	▼***	▼***
Transfers to related firms	▼***	▲***	▼***
Total net sales	▼***	▲***	▼***
COGS: Raw materials	▼***	▲***	▼***
COGS: Direct labor	▲***	▲***	▼***
COGS: Other factory	▲***	▲***	▼***
COGS: Total	▼***	▲***	▼***

Table continued.

Table 6.2 (Continued) Vanillin: Changes in AUVs between comparison periods for the total market

Changes in dollars per pound

Item	2022–24	2022–23	2023–24
Commercial sales	▼***	▼***	▼***
Transfers to related firms	▼***	▲***	▼***
Total net sales	▼***	▲***	▼***
COGS: Raw materials	▼***	▲***	▼***
COGS: Direct labor	▲***	▲***	▼***
COGS: Other factory	▲***	▲***	▼***
COGS: Total	▼***	▲***	▼***
Gross profit or (loss)	▼***	▼***	▼***
SG&A expense	▲***	▲***	▼***
Operating income or (loss)	▼***	▼***	▲***
Net income or (loss)	▼***	▼***	▼***

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

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

Table 6.3 Vanillin: U.S. producer Solvay's results of the merchant market operations, by item and period

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

Item	Measure	2022	2023	2024
Commercial sales	Quantity	***	***	***
Commercial sales	Value	***	***	***
COGS: Raw materials	Value	***	***	***
COGS: Direct labor	Value	***	***	***
COGS: Other factory	Value	***	***	***
COGS: Total	Value	***	***	***
Gross profit or (loss)	Value	***	***	***
SG&A expenses	Value	***	***	***
Operating income or (loss)	Value	***	***	***
Net other expenses or (income)	Value	***	***	***
Net income or (loss)	Value	***	***	***
Depreciation/amortization	Value	***	***	***
Cash flow	Value	***	***	***
COGS: Raw materials	Ratio to NS	***	***	***
COGS: Direct labor	Ratio to NS	***	***	***
COGS: Other factory	Ratio to NS	***	***	***
COGS: Total	Ratio to NS	***	***	***
Gross profit	Ratio to NS	***	***	***
SG&A expense	Ratio to NS	***	***	***
Operating income or (loss)	Ratio to NS	***	***	***
Net income or (loss)	Ratio to NS	***	***	***

Table continued.

Table 6.3 (Continued) Vanillin: U.S. producer Solvay's results of merchant market operations, by item and period

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

Item	Measure	2022	2023	2024
COGS: Raw materials	Share	***	***	***
COGS: Direct labor	Share	***	***	***
COGS: Other factory	Share	***	***	***
COGS: Total	Share	100.0	100.0	100.0
Commercial sales	Unit value	***	***	***
COGS: Raw materials	Unit value	***	***	***
COGS: Direct labor	Unit value	***	***	***
COGS: Other factory	Unit value	***	***	***
COGS: Total	Unit value	***	***	***
Gross profit or (loss)	Unit value	***	***	***
SG&A expenses	Unit value	***	***	***
Operating income or (loss)	Unit value	***	***	***
Net income or (loss)	Unit value	***	***	***
Operating losses	Count	***	***	***
Net losses	Count	***	***	***
Data	Count	1	1	1

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

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

Table 6.4 Vanillin: Changes in AUVs between comparison periods for the merchant market

Changes in percent

Item	2022–24	2022–23	2023–24
Commercial sales	▼***	▼***	▼***
COGS: Raw materials	▼***	▲***	▼***
COGS: Direct labor	▲***	▲***	▼***
COGS: Other factory	▲***	▲***	▼***
COGS: Total	▼***	▲***	▼***

Table continued.

Table 6.4 (Continued) Vanillin: Changes in AUVs between comparison periods for the merchant market

Changes in dollars per pound

Item	2022–24	2022–23	2023–24
Commercial sales	▼***	▼***	▼***
COGS: Raw materials	▼***	▲***	▼***
COGS: Direct labor	▲***	▲***	▼***
COGS: Other factory	▲***	▲***	▼***
COGS: Total	▼***	▲***	▼***
Gross profit or (loss)	▼***	▼***	▼***
SG&A expense	▲***	▲***	▼***
Operating income or (loss)	▼***	▼***	▲***
Net income or (loss)	▼***	▼***	▼***

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

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

Net sales

Total market

As shown in table 6.1, total market sales quantity and value decreased notably by *** percent, respectively, from 2022 to 2023. From 2023 to 2024, total sales value decreased by *** percent despite a *** percent increase in sales quantity. Overall, total sales quantity and value decreased by *** percent, respectively, from 2022 to 2024.[6] [7] On an average per-pound value, total net sales value decreased irregularly from $*** in 2022 to $*** in 2024.[8]

Merchant market

As shown in table 6.3, merchant market sales quantity and value notably decreased by *** percent, respectively, from 2022 to 2023. From 2023 to 2024, merchant market sales quantity increased by *** percent, while merchant market sales value decreased by *** percent.[9] Overall, sales quantity and value decreased by *** percent, respectively, from 2022 to 2024. On an average per pound basis, total net sales value decreased from $*** in 2022 to $*** in 2024.

[6] ***. Email from ***, June 25, 2024
[7] ***. Email from ***, April 11, and April 24, 2025.
[8] ***. Email from ***, April 11, 2025.
[9] ***. Email from ***, April 1, 2025.

Cost of goods sold and gross profit or loss

Total market

As shown in table 6.1, raw material costs, direct labor, and other factory costs in the total market accounted for *** percent of total COGS, respectively, in 2024.

Raw material costs, the largest component of COGS in all years in which data were collected decreased by *** percent from 2022 to 2024. On an average per-pound basis, raw material costs increased to their highest point of $*** in 2023 from $*** in 2022, before decreasing to $*** in 2023. As a ratio to net sales, raw material costs decreased consistently from *** percent in 2022 to *** percent in 2024.

Table 6.5 presents details on specific raw material inputs as a share of total raw material costs in 2024. The table shows that glyoxylic acid accounted for *** percent of total raw material costs, followed by caustic soda, phenol and hydrogen peroxide accounting for *** percent respectively. Other raw material inputs accounted for *** percent of total raw material costs and included ***.[10]

Table 6.5 Vanillin: U.S. producer Solvay's total market raw material costs in 2024

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

Item	Value	Share of value
Glyoxylic acid	***	***
Caustic soda	***	***
Phenol	***	***
Hydrogen peroxide	***	***
Other material inputs	***	***
All raw materials	***	100.0

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

Direct labor costs, the smallest component of COGS in all years in which data were collected, increased irregularly in absolute value and on an average per-pound basis from 2022 to 2024. As a ratio to net sales, direct labor costs increased consistently from *** percent in 2022 to *** percent in 2024 (see table 6.1).

[10] *** U.S. producers questionnaire response, section 3.9d.

Other factory costs, the second largest component of COGS in all years in which data were collected, decreased irregularly in absolute value, and increased irregularly on an average per-pound basis from 2022 to 2024. As a ratio to net sales, other factory costs increased consistently from *** percent in 2022 to *** percent in 2024 (see table 6.1).[11] [12]

As shown in table 6.1, total COGS decreased by *** percent from 2022 to 2024. On an average per-pound basis, total COGS decreased irregularly from $*** in 2022 to $*** in 2024. As a ratio to net sales, total COGS increased from *** percent in 2022 to *** percent in 2024.

As shown in table 6.1, total sales value declined at a greater rate than total COGS from 2022 to 2024, thus gross profit decreased from *** in 2022 to *** in 2023, and *** in 2024. As a ratio to net sales, gross profit decreased from *** percent in 2022 to *** percent in 2024.

Merchant market

As shown in table 6.3, raw material costs, direct labor and other factory costs accounted for *** percent of total COGS, respectively, in 2024.

Raw material costs, the largest component of COGS in all years in which data were collected decreased by *** percent in absolute value, and decreased irregularly on an average per-pound basis from $*** to $*** from 2022 to 2024. As a ratio to net sales, raw material costs increased irregularly from *** percent in 2022 to *** percent in 2024 (see table 6.3).

Direct labor costs, the smallest component of COGS in all years in which data were collected, increased consistently in absolute value and irregularly on an average per-pound basis from 2022 to 2024. As a ratio to net sales, direct labor costs increased from *** percent in 2022 to *** percent in 2024 (see table 6.3).

Other factory costs, the second largest component of COGS in all years in which data were collected, increased irregularly in absolute value and on an average per-pound value from 2022 to 2024. As a ratio to net sales, other factory costs increased from *** percent in 2022 to *** percent in 2024 (see table 6.3).

As shown in table 6.3, total COGS decreased consistently by *** percent in absolute value but decreased irregularly on an average per-pound basis from $*** in 2022 to $***

[11] ***. Email from ***, July 1, 2024.

[12] ***.

in 2024. As a ratio to net sales, total COGS increased from *** percent in 2022 to *** percent in 2024.

As shown in table 6.3, the merchant market's gross profit decreased from *** in 2022 to *** in 2023, and further decreased to *** in 2024. As a ratio to net sales, gross profit decreased from *** percent in 2022 to *** percent in 2024.

SG&A expenses and operating income or loss

Total market

As shown in table 6.1, total market SG&A expenses increased irregularly by *** percent from 2022 to 2024 in absolute value and as a ratio to net sales from *** percent to *** percent.[13] [14] Total market operating income decreased from *** in 2022 to *** in 2023, and further decreased to *** in 2024. As a ratio to net sales, operating income decreased from *** percent in 2022 to *** percent in 2024.

Merchant market

As shown in table 6.3, merchant market SG&A expenses increased irregularly by *** percent from 2022 to 2024 in an absolute value and as a ratio to net sales from *** percent to *** percent. Operating income in the merchant market decreased from *** in 2022 to *** in 2023, and *** in 2024.[15] As a ratio to net sales, operating income decreased from *** percent in 2022 to *** percent in 2024.[16]

[13] ***. Email from ***, April 1, 2025.
[14] ***. Email from ***, April 11, and April 25, 2025.
[15] ***.
[16] ***. U.S. producers' questionnaire response, section 3.9f.

All other expenses and net income or loss

As shown in table 6.1, Solvay *** in 2022 and 2023.[17] As a result, *** in those years in both the total and merchant market. In 2024, the firm reported other expense items in the amount of $*** for the total market and $*** for the merchant market impacting net income for that year (see tables 6.1 and 6.3).

Overall, similar to operating income, net income decreased in absolute value and as a ratio to net sales, from 2022 to 2024 in both the total and merchant market (see table 6.1 and 6.3).

Variance analysis

A variance analysis for the total market vanillin operations of the U.S. producer is presented in table 6.6.[18] The information for this variance analysis is derived from table 6.1. A variance analysis for the merchant market vanillin operations of the U.S. producer is presented in table 6.7, the information for which is derived from table 6.3.

The total market variance analysis in table 6.6 shows that the decrease in the total market operating income between 2022 and 2024 is mainly attributable to an unfavorable price variance and that outweighed the favorable cost variance (indicating the decrease in sales AUVs was greater than the decrease unit costs).

[17] ***. U.S. producers' questionnaire response, section 3.10a and 3.10b.

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

Table 6.6 Vanillin: Variance analysis for total market operations of U.S. producer Solvay between comparison periods

Value in 1,000 dollars

Item	2022-24	2022-23	2023-24
Net sales price variance	***	***	***
Net sales volume variance	***	***	***
Net sales total variance	***	***	***
COGS cost variance	***	***	***
COGS volume variance	***	***	***
COGS total variance	***	***	***
Gross profit variance	***	***	***
SG&A cost variance	***	***	***
SG&A volume variance	***	***	***
SG&A total variance	***	***	***
Operating income price variance	***	***	***
Operating income cost variance	***	***	***
Operating income volume variance	***	***	***
Operating income total variance	***	***	***

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

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

The merchant market variance analysis in table 6.7 shows that the decrease in the merchant market operating income between 2022 and 2024 is mainly attributable to an unfavorable price variance that outweighed the favorable cost variance (indicating the decrease in sales AUVs was greater than the decrease unit costs).

Table 6.7 Vanillin: Variance analysis for merchant market operations of U.S. producer Solvay between comparison periods

Value in 1,000 dollars

Item	2022-24	2022-23	2023-24
Commercial sales price variance	***	***	***
Commercial sales volume variance	***	***	***
Commercial sales total variance	***	***	***
COGS cost variance	***	***	***
COGS volume variance	***	***	***
COGS total variance	***	***	***
Gross profit variance	***	***	***
SG&A cost variance	***	***	***
SG&A volume variance	***	***	***
SG&A total variance	***	***	***
Operating income price variance	***	***	***
Operating income cost variance	***	***	***
Operating income volume variance	***	***	***
Operating income total variance	***	***	***

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

Note: These data are derived from the data in table 6.3. Unfavorable variances (which are negative) are shown in parentheses, all others are favorable (positive).

Capital expenditures, R&D expenses, assets, and ROA

Table 6.8 presents Solvay's total market capital expenditures, R&D expenses, assets, and return on assets, and the firm's narrative explanations of the nature, focus, and significance of the items are presented in table 6.9.

The industry's capital expenditures decreased consistently from 2022 to 2024, while R&D expenses decreased irregularly.[19] Total assets decreased from 2022 to 2024, and the ROA decreased from *** percent in 2022 to *** percent in 2024 reflecting the *** decline in operating profit.

Table 6.8 Vanillin: U.S. producer Solvay's capital expenditures, R&D expenses, total net assets, and ROA, by item and period

Value in 1,000 dollars; ratios in percent

Item	Measure	2022	2023	2024
Capital expenditures	Value	***	***	***
R&D expenses	Value	***	***	***
Total assets	Value	***	***	***
ROA	Ratio	***	***	***

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

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

Table 6.9 Vanillin: U.S. producer Solvay's narrative descriptions of its capital expenditures, R&D expenses, and total net assets

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

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

[19] ***. Email from ***, April 11, 2025.

Capital and investment

The Commission requested U.S. producer of vanillin to describe any actual or potential negative effects of imports of vanillin from China on the firms' growth, investment, ability to raise capital, development and production efforts, or the scale of capital investments. Table 6.10 presents the impact in each category and table 6.11 provides the U.S. producer's narrative responses.

Table 6.10 Vanillin: U.S. producer Solvay's count indicating actual and anticipated negative effects of imports from subject sources on investment, growth, and development since January 1, 2022, by effect

Number of firms reporting

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

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

Table 6.11 Vanillin: U.S. producer Solvay's narratives relating to actual and anticipated negative effects of imports on investment, growth, and development, since January 1, 2022, by effect

Item	Narrative on impact of imports
Reduction in the size of capital investments	***
Other negative effects on investments	***
Other effects on growth and development	***
Anticipated effects of imports	***

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

Part 7: Threat considerations and information on nonsubject countries

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

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

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

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

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

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

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

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

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

The industry in China

The Commission issued foreign producers' or exporters' questionnaires to 19 firms believed to produce and/or export vanillin products from China.[3] Usable responses to the Commission's questionnaire were received from three firms: Jiaxing Guihua Imp&Exp Co., Ltd., ("Jiaxing Guihua"), Solvay (Zhenjiang) Chemicals ("Solvay Zhenjiang"), and Camlin Fine Sciences ("Camlin").[4]

Table 7.1 presents the number of producers/exporters in China that responded to the Commission's questionnaire, their exports to the United States as a share of U.S. imports by China in 2024, and their estimated share of total production of vanillin in China during 2024.

Table 7.1 Vanillin products: Number of responding producers/exporters, approximate share of production, and exports to the United States as a share of U.S. imports from China, 2024

Country	Number of responding firms	Approximate share of production (percent)	Exports as a share of U.S. imports from subject country (percent)
China	3	***	***

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

Note: "Approximate share of production" reflects the responding firms' estimates of their production as a share of total Chinese production of vanillin in 2024 and "exports as a share of U.S. imports" reflects the responding firms' estimates of their exports as a share of total Chinese exports of vanillin in 2024. Since not all firms have perfect knowledge of the industry in their home market, different firms might use different denominators in estimating their firm's share of the total requested. If more than one firm responded, the average denominator for reasonably reported estimates is used in the share presented. Approximate shares are rounded to the nearest whole number.

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

[4] Camlin only provided ***. More information is available in table 7.4.

Table 7.2 presents information on the vanillin operations of the responding producers and exporters in China.

Table 7.2 Vanillin: Summary data for subject foreign producers in China, by firm, 2024

Subject foreign industry and firm	Production (1,000 pounds)	Share of reported production (percent)	Exports to the United States (1,000 pounds)	Share of reported exports to the United States (percent)	Total shipments (1,000 pounds)	Share of firm's total shipments exported to the United States (percent)
Camlin	***	***	***	***	***	***
Jiaxing Guihua	***	***	***	***	***	***
Solvay (Zhenjiang)	***	***	***	***	***	***
All individual producers	***	***	***	***	***	***

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

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

Table 7.3 presents events in the industry in China since January 1, 2022.

Table 7.3 Vanillin: Important industry events in China since January 1, 2022

Item	Event
Court ruling	On February 19, 2021, the Chinese Supreme People's Court awarded CNY 159 million in damages in a vanillin production trade secret infringement case against Xifu Shiwanglong Spices, a joint venture between CFS Europe and Wanglong Technology Co., Ltd, among others.

Source: "The vanillin case: China's Highest Damages Awarded for Trade Secret Infringement." China Justice Observer, May 23, 2021. https://www.chinajusticeobserver.com/a/the-vanillin-case-china-s-highest-damages-awarded-for-trade-secret-infringement.

Changes in operations

Producers in China were asked to report any change in the character of their operations or organization relating to the production of vanillin since January 1, 2022. *** indicated in their questionnaires that they had experienced such changes. Table 7.4 presents the changes identified by these producers.

Table 7.4 Vanillin products: Reported changes in operations in subject foreign industries since January 1, 2022, by reported change category and firm

Type of change	Firm name and accompanying narrative response regarding changes in operations
Plant openings	***
Plant closings	***
Other	***

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

Installed and practical overall capacity

Table 7.5 presents data on producers' installed capacity, practical overall capacity, and practical vanillin capacity and production on the same equipment in China. No producer reported any alternative products on same machinery. Installed overall capacity increased yearly from 2022 to 2024, increasing overall by *** percent, largely driven by the *** from 2023 to 2024.[5] [6] Installed overall capacity utilization decreased by *** percentage points from 2022 to 2023 to a low of *** percent before increasing by *** percentage points from 2023 to 2024, increasing overall by *** percentage points from 2022 to 2024. Practical overall capacity increased yearly from 2022 to 2024, ending *** percent higher.

Table 7.5 Vanillin: Producers' installed and practical capacity and production on the same equipment as subject production in subject foreign industries, by period

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

Item	Measure	2022	2023	2024
Installed overall	Capacity	***	***	***
Installed overall	Production	***	***	***
Installed overall	Utilization	***	***	***
Practical overall	Capacity	***	***	***
Practical overall	Production	***	***	***
Practical overall	Utilization	***	***	***
Practical Vanillin	Capacity	***	***	***
Practical Vanillin: Methylvanillin	Production	***	***	***
Practical Vanillin: Ethylvanillin	Production	***	***	***
Practical Vanillin: Natural	Production	***	***	***
Practical Vanillin: all product types	Production	***	***	***
Practical Vanillin products	Utilization	***	***	***

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

Note: Capacity includes ***. Additionally, ***.

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

[5] Camlin *** in its installed or practical overall capacity.

[6] Email from ***, May 8, 2025. While Solvay Zhenjiang did ***. Email correspondence with Joesph Pickard, Counsel to Solvay Zhenjiang, April 23, 2025.

Constraints on capacity

Table 7.6 presents producers' reported capacity constraints in China since January 1, 2022. Only *** reported such constraints.

Table 7.6 Vanillin: Producers' reported constraints to practical overall capacity in subject foreign industries since January 1, 2022 by type of subject foreign industry, firm, and type of constraint

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

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

Operations on Vanillin

As Camlin ***, table 7.7 presents information on only the vanillin operations of Solvay Zhenjiang and Jiaxing Guihua, except for capacity, which includes data for all three responding foreign producers. Practical vanillin capacity increased yearly from 2022 to 2024, increasing by *** percent overall during 2022 to 2024, largely driven by ***. While Camlin projected *** practical capacity in 2025 and 2026, Solvay Zhenjiang and Jiaxing Guihua projects their capacity to *** in 2025 and 2026 *** 2024. Production of vanillin in China by responding foreign producers fluctuated, decreasing by *** percent from 2022 to 2023 and increasing by *** percent from 2023 to 2024, ending 2024 *** percent higher than in 2022.[7] Production is projected to decrease by *** percent from 2024 to 2025, as ***, and to decrease further by *** percent from 2025 to 2026. Capacity utilization decreased by *** percentage points from 2022 to 2023 to a low of *** percent and increased by *** percentage points from 2023 to 2024, reflecting the fluctuations in production, ending *** percentage points higher in 2022. Responding producers projected their capacity utilization to decrease by *** percentage points from 2024 to 2025 and to further decrease by *** percentage points from 2025 to 2026 to a low of *** percent.

[7] Solvay Zhenjiang reports it decreased production as a result of ***. Email correspondence with ***, April 4, 2025.

Table 7.7 Vanillin: Data on subject foreign industry in China, by item and period

Quantity in 1,000 pounds

Item	2022	2023	2024	2025 PROJ	2026 PROJ
Capacity	***	***	***	***	***
Production	***	***	***	***	***
End-of-period inventories	***	***	***	***	***
Internal consumption	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***
Home market shipments	***	***	***	***	***
Exports to the United States	***	***	***	***	***
Exports to all other markets	***	***	***	***	***
Export shipments	***	***	***	***	***
Total shipments	***	***	***	***	***

Table continued.

Table 7.7 (Continued) Vanillin: Data on subject foreign industry in China, by item and period

Shares and ratios in percent

Item	2022	2023	2024	2025 PROJ	2026 PROJ
Capacity utilization ratio	***	***	***	***	***
Inventory ratio to production	***	***	***	***	***
Inventory ratio to total shipments	***	***	***	***	***
Internal consumption share	***	***	***	***	***
Commercial home market shipments share	***	***	***	***	***
Home market shipments share	***	***	***	***	***
Exports to the United States share	***	***	***	***	***
Exports to all other markets share	***	***	***	***	***
Export shipments share	***	***	***	***	***
Total shipments share	***	***	***	***	***

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

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

Export shipments accounted for the majority and increasing share of responding foreign producers' total shipments from 2022 to 2024, with over *** percent of their exports going to non-U.S. markets in each year. The quantity of export shipments increased yearly from 2022 to 2024, overall increasing by *** percent. The two Chinese producers project their total export shipments to decrease by *** percent from 2024 to 2025 and to further decrease by *** percent from 2025 to 2026. Responding foreign producers' export shipments to non-U.S. markets increased yearly from 2022 to 2024, ending 2024 *** percent higher. Export shipments to non-U.S. markets are projected to decrease by *** percent from 2024 to 2025 and to further decrease by *** percent from 2025 to 2026. Export shipments to the United States fluctuated, increasing by *** percent from 2022 to 2023 but decreasing by *** percent from 2023 to 2024, for an overall decrease of *** percent from 2022 to 2024.[8] Export shipments to the United States are expected to decrease by *** percent from 2024 to 2025 and *** foreign producer expects to export to the United States in 2026.[9]

Home market shipments, ***, accounted for the minority of responding foreign producers' total shipments from 2022 to 2024. Home market shipments increased by *** percent from 2022 to 2023 and then decreased by *** percent from 2023 to 2024, ending *** percent lower in 2024 than in 2022; they are projected to decrease from 2024 to 2025 by *** percent and from 2025 to 2026 by *** percent.

Responding foreign producers' end of period inventories decreased by *** percent from 2022 to 2023 before increasing by *** percent from 2023 to 2024, decreasing overall by *** percent from 2022 to 2024.[10] End-of-period inventories are projected to increase by

[8] Solvay Zhenjiang reported a ***. It stated the increase was driven by "***". Email correspondence with ***, April 4, 2025.

[9] Solvay Zhenjiang stated the main reason for the ***." Email correspondence with ***, April 4, 2025.

[10] Solvay Zhenjiang reports that its *** percent increase in end-of-period inventories from 2023 to 2024 was a result of ***. Email correspondence with ***, April 23, 2025.

Jiaxing Guihua reports that the ***. Email from ***, May 8, 2025.

*** percent from 2024 to 2025 and to further increase by *** percent 2025 to 2026, driven by increases expected from ***. The ratio of inventories to production decreased by *** percentage points from a high of *** percent in 2022 to *** percent in 2024 and is projected to increase by *** percentage points from 2024 to 2025 and to further increase by *** percent from 2025 to 2026. Similarly, the ratio of inventories to total shipments decreased by *** percentage points from 2022 to 2024 and is projected to increase by *** percent from 2025 to 2026 and by *** percent from 2025 to 2026.

Alternative products

No responding Chinese producer or exporter reported producing alternative products on the same equipment.

Exports

According to GTA, the leading export markets for vanillin from China are Germany, the United States, and India (table 7.8). During 2024, the United States was the second largest export market for vanillin from China, accounting for 14.7 percent of total exports to all markets. Germany was the top export market for vanillin from China in 2024, accounting for 17.5 percent total exports to all markets.

Table 7.8 Vanillin: Exports from China, by destination market and by period

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

Destination market	Measure	2022	2023	2024
United States	Quantity	6,962	5,770	8,409
Germany	Quantity	5,438	5,049	10,017
India	Quantity	4,778	5,868	5,905
Indonesia	Quantity	2,203	2,168	3,351
Singapore	Quantity	2,250	1,905	3,234
Spain	Quantity	1,678	1,560	3,187
France	Quantity	861	1,507	3,000
Netherlands	Quantity	1,950	1,780	2,704
Brazil	Quantity	2,165	1,655	2,565
Mexico	Quantity	1,449	1,352	1,614
All other destination markets	Quantity	9,391	9,992	13,182
Non-U.S. destination markets	Quantity	32,163	32,835	48,759
All destination markets	Quantity	39,125	38,605	57,168
United States	Value	78,482	38,827	56,262
Germany	Value	54,246	26,300	45,481
India	Value	40,564	26,782	22,239
Indonesia	Value	19,139	10,779	13,423
Singapore	Value	21,390	10,589	12,811
Spain	Value	15,577	6,543	11,973
France	Value	8,727	10,977	15,886
Netherlands	Value	19,759	8,300	11,896
Brazil	Value	19,497	8,590	10,403
Mexico	Value	12,549	7,132	6,788
All other destination markets	Value	97,162	55,659	65,383
Non-U.S. destination markets	Value	308,611	171,652	216,283
All destination markets	Value	387,093	210,479	272,545

Table continued.

Table 7.8 (Continued) Vanillin: Exports from China, by destination market and by period

Unit values in dollars per pound; shares in percent

Destination market	Measure	2022	2023	2024
United States	Unit value	11.27	6.73	6.69
Germany	Unit value	9.98	5.21	4.54
India	Unit value	8.49	4.56	3.77
Indonesia	Unit value	8.69	4.97	4.01
Singapore	Unit value	9.51	5.56	3.96
Spain	Unit value	9.29	4.19	3.76
France	Unit value	10.14	7.29	5.30
Netherlands	Unit value	10.14	4.66	4.40
Brazil	Unit value	9.00	5.19	4.06
Mexico	Unit value	8.66	5.27	4.21
All other destination markets	Unit value	10.35	5.57	4.96
Non-U.S. destination markets	Unit value	9.60	5.23	4.44
All destination markets	Unit value	9.89	5.45	4.77
United States	Share of quantity	17.8	14.9	14.7
Germany	Share of quantity	13.9	13.1	17.5
India	Share of quantity	12.2	15.2	10.3
Indonesia	Share of quantity	5.6	5.6	5.9
Singapore	Share of quantity	5.7	4.9	5.7
Spain	Share of quantity	4.3	4.0	5.6
France	Share of quantity	2.2	3.9	5.2
Netherlands	Share of quantity	5.0	4.6	4.7
Brazil	Share of quantity	5.5	4.3	4.5
Mexico	Share of quantity	3.7	3.5	2.8
All other destination markets	Share of quantity	24.0	25.9	23.1
Non-U.S. destination markets	Share of quantity	82.2	85.1	85.3
All destination markets	Share of quantity	100.0	100.0	100.0

Source: Official exports statistics under HS subheading 2912.41 and 2912.42 as reported by various national statistical authorities in the Global Trade Atlas Suite database, accessed March 21, 2025.

Note: United States is shown at the top followed by the top destination markets in descending order of 2024 data.

U.S. inventories of imported merchandise

Table 7.9 presents data on U.S. importers' reported inventories of vanillin. End-of-period inventories of imports from China fluctuated, decreasing by 35.5 percent during 2022 to 2023 and increasing by 34.7 percent from 2023 to 2024, for an overall decrease of 13.1 percent during 2022 to 2024.[11] The ratio of end-of-period inventories to imports from China decreased in each year, from 26.1 percent in 2022 to 19.0 percent in 2024, decreasing overall by 7.1 percentage points. The ratio of end-of-period inventories to U.S. shipments of imports and to total shipments of imports from China similarly decreased yearly from 2024, decreasing overall by 8.0 percentage points and by 7.8 percentage points from 2022 to 2024, respectively.

End-of-period inventories of nonsubject sources fluctuated over the period, decreasing by 57.3 percent from 2022 to 2023, and increasing by 144.6 percent from 2023 to 2024, increasing overall by 4.4 percent from 2022 to 2024. The ratio of end-of-period inventories to imports from nonsubject sources decreased by 3.2 percentage points from 2022 to 2023 but increased by 3.8 percentage points from 2023 to 2024, overall increasing by 0.6 percentage points. The ratio of end-of-period inventories to U.S. shipments of imports from nonsubject sources similarly decreased from 2022 to 2023 then increased from 2023 to 2024, increasing overall by 3.0 percentage points during 2022 to 2024. The ratio of U.S. importers' end-of-period inventories to total shipments of imports from nonsubject sources increased overall by 2.9 percentage points from 2022 to 2024.

[11] Inventories are underestimated as four importers ***.

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

Quantity in 1,000 pounds; ratio in percent

Measure	Source	2022	2023	2024
Inventories quantity	China	1,419	915	1,233
Ratio to imports	China	26.1	22.4	19.0
Ratio to U.S. shipments of imports	China	28.6	21.5	20.6
Ratio to total Shipments of imports	China	27.4	19.9	19.6
Inventories quantity	Nonsubject sources	883	377	922
Ratio to imports	Nonsubject sources	22.6	19.4	23.2
Ratio to U.S. shipments of imports	Nonsubject sources	24.9	16.0	27.9
Ratio to total Shipments of imports	Nonsubject sources	24.4	15.6	27.3
Inventories quantity	All import sources	2,302	1,292	2,154
Ratio to imports	All import sources	24.6	21.4	20.6
Ratio to U.S. shipments of imports	All import sources	27.1	19.5	23.2
Ratio to total Shipments of imports	All import sources	26.2	18.4	22.3

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

U.S. importers' outstanding orders

The Commission requested importers to indicate whether they imported or arranged for the importation of vanillin from China after December 31, 2024. Their reported data are presented in table 7.10. Over *** percent of total arranged imports in 2025 are scheduled imports from nonsubject countries, and mostly concentrated for the first half of 2025.

Table 7.10 Vanillin: Arranged imports, by source and by period

Quantity in 1,000 pounds

Source	Q1 2025	Q2 2025	Q3 2025	Q4 2025	Total
China	***	***	***	***	***
Nonsubject sources	***	***	***	***	***
All import sources	***	***	***	***	2,063

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

Third-country trade actions

On May 24, 2024, the European Commission initiated an antidumping investigation into vanillin (including synthetic vanillin, natural vanillin, bio-sourced synthetic vanillin (biovanillin), and ethylvanillin) originating in China.[12] The investigation was initiated in response to a complaint from Syensqo, which spun off from Solvay in December 2023.[13]

[12] "Notice of initiation of an anti-dumping proceeding concerning imports of vanillin originating in the People's Republic of China." Official Journal of the European Union, May 25, 2024, C/2024/3241. https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:C_202403241.

[13] "Syensqo completes spinoff from Solvay, focuses on US market." Aerospace Manufacturing and Design, December 19, 2023. https://www.aerospacemanufacturinganddesign.com/news/syensqo-completes-spinoff-from-solvay-focuses-us-market/.

Information on nonsubject countries

In February 2023, Solvay announced the termination of vanillin production at its Saint-Fons, France facility.[14] Table 7.11 presents global export data for vanillin. The largest global exporter was China, representing 57.8 percent of global exports by value in 2024, followed by the United States (9.9 percent), France (9.8 percent), Germany (4.0 percent), and India (3.4 percent).[15]

Table 7.11 Vanillin: Global exports by exporter and period

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

Exporting country	Measure	2022	2023	2024
United States	Quantity	NA	NA	NA
China	Quantity	39,125	38,605	57,168
France	Quantity	9,739	5,329	5,724
India	Quantity	168	548	3,322
Germany	Quantity	2,963	2,974	2,826
Netherlands	Quantity	1,676	1,493	2,447
Spain	Quantity	852	907	1,097
Canada	Quantity	5,689	5,086	971
Singapore	Quantity	574	677	606
Sweden	Quantity	445	1,310	446
All other exporters	Quantity	4,090	2,640	3,451
All reporting exporters	Quantity	65,320	59,569	78,058
United States	Value	64,858	46,324	46,882
China	Value	387,093	210,479	272,545
France	Value	102,082	52,673	46,202
India	Value	5,882	8,143	16,006
Germany	Value	41,333	25,813	18,735
Netherlands	Value	19,309	11,559	10,414
Spain	Value	10,358	6,431	6,381
Canada	Value	29,783	25,570	4,938
Singapore	Value	7,117	5,501	4,776
Sweden	Value	6,601	10,025	5,646
All other exporters	Value	70,549	44,458	39,062
All reporting exporters	Value	744,966	446,978	471,589

Table continued.

[14] Conference transcript, p. 15 (Jorge). "Fin de la production de vanilline à Saint-Fons: près de 50 emplois menaces" (End of vanillin production at Saint-Fons: nearly 50 jobs threatened). Franceinfo: February 14, 2024. https://france3-regions.francetvinfo.fr/auvergne-rhone-alpes/rhone/lyon/fin-de-la-production-de-vanilline-a-saint-fons-pres-de-50-emplois-menaces-2924316.html.

[15] Petitioner reported that vanillin is also produced in Norway. Conference transcript, p. 30 (Jorge).

Table 7.11 (Continued) Vanillin: Global exports, by reporting country and period

Unit values in dollars per pound; shares in percent

Exporting country	Measure	2022	2023	2024
United States	Unit value	NA	NA	NA
China	Unit value	9.89	5.45	4.77
France	Unit value	10.48	9.88	8.07
Canada	Unit value	35.09	14.87	4.82
Germany	Unit value	13.95	8.68	6.63
Netherlands	Unit value	11.52	7.74	4.26
Sweden	Unit value	12.15	7.09	5.82
Spain	Unit value	5.24	5.03	5.09
Singapore	Unit value	12.40	8.13	7.88
India	Unit value	14.85	7.65	12.67
All other exporters	Unit value	17.25	16.84	11.32
All reporting exporters	Unit value	11.40	7.50	6.04
United States	Share of quantity	NA	NA	NA
China	Share of quantity	59.9	64.8	73.2
France	Share of quantity	14.9	8.9	7.3
Canada	Share of quantity	0.3	0.9	4.3
Germany	Share of quantity	4.5	5.0	3.6
Netherlands	Share of quantity	2.6	2.5	3.1
Sweden	Share of quantity	1.3	1.5	1.4
Spain	Share of quantity	8.7	8.5	1.2
Singapore	Share of quantity	0.9	1.1	0.8
India	Share of quantity	0.7	2.2	0.6
All other exporters	Share of quantity	6.3	4.4	4.4
All reporting exporters	Share of quantity	100.0	100.0	100.0

Source: Official exports statistics under HS subheading 2912.41 and 2912.42 as reported by various national statistical authorities in the Global Trade Atlas Suite database, accessed April 23, 2025.

Note: United States is shown at the top followed by the countries under investigation, all remaining top exporting countries in descending order of 2023 data. Data are not yet complete for global trade for 2024 in GTAS and therefore not presented. “NA” represents values which, due to confidentiality, the Global Trade Atlas Suite does not publish.

APPENDIX A

FEDERAL REGISTER NOTICES

The Commission makes available notices relevant to its investigations and reviews on its website, www.usitc.gov. In addition, the following tabulation presents, in chronological order, Federal Register notices issued by the Commission and Commerce during the current proceeding.

Citation	Title	Link
89 FR 49192, June 11, 2024	Vanillin From China; Institution of Antidumping and Countervailing Duty Investigations and Scheduling of Preliminary Phase Investigations	https://www.govinfo.gov/content/pkg/FR-2024-06-11/pdf/2024-12695.pdf
89 FR 54421, July 1, 2024	Vanillin From the People's Republic of China: Initiation of Countervailing Duty Investigation	https://www.govinfo.gov/content/pkg/FR-2024-07-01/pdf/2024-14458.pdf
89 FR 54424, July 1, 2024	Vanillin From the People's Republic of China: Initiation of Less-Than-Fair-Value Investigation	https://www.govinfo.gov/content/pkg/FR-2024-07-01/pdf/2024-14460.pdf
89 FR 60658, July 26, 2024	Vanillin From China; Determinations	https://www.govinfo.gov/content/pkg/FR-2024-07-26/pdf/FR-2024-07-26.pdf
89 FR 65845, August 13, 2024	Vanillin From the People's Republic of China: Postponement of Preliminary Determination in the Countervailing Duty Investigation	https://www.govinfo.gov/content/pkg/FR-2024-08-13/pdf/2024-17996.pdf
89 FR 84330, October 22, 2024	Vanillin From the People's Republic of China: Postponement of Preliminary Determination in the Less-Than-Fair-Value Investigation	https://www.govinfo.gov/content/pkg/FR-2024-10-22/pdf/2024-24390.pdf
89 FR 90671, November 18, 2024	Vanillin from the People's Republic of China: Preliminary Affirmative Countervailing Duty Determination and Alignment of Final Determination with Final Antidumping Duty Determination	https://www.govinfo.gov/content/pkg/FR-2024-11-18/pdf/2024-26789.pdf
90 FR 4720, January 16, 2025	Vanillin From the People's Republic of China: Preliminary Affirmative Determination of Sales at Less Than Fair Value, Postponement of Final Determination and Extension of Provisional Measures	https://www.govinfo.gov/content/pkg/FR-2025-01-16/pdf/2025-00865.pdf
90 FR 8267, January 28, 2025	Vanillin From the People's Republic of China: Preliminary Affirmative Determination of Sales at Less Than Fair Value, Postponement of Final Determination and Extension of Provisional Measures	https://www.govinfo.gov/content/pkg/FR-2025-01-16/pdf/2025-00865.pdf
90 FR 9082, February 6, 2025	Vanillin From China; Scheduling of the Final Phase of Countervailing Duty and Antidumping Duty Investigations	https://www.govinfo.gov/content/pkg/FR-2025-02-06/pdf/2025-02303.pdf
90 FR 23567, May 28, 2025	Vanillin From China; Cancellation of Hearing for Antidumping and Countervailing Duty Investigations	https://www.govinfo.gov/content/pkg/FR-2025-06-03/pdf/2025-09960.pdf
90 FR 24093, June 06, 2025	Vanillin From the People's Republic of China: Final Affirmative Determination of Sales at Less Than Fair Value	https://www.govinfo.gov/content/pkg/FR-2025-06-06/pdf/2025-10347.pdf
90 FR 24095, June 06, 2025	Vanillin From the People's Republic of China: Final Affirmative Countervailing Duty Determination	https://www.govinfo.gov/content/pkg/FR-2025-06-06/pdf/2025-10351.pdf

APPENDIX B

FEDERAL REGISTER NOTICE: CANCELLATION OF HEARING

adversely affect the public interest.'' *Id.* at 3 (citing 19 CFR 210.50(b)(2)).

No party filed a petition for review.

The Commission has determined not to review the subject ID. The investigation is terminated.

The Commission's vote for this determination took place on May 28, 2025.

The authority for the Commission's determination is contained in section 337 of the Tariff Act of 1930, as amended (19 U.S.C. 1337), and in Part 210 of the Commission's Rules of Practice and Procedure (19 CFR part 210).

By order of the Commission.

Issued: May 28, 2025.

Lisa Barton,

Secretary to the Commission.

[FR Doc. 2025–09962 Filed 6–2–25; 8:45 am]

BILLING CODE 7020–02–P

INTERNATIONAL TRADE COMMISSION

[Investigation Nos. 701–TA–728 and 731–TA–1697 (Final)]

Vanillin From China; Cancellation of Hearing for Antidumping and Countervailing Duty Investigations

AGENCY: United States International Trade Commission.

ACTION: Notice.

DATES: May 28, 2025.

FOR FURTHER INFORMATION CONTACT: Caitlyn Costello (202–205–2058), Office of Investigations, U.S. International Trade Commission, 500 E Street SW, Washington, DC 20436. Hearing-impaired persons can obtain information on this matter by contacting the Commission's TDD terminal on 202–205–1810. Persons with mobility impairments who will need special assistance in gaining access to the Commission should contact the Office of the Secretary at 202–205–2000. General information concerning the Commission may also be obtained by accessing its internet server (*http://www.usitc.gov*). The public record for these investigations may be viewed on the Commission's electronic docket (EDIS) at *http://edis.usitc.gov.*

SUPPLEMENTARY INFORMATION: On January 16, 2025, the Commission established a schedule for the final phase of the antidumping and countervailing duty investigations (90 FR 9082, February 6, 2025). On May 22, 2025, counsel for Solvay USA LLC (''Solvay'') filed a request to appear at the hearing. No other parties submitted a request to appear at the hearing. On May 27, 2025, counsel for Solvay withdrew its request to appear at the hearing, and on May 28, 2025, filed a request that the Commission cancel the scheduled hearing. Counsel indicated a willingness to respond to any written questions from the Commission in lieu of an in-person hearing. Consequently, the public hearing in connection with these investigations, scheduled to begin at 9:30 a.m. on Thursday, May 29, 2025, is cancelled. Parties to these investigations should respond to any written questions posed by the Commission in their posthearing briefs, which are due to be filed on June 5, 2025.

For further information concerning these investigations see the Commission's notice cited above and the Commission's Rules of Practice and Procedure, part 201, subparts A and B (19 CFR part 201), and part 207, subparts A, D, E, and F (19 CFR part 207).

Authority: These investigations are being conducted under authority of title VII of the Tariff Act of 1930; this notice is published pursuant to § 207.21 of the Commission's rules.

By order of the Commission.

Issued: May 28, 2025.

Lisa Barton,

Secretary to the Commission.

[FR Doc. 2025–09960 Filed 6–2–25; 8:45 am]

BILLING CODE 7020–02–P

INTERNATIONAL TRADE COMMISSION

[Investigation No. 337–TA–1434]

Certain Composite Intermediate Bulk Containers; Notice of Commission Decision Not To Review an Initial Determination Granting a Motion To Amend the Complaint and Notice of Investigation

AGENCY: U.S. International Trade Commission.

ACTION: Notice.

SUMMARY: Notice is hereby given that the U.S. International Trade Commission has determined not to review an initial determination (''ID'') (Order No. 10) of the presiding Chief Administrative Law Judge (''Chief ALJ'') granting an unopposed motion to amend the complaint and notice of investigation to change the address of one of the respondents.

FOR FURTHER INFORMATION CONTACT: Sidney A. Rosenzweig, Office of the General Counsel, U.S. International Trade Commission, 500 E Street SW, Washington, DC 20436, telephone (202) 708–2532. Copies of non-confidential documents filed in connection with this investigation may be viewed on the Commission's electronic docket (EDIS) at *https://edis.usitc.gov.* For help accessing EDIS, please email *EDIS3Help@usitc.gov.* General information concerning the Commission may also be obtained by accessing its internet server at *https://www.usitc.gov.* Hearing-impaired persons are advised that information on this matter can be obtained by contacting the Commission's TDD terminal, telephone (202) 205–1810.

SUPPLEMENTARY INFORMATION: On January 27, 2025, the Commission instituted this investigation based on a complaint filed by Schütz Container Systems, Inc. of North Branch, New Jersey and Protechna S.A. of Fribourg, Switzerland (collectively, ''Complainants''). 90 FR 8222–23 (Jan. 27, 2025). The complaint, as supplemented, alleged violations of section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. 1337 (''section 337''), by reason of the infringement of certain claims of U.S. Patent Nos. 9,718,581; 8,708,150; 8,919,562; 8,567,626; 9,004,310; and 8,276,299. *Id.* The Commission's notice of investigation named the following respondents: Shandong Jinshan Jieyuan Container Co., Ltd. of Zhengjiang City, China; Zibo Jielin Plastic Pipe Manufacture Co. Ltd. of Zibo City, China; Shanghai Sakura Plastic Products Co., Ltd. (d/b/a Shanghai Yinghua Plastic Products Co., LTD) of Shanghai, China; and Hebei Shijiheng Plastics, Co., Ltd. of Zhongjie Huanghua City, China (''Hebei Shijiheng Plastics''). *Id.* The Office of Unfair Import Investigations was also named as a party in the investigation. *Id.*

The Commission previously terminated the investigation as to certain patent claims from the investigation based on withdrawal of the complaint. *See* Order No. 9 (Apr. 2, 2025), *unreviewed by* Notice (Apr. 22, 2025).

On April 10, 2025, Complainants moved to amend the complaint and notice of investigation to change the address of Hebei Shijiheng Plastics. No responses to the motion were filed.

On May 9, 2025, the Chief ALJ issued the subject ID (Order No. 10) pursuant to Commission Rule 210.14 (19 CFR 210.14), granting the motion. The ID finds that good cause exists to grant the motion, because Complainants were able to serve Hebei Shijiheng Plastics at an address different from that listed in the original complaint. ID at 2–3.

No petitions for review of the subject ID were filed.

APPENDIX C

SUMMARY DATA

Table C.1
Vanillin: Summary data concerning the U.S. market, by item and period
Quantity=1,000 pounds; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per pound; Period changes=percent--exceptions noted

Item	Reported data			Period change comparisons		
	Calendar year			Calendar year		
	2022	2023	2024	2022–24	2022–23	2023–24
U.S. consumption quantity:						
Amount	***	***	***	▲***	▼***	▲***
Producers' share (fn1)	***	***	***	▼***	▲***	▼***
Importers' share (fn1):						
China	***	***	***	▲***	▲***	▲***
Nonsubject sources	***	***	***	▼***	▼***	▲***
All import sources	***	***	***	▲***	▼***	▲***
U.S. consumption value:						
Amount	***	***	***	▼***	▼***	▲***
Producers' share (fn1)	***	***	***	▼***	▲***	▼***
Importers' share (fn1):						
China	***	***	***	▲***	▼***	▲***
Nonsubject sources	***	***	***	▼***	▲***	▼***
All import sources	***	***	***	▲***	▼***	▲***
U.S. importers' U.S shipments of imports from:						
China:						
Quantity	4,962	4,260	5,984	▲20.6	▼(14.1)	▲40.5
Value	78,431	53,990	65,547	▼(16.4)	▼(31.2)	▲21.4
Unit value	$15.81	$12.67	$10.95	▼(30.7)	▼(19.8)	▼(13.6)
Ending inventory quantity	1,419	915	1,233	▼(13.1)	▼(35.5)	▲34.7
Nonsubject sources:						
Quantity	3,544	2,354	3,307	▼(6.7)	▼(33.6)	▲40.5
Value	69,949	51,082	51,268	▼(26.7)	▼(27.0)	▲0.4
Unit value	$19.74	$21.70	$15.50	▼(21.5)	▲10.0	▼(28.6)
Ending inventory quantity	883	377	922	▲4.4	▼(57.3)	▲144.6
All import sources:						
Quantity	8,506	6,614	9,291	▲9.2	▼(22.2)	▲40.5
Value	148,380	105,072	116,816	▼(21.3)	▼(29.2)	▲11.2
Unit value	$17.44	$15.89	$12.57	▼(27.9)	▼(8.9)	▼(20.9)
Ending inventory quantity	2,302	1,292	2,154	▼(6.4)	▼(43.9)	▲66.8
U.S. producers':						
Practical capacity quantity	***	***	***	***	***	***
Production quantity	***	***	***	▼***	▼***	▲***
Capacity utilization (fn1)	***	***	***	▼***	▼***	▲***
U.S. shipments:						
Quantity	***	***	***	▼***	▼***	▲***
Value	***	***	***	▼***	▼***	▼***
Unit value	***	***	***	▼***	▼***	▼***
Export shipments:						
Quantity	***	***	***	▼***	▼***	▲***
Value	***	***	***	▼***	▼***	▼***
Unit value	***	***	***	▼***	▲***	▼***
Ending inventory quantity	***	***	***	▲***	▼***	▲***
Inventories/total shipments (fn1)	***	***	***	▲***	▲***	▲***

Table continued.

Table C.1 Continued
Vanillin: Summary data concerning the U.S. market, by item and period
Quantity=1,000 pounds; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per pound; Period changes=percent--exceptions noted

Item	Reported data			Period change comparisons		
	Calendar year			Calendar year		
	2022	2023	2024	2022–24	2022–23	2023–24
U.S. producers': Continued						
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) (fn2)	***	***	***	▼***	▼***	▼***
SG&A expenses	***	***	***	▲***	▲***	▼***
Operating income or (loss) (fn2)	***	***	***	▼***	▼***	▼***
Net income or (loss) (fn2)	***	***	***	▼***	▼***	▼***
Unit COGS	***	***	***	▼***	▲***	▼***
Unit SG&A expenses	***	***	***	▲***	▲***	▼***
Unit operating income or (loss) (fn2)	***	***	***	▼***	▼***	▲***
Unit net income or (loss) (fn2)	***	***	***	▼***	▼***	▼***
COGS/sales (fn1)	***	***	***	▲***	▲***	▲***
Operating income or (loss)/sales (fn1)	***	***	***	▼***	▼***	▼***
Net income or (loss)/sales (fn1)	***	***	***	▼***	▼***	▼***
Capital expenditures	***	***	***	▼***	▼***	▼***
Research and development expenses	***	***	***	▼***	▲***	▼***
Total assets	***	***	***	▼***	▼***	▼***

Source: Compiled from data submitted in response to Commission questionnaires. 508-compliant tables for these data are contained in parts 3, 4, 6, and 7 of this report.

Note.--Shares and ratios shown as “0.0” percent represent non-zero values less than “0.05” percent (if positive) and greater than “(0.05)” percent (if negative). Data shown as “0” represent non-zero values less than 500 dollars. Zeroes, null values, and undefined calculations are suppressed and shown as “—“. Period changes preceded by a “▲” represent an increase, while period changes preceded by a “▼”

fn1.--Reported data are in percent and period changes are in percentage points.
fn2.--Percent changes only calculated when both comparison values represent profits; The directional change in profitability provided when one or both comparison values represent a loss.

APPENDIX D

FIRM RESPONSES REGARDING DOMESTIC LIKE PRODUCT FACTORS

Table D.1 Vanillin: Count of firms' responses regarding the domestic like product factors comparing synthetic vanillin to natural and biosynthetic vanillin

Count in number of firms reporting

Factor	Firm type	Fully	Mostly	Somewhat	Never
Physical characteristics	U.S. producers	***	***	***	***
Physical characteristics	Importers	1	3	3	9
Physical characteristics	Purchasers	5	3	12	8
Interchangeability	U.S. producers	***	***	***	***
Interchangeability	Importers	1	1	4	10
Interchangeability	Purchasers	2	1	14	12
Channels	U.S. producers	***	***	***	***
Channels	Importers	3	3	4	4
Channels	Purchasers	8	6	8	6
Manufacturing	U.S. producers	***	***	***	***
Manufacturing	Importers	0	1	2	8
Manufacturing	Purchasers	5	2	2	11
Perceptions	U.S. producers	***	***	***	***
Perceptions	Importers	1	2	1	11
Perceptions	Purchasers	2	0	7	15
Price	U.S. producers	***	***	***	***
Price	Importers	1	0	1	15
Price	Purchasers	1	0	1	26

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

Table D.2 Vanillin: Count of firms reporting interchangeability between different vanillin product types, by product pair and firm type

Count in number of firms reporting

Product pair	Firm type	Always	Frequently	Somewhat	Never
Ethylvanillin vs. All methylvanillin	U.S. producer	***	***	***	***
Ethylvanillin vs. All methylvanillin	Importers	2	2	4	5
Ethylvanillin vs. All methylvanillin	Purchasers	1	3	12	13
Ethylvanillin vs. Natural and biosynthetic vanillin	U.S. producer	***	***	***	***
Ethylvanillin vs. Natural and biosynthetic vanillin	Importers	0	1	3	9
Ethylvanillin vs. Natural and biosynthetic vanillin	Purchasers	0	3	9	15
Ethylvanillin vs. Synthetic methylvanillin	U.S. producer	***	***	***	***
Ethylvanillin vs. Synthetic methylvanillin	Importers	1	3	5	5
Ethylvanillin vs. Synthetic methylvanillin	Purchasers	0	4	10	14
Synthetic methylvanillin vs. Natural and biosynthetic vanillin	U.S. producer	***	***	***	***
Synthetic methylvanillin vs. Natural and biosynthetic vanillin	Importers	1	1	4	8
Synthetic methylvanillin vs. Natural and biosynthetic vanillin	Purchasers	0	2	15	7

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

Table D.3 Vanillin: U.S. producer Solvay's narratives regarding the domestic like product factors comparing synthetic vanillin to natural and biosynthetic vanillin

Factor	Producer name and narrative on the domestic like product factors
Physical characteristics	***
Interchangeability	***
Channels	***
Manufacturing	***
Perceptions	***
Price	***

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

Table D.4 Vanillin: U.S. importers' narratives regarding the domestic like product factors comparing synthetic vanillin to natural and biosynthetic vanillin

Factor	Importer name and narrative on the domestic like product factors
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Interchangeability	***
Interchangeability	***
Interchangeability	***

Factor	Importer name and narrative on the domestic like product factors
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***

Factor	Importer name and narrative on the domestic like product factors
Channels	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***

Factor	Importer name and narrative on the domestic like product factors
Perceptions	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***

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

Table D.5 Vanillin: U.S. purchasers' narratives regarding the domestic like product factors comparing synthetic vanillin to natural and biosynthetic vanillin

Factor	Purchaser name and narrative regarding the domestic like product factors
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***

Factor	Purchaser name and narrative regarding the domestic like product factors
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Physical characteristics	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***

Factor	Purchaser name and narrative regarding the domestic like product factors
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Interchangeability	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***

Factor	Purchaser name and narrative regarding the domestic like product factors
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Channels	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***

Factor	Purchaser name and narrative regarding the domestic like product factors
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Manufacturing	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***

Factor	Purchaser name and narrative regarding the domestic like product factors
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Perceptions	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***

Factor	Purchaser name and narrative regarding the domestic like product factors
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***
Price	***

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

APPENDIX E

U.S. SHIPMENTS BY CHANNEL OF DISTRIBUTION AND PRODUCT TYPE

Table E.1 Vanillin: U.S. producer Solvay's U.S. shipments, by channel of distribution and period

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

Channel of distribution	Product type	Measure	2022	2023	2024
Distributors	Methylvanillin	Quantity	***	***	***
Food end users	Methylvanillin	Quantity	***	***	***
Fragrance end users	Methylvanillin	Quantity	***	***	***
Other end users	Methylvanillin	Quantity	***	***	***
All channels of distribution	Methylvanillin	Quantity	***	***	***
Distributors	Methylvanillin	Value	***	***	***
Food end users	Methylvanillin	Value	***	***	***
Fragrance end users	Methylvanillin	Value	***	***	***
Other end users	Methylvanillin	Value	***	***	***
All channels of distribution	Methylvanillin	Value	***	***	***
Distributors	Methylvanillin	Unit value	***	***	***
Food end users	Methylvanillin	Unit value	***	***	***
Fragrance end users	Methylvanillin	Unit value	***	***	***
Other end users	Methylvanillin	Unit value	***	***	***
All channels of distribution	Methylvanillin	Unit value	***	***	***
Distributors	Methylvanillin	Share of quantity	***	***	***
Food end users	Methylvanillin	Share of quantity	***	***	***
Fragrance end users	Methylvanillin	Share of quantity	***	***	***
Other end users	Methylvanillin	Share of quantity	***	***	***
All channels of distribution	Methylvanillin	Share of quantity	100.0	100.0	100.0
Distributors	Methylvanillin	Share of value	***	***	***
Food end users	Methylvanillin	Share of value	***	***	***
Fragrance end users	Methylvanillin	Share of value	***	***	***
Other end users	Methylvanillin	Share of value	***	***	***
All channels of distribution	Methylvanillin	Share of value	100.0	100.0	100.0

Table continued.

Table E.1 (Continued) Vanillin: U.S. producer Solvay's U.S. shipments, by channel of distribution and period

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

Channel of distribution	Product type	Measure	2022	2023	2024
Distributors	Ethylvanillin	Quantity	***	***	***
Food end users	Ethylvanillin	Quantity	***	***	***
Fragrance end users	Ethylvanillin	Quantity	***	***	***
Other end users	Ethylvanillin	Quantity	***	***	***
All channels of distribution	Ethylvanillin	Quantity	***	***	***
Distributors	Ethylvanillin	Value	***	***	***
Food end users	Ethylvanillin	Value	***	***	***
Fragrance end users	Ethylvanillin	Value	***	***	***
Other end users	Ethylvanillin	Value	***	***	***
All channels of distribution	Ethylvanillin	Value	***	***	***
Distributors	Ethylvanillin	Unit value	***	***	***
Food end users	Ethylvanillin	Unit value	***	***	***
Fragrance end users	Ethylvanillin	Unit value	***	***	***
Other end users	Ethylvanillin	Unit value	***	***	***
All channels of distribution	Ethylvanillin	Unit value	***	***	***
Distributors	Ethylvanillin	Share of quantity	***	***	***
Food end users	Ethylvanillin	Share of quantity	***	***	***
Fragrance end users	Ethylvanillin	Share of quantity	***	***	***
Other end users	Ethylvanillin	Share of quantity	***	***	***
All channels of distribution	Ethylvanillin	Share of quantity	100.0	100.0	100.0
Distributors	Ethylvanillin	Share of value	***	***	***
Food end users	Ethylvanillin	Share of value	***	***	***
Fragrance end users	Ethylvanillin	Share of value	***	***	***
Other end users	Ethylvanillin	Share of value	***	***	***
All channels of distribution	Ethylvanillin	Share of value	100.0	100.0	100.0

Table continued.

Table E.1 (Continued) Vanillin: U.S. producer Solvay's U.S. shipments, by channel of distribution and period

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

Channel of distribution	Product type	Measure	2022	2023	2024
Distributors	Natural and biosynthetic vanillin	Quantity	***	***	***
Food end users	Natural and biosynthetic vanillin	Quantity	***	***	***
Fragrance end users	Natural and biosynthetic vanillin	Quantity	***	***	***
Other end users	Natural and biosynthetic vanillin	Quantity	***	***	***
All channels of distribution	Natural and biosynthetic vanillin	Quantity	***	***	***
Distributors	Natural and biosynthetic vanillin	Value	***	***	***
Food end users	Natural and biosynthetic vanillin	Value	***	***	***
Fragrance end users	Natural and biosynthetic vanillin	Value	***	***	***
Other end users	Natural and biosynthetic vanillin	Value	***	***	***
All channels of distribution	Natural and biosynthetic vanillin	Value	***	***	***
Distributors	Natural and biosynthetic vanillin	Unit value	***	***	***
Food end users	Natural and biosynthetic vanillin	Unit value	***	***	***
Fragrance end users	Natural and biosynthetic vanillin	Unit value	***	***	***
Other end users	Natural and biosynthetic vanillin	Unit value	***	***	***
All channels of distribution	Natural and biosynthetic vanillin	Unit value	***	***	***
Distributors	Natural and biosynthetic vanillin	Share of quantity	***	***	***
Food end users	Natural and biosynthetic vanillin	Share of quantity	***	***	***
Fragrance end users	Natural and biosynthetic vanillin	Share of quantity	***	***	***
Other end users	Natural and biosynthetic vanillin	Share of quantity	***	***	***
All channels of distribution	Natural and biosynthetic vanillin	Share of quantity	—	—	—
Distributors	Natural and biosynthetic vanillin	Share of value	***	***	***
Food end users	Natural and biosynthetic vanillin	Share of value	***	***	***
Fragrance end users	Natural and biosynthetic vanillin	Share of value	***	***	***
Other end users	Natural and biosynthetic vanillin	Share of value	***	***	***
All channels of distribution	Natural and biosynthetic vanillin	Share of value	—	—	—

Table continued.

Table E.1 (Continued) Vanillin: U.S. producer Solvay's U.S. shipments, by channel of distribution and period

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

Channel of distribution	Product type	Measure	2022	2023	2024
Distributors	All vanillin products	Quantity	***	***	***
Food end users	All vanillin products	Quantity	***	***	***
Fragrance end users	All vanillin products	Quantity	***	***	***
Other end users	All vanillin products	Quantity	***	***	***
All channels of distribution	All vanillin products	Quantity	***	***	***
Distributors	All vanillin products	Value	***	***	***
Food end users	All vanillin products	Value	***	***	***
Fragrance end users	All vanillin products	Value	***	***	***
Other end users	All vanillin products	Value	***	***	***
All channels of distribution	All vanillin products	Value	***	***	***
Distributors	All vanillin products	Unit value	***	***	***
Food end users	All vanillin products	Unit value	***	***	***
Fragrance end users	All vanillin products	Unit value	***	***	***
Other end users	All vanillin products	Unit value	***	***	***
All channels of distribution	All vanillin products	Unit value	***	***	***
Distributors	All vanillin products	Share of quantity	***	***	***
Food end users	All vanillin products	Share of quantity	***	***	***
Fragrance end users	All vanillin products	Share of quantity	***	***	***
Other end users	All vanillin products	Share of quantity	***	***	***
All channels of distribution	All vanillin products	Share of quantity	100.0	100.0	100.0
Distributors	All vanillin products	Share of value	***	***	***
Food end users	All vanillin products	Share of value	***	***	***
Fragrance end users	All vanillin products	Share of value	***	***	***
Other end users	All vanillin products	Share of value	***	***	***
All channels of distribution	All vanillin products	Share of value	100.0	100.0	100.0

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

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

Figure E.1 Vanillin: U.S. producer Solvay's U.S shipments in 2024, by product type, channel, and period

* * * * * * *

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

Note: The average unit values of the shipments are shown in the graphic's labels. Not all channel and product type boxes shown include labels due to their relative small size, please see table E.1 for the full data.

Table E.2 Vanillin: U.S. importers' U.S. shipments of imports from China, by channel of distribution and period

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

Channel of distribution	Product type	Measure	2022	2023	2024
Distributors	Methylvanillin	Quantity	***	***	***
Food end users	Methylvanillin	Quantity	***	***	***
Fragrance end users	Methylvanillin	Quantity	***	***	***
Other end users	Methylvanillin	Quantity	***	***	***
All channels of distribution	Methylvanillin	Quantity	***	***	***
Distributors	Methylvanillin	Value	***	***	***
Food end users	Methylvanillin	Value	***	***	***
Fragrance end users	Methylvanillin	Value	***	***	***
Other end users	Methylvanillin	Value	***	***	***
All channels of distribution	Methylvanillin	Value	***	***	***
Distributors	Methylvanillin	Unit value	***	***	***
Food end users	Methylvanillin	Unit value	***	***	***
Fragrance end users	Methylvanillin	Unit value	***	***	***
Other end users	Methylvanillin	Unit value	***	***	***
All channels of distribution	Methylvanillin	Unit value	***	***	***
Distributors	Methylvanillin	Share of quantity	***	***	***
Food end users	Methylvanillin	Share of quantity	***	***	***
Fragrance end users	Methylvanillin	Share of quantity	***	***	***
Other end users	Methylvanillin	Share of quantity	***	***	***
All channels of distribution	Methylvanillin	Share of quantity	100.0	100.0	100.0
Distributors	Methylvanillin	Share of value	***	***	***
Food end users	Methylvanillin	Share of value	***	***	***
Fragrance end users	Methylvanillin	Share of value	***	***	***
Other end users	Methylvanillin	Share of value	***	***	***
All channels of distribution	Methylvanillin	Share of value	100.0	100.0	100.0

Table continued.

Table E.2 (Continued) Vanillin: U.S. importers' U.S. shipments of imports from China, by channel of distribution and period

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

Channel of distribution	Product type	Measure	2022	2023	2024
Distributors	Ethylvanillin	Quantity	***	***	***
Food end users	Ethylvanillin	Quantity	***	***	***
Fragrance end users	Ethylvanillin	Quantity	***	***	***
Other end users	Ethylvanillin	Quantity	***	***	***
All channels of distribution	Ethylvanillin	Quantity	***	***	***
Distributors	Ethylvanillin	Value	***	***	***
Food end users	Ethylvanillin	Value	***	***	***
Fragrance end users	Ethylvanillin	Value	***	***	***
Other end users	Ethylvanillin	Value	***	***	***
All channels of distribution	Ethylvanillin	Value	***	***	***
Distributors	Ethylvanillin	Unit value	***	***	***
Food end users	Ethylvanillin	Unit value	***	***	***
Fragrance end users	Ethylvanillin	Unit value	***	***	***
Other end users	Ethylvanillin	Unit value	***	***	***
All channels of distribution	Ethylvanillin	Unit value	***	***	***
Distributors	Ethylvanillin	Share of quantity	***	***	***
Food end users	Ethylvanillin	Share of quantity	***	***	***
Fragrance end users	Ethylvanillin	Share of quantity	***	***	***
Other end users	Ethylvanillin	Share of quantity	***	***	***
All channels of distribution	Ethylvanillin	Share of quantity	100.0	100.0	100.0
Distributors	Ethylvanillin	Share of value	***	***	***
Food end users	Ethylvanillin	Share of value	***	***	***
Fragrance end users	Ethylvanillin	Share of value	***	***	***
Other end users	Ethylvanillin	Share of value	***	***	***
All channels of distribution	Ethylvanillin	Share of value	100.0	100.0	100.0

Table continued.

Table E.2 (Continued) Vanillin: U.S. importers' U.S. shipments of imports from China, by channel of distribution and period

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

Channel of distribution	Product type	Measure	2022	2023	2024
Distributors	Natural and biosynthetic vanillin	Quantity	***	***	***
Food end users	Natural and biosynthetic vanillin	Quantity	***	***	***
Fragrance end users	Natural and biosynthetic vanillin	Quantity	***	***	***
Other end users	Natural and biosynthetic vanillin	Quantity	***	***	***
All channels of distribution	Natural and biosynthetic vanillin	Quantity	***	***	***
Distributors	Natural and biosynthetic vanillin	Value	***	***	***
Food end users	Natural and biosynthetic vanillin	Value	***	***	***
Fragrance end users	Natural and biosynthetic vanillin	Value	***	***	***
Other end users	Natural and biosynthetic vanillin	Value	***	***	***
All channels of distribution	Natural and biosynthetic vanillin	Value	***	***	***
Distributors	Natural and biosynthetic vanillin	Unit value	***	***	***
Food end users	Natural and biosynthetic vanillin	Unit value	***	***	***
Fragrance end users	Natural and biosynthetic vanillin	Unit value	***	***	***
Other end users	Natural and biosynthetic vanillin	Unit value	***	***	***
All channels of distribution	Natural and biosynthetic vanillin	Unit value	***	***	***
Distributors	Natural and biosynthetic vanillin	Share of quantity	***	***	***
Food end users	Natural and biosynthetic vanillin	Share of quantity	***	***	***
Fragrance end users	Natural and biosynthetic vanillin	Share of quantity	***	***	***
Other end users	Natural and biosynthetic vanillin	Share of quantity	***	***	***
All channels of distribution	Natural and biosynthetic vanillin	Share of quantity	100.0	100.0	100.0
Distributors	Natural and biosynthetic vanillin	Share of value	***	***	***
Food end users	Natural and biosynthetic vanillin	Share of value	***	***	***
Fragrance end users	Natural and biosynthetic vanillin	Share of value	***	***	***
Other end users	Natural and biosynthetic vanillin	Share of value	***	***	***
All channels of distribution	Natural and biosynthetic vanillin	Share of value	100.0	100.0	100.0

Table continued.

Table E.2 (Continued) Vanillin: U.S. importers' U.S. shipments of imports from China, by channel of distribution and period

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

Channel of distribution	Product type	Measure	2022	2023	2024
Distributors	All vanillin products	Quantity	***	***	***
Food end users	All vanillin products	Quantity	***	***	***
Fragrance end users	All vanillin products	Quantity	***	***	***
Other end users	All vanillin products	Quantity	***	***	***
All channels of distribution	All vanillin products	Quantity	4,962	4,260	5,984
Distributors	All vanillin products	Value	***	***	***
Food end users	All vanillin products	Value	***	***	***
Fragrance end users	All vanillin products	Value	***	***	***
Other end users	All vanillin products	Value	***	***	***
All channels of distribution	All vanillin products	Value	78,431	53,990	65,547
Distributors	All vanillin products	Unit value	***	***	***
Food end users	All vanillin products	Unit value	***	***	***
Fragrance end users	All vanillin products	Unit value	***	***	***
Other end users	All vanillin products	Unit value	***	***	***
All channels of distribution	All vanillin products	Unit value	15.81	12.67	10.95
Distributors	All vanillin products	Share of quantity	***	***	***
Food end users	All vanillin products	Share of quantity	***	***	***
Fragrance end users	All vanillin products	Share of quantity	***	***	***
Other end users	All vanillin products	Share of quantity	***	***	***
All channels of distribution	All vanillin products	Share of quantity	100.0	100.0	100.0
Distributors	All vanillin products	Share of value	***	***	***
Food end users	All vanillin products	Share of value	***	***	***
Fragrance end users	All vanillin products	Share of value	***	***	***
Other end users	All vanillin products	Share of value	***	***	***
All channels of distribution	All vanillin products	Share of value	100.0	100.0	100.0

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

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

Figure E.2 Vanillin: U.S. importers' U.S. shipments of imports from China in 2024, by product type and channel of distribution

* * * * * * *

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

Note: The average unit values of the shipments are shown in the graphic's labels. Not all channel and product type boxes shown include labels due to their relative small size, please see table E.2 for the full data.

Table E.3 Vanillin: U.S. importers' U.S. shipments of imports from nonsubject sources, by channel of distribution and period

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

Channel of distribution	Product type	Measure	2022	2023	2024
Distributors	Methylvanillin	Quantity	***	***	***
Food end users	Methylvanillin	Quantity	***	***	***
Fragrance end users	Methylvanillin	Quantity	***	***	***
Other end users	Methylvanillin	Quantity	***	***	***
All channels of distribution	Methylvanillin	Quantity	***	***	***
Distributors	Methylvanillin	Value	***	***	***
Food end users	Methylvanillin	Value	***	***	***
Fragrance end users	Methylvanillin	Value	***	***	***
Other end users	Methylvanillin	Value	***	***	***
All channels of distribution	Methylvanillin	Value	***	***	***
Distributors	Methylvanillin	Unit value	***	***	***
Food end users	Methylvanillin	Unit value	***	***	***
Fragrance end users	Methylvanillin	Unit value	***	***	***
Other end users	Methylvanillin	Unit value	***	***	***
All channels of distribution	Methylvanillin	Unit value	***	***	***
Distributors	Methylvanillin	Share of quantity	***	***	***
Food end users	Methylvanillin	Share of quantity	***	***	***
Fragrance end users	Methylvanillin	Share of quantity	***	***	***
Other end users	Methylvanillin	Share of quantity	***	***	***
All channels of distribution	Methylvanillin	Share of quantity	100.0	100.0	100.0
Distributors	Methylvanillin	Share of value	***	***	***
Food end users	Methylvanillin	Share of value	***	***	***
Fragrance end users	Methylvanillin	Share of value	***	***	***
Other end users	Methylvanillin	Share of value	***	***	***
All channels of distribution	Methylvanillin	Share of value	100.0	100.0	100.0

Table continued.

Table E.3 (Continued) Vanillin: U.S. importers' U.S. shipments of imports from nonsubject sources, by channel of distribution and period

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

Channel of distribution	Product type	Measure	2022	2023	2024
Distributors	Ethylvanillin	Quantity	***	***	***
Food end users	Ethylvanillin	Quantity	***	***	***
Fragrance end users	Ethylvanillin	Quantity	***	***	***
Other end users	Ethylvanillin	Quantity	***	***	***
All channels of distribution	Ethylvanillin	Quantity	***	***	***
Distributors	Ethylvanillin	Value	***	***	***
Food end users	Ethylvanillin	Value	***	***	***
Fragrance end users	Ethylvanillin	Value	***	***	***
Other end users	Ethylvanillin	Value	***	***	***
All channels of distribution	Ethylvanillin	Value	***	***	***
Distributors	Ethylvanillin	Unit value	***	***	***
Food end users	Ethylvanillin	Unit value	***	***	***
Fragrance end users	Ethylvanillin	Unit value	***	***	***
Other end users	Ethylvanillin	Unit value	***	***	***
All channels of distribution	Ethylvanillin	Unit value	***	***	***
Distributors	Ethylvanillin	Share of quantity	***	***	***
Food end users	Ethylvanillin	Share of quantity	***	***	***
Fragrance end users	Ethylvanillin	Share of quantity	***	***	***
Other end users	Ethylvanillin	Share of quantity	***	***	***
All channels of distribution	Ethylvanillin	Share of quantity	100.0	100.0	100.0
Distributors	Ethylvanillin	Share of value	***	***	***
Food end users	Ethylvanillin	Share of value	***	***	***
Fragrance end users	Ethylvanillin	Share of value	***	***	***
Other end users	Ethylvanillin	Share of value	***	***	***
All channels of distribution	Ethylvanillin	Share of value	100.0	100.0	100.0

Table continued.

Table E.3 (Continued) Vanillin: U.S. importers' U.S. shipments of imports from nonsubject sources, by channel of distribution and period

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

Channel of distribution	Product type	Measure	2022	2023	2024
Distributors	Natural and biosynthetic vanillin	Quantity	***	***	***
Food end users	Natural and biosynthetic vanillin	Quantity	***	***	***
Fragrance end users	Natural and biosynthetic vanillin	Quantity	***	***	***
Other end users	Natural and biosynthetic vanillin	Quantity	***	***	***
All channels of distribution	Natural and biosynthetic vanillin	Quantity	***	***	***
Distributors	Natural and biosynthetic vanillin	Value	***	***	***
Food end users	Natural and biosynthetic vanillin	Value	***	***	***
Fragrance end users	Natural and biosynthetic vanillin	Value	***	***	***
Other end users	Natural and biosynthetic vanillin	Value	***	***	***
All channels of distribution	Natural and biosynthetic vanillin	Value	***	***	***
Distributors	Natural and biosynthetic vanillin	Unit value	***	***	***
Food end users	Natural and biosynthetic vanillin	Unit value	***	***	***
Fragrance end users	Natural and biosynthetic vanillin	Unit value	***	***	***
Other end users	Natural and biosynthetic vanillin	Unit value	***	***	***
All channels of distribution	Natural and biosynthetic vanillin	Unit value	***	***	***
Distributors	Natural and biosynthetic vanillin	Share of quantity	***	***	***
Food end users	Natural and biosynthetic vanillin	Share of quantity	***	***	***
Fragrance end users	Natural and biosynthetic vanillin	Share of quantity	***	***	***
Other end users	Natural and biosynthetic vanillin	Share of quantity	***	***	***
All channels of distribution	Natural and biosynthetic vanillin	Share of quantity	100.0	100.0	100.0
Distributors	Natural and biosynthetic vanillin	Share of value	***	***	***
Food end users	Natural and biosynthetic vanillin	Share of value	***	***	***
Fragrance end users	Natural and biosynthetic vanillin	Share of value	***	***	***
Other end users	Natural and biosynthetic vanillin	Share of value	***	***	***
All channels of distribution	Natural and biosynthetic vanillin	Share of value	100.0	100.0	100.0

Table continued.

Table E.3 (Continued) Vanillin: U.S. importers' U.S. shipments of imports from nonsubject sources, by channel of distribution and period

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

Channel of distribution	Product type	Measure	2022	2023	2024
Distributors	All vanillin products	Quantity	***	***	***
Food end users	All vanillin products	Quantity	***	***	***
Fragrance end users	All vanillin products	Quantity	***	***	***
Other end users	All vanillin products	Quantity	***	***	***
All channels of distribution	All vanillin products	Quantity	3,544	2,354	3,307
Distributors	All vanillin products	Value	***	***	***
Food end users	All vanillin products	Value	***	***	***
Fragrance end users	All vanillin products	Value	***	***	***
Other end users	All vanillin products	Value	***	***	***
All channels of distribution	All vanillin products	Value	69,949	51,082	51,268
Distributors	All vanillin products	Unit value	***	***	***
Food end users	All vanillin products	Unit value	***	***	***
Fragrance end users	All vanillin products	Unit value	***	***	***
Other end users	All vanillin products	Unit value	***	***	***
All channels of distribution	All vanillin products	Unit value	19.74	21.70	15.50
Distributors	All vanillin products	Share of quantity	***	***	***
Food end users	All vanillin products	Share of quantity	***	***	***
Fragrance end users	All vanillin products	Share of quantity	***	***	***
Other end users	All vanillin products	Share of quantity	***	***	***
All channels of distribution	All vanillin products	Share of quantity	100.0	100.0	100.0
Distributors	All vanillin products	Share of value	***	***	***
Food end users	All vanillin products	Share of value	***	***	***
Fragrance end users	All vanillin products	Share of value	***	***	***
Other end users	All vanillin products	Share of value	***	***	***
All channels of distribution	All vanillin products	Share of value	100.0	100.0	100.0

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

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

Figure E.3 Vanillin: U.S. importers' U.S. shipments of imports from nonsubject sources in 2024, by product type and channel of distribution

* * * * * * *

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

Note: The average unit values of the shipments are shown in the graphic's labels. Not all channel and product type boxes shown include labels due to their relatively small size, please see table E.3 for the full data.

Table E.4 Vanillin: U.S. importers' U.S. shipments of imports from all import sources, by channel of distribution and period

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

Channel of distribution	Product type	Measure	2022	2023	2024
Distributors	Methylvanillin	Quantity	***	***	***
Food end users	Methylvanillin	Quantity	***	***	***
Fragrance end users	Methylvanillin	Quantity	***	***	***
Other end users	Methylvanillin	Quantity	***	***	***
All channels of distribution	Methylvanillin	Quantity	6,020	3,778	5,329
Distributors	Methylvanillin	Value	***	***	***
Food end users	Methylvanillin	Value	***	***	***
Fragrance end users	Methylvanillin	Value	***	***	***
Other end users	Methylvanillin	Value	***	***	***
All channels of distribution	Methylvanillin	Value	79,716	38,715	42,753
Distributors	Methylvanillin	Unit value	***	***	***
Food end users	Methylvanillin	Unit value	***	***	***
Fragrance end users	Methylvanillin	Unit value	***	***	***
Other end users	Methylvanillin	Unit value	***	***	***
All channels of distribution	Methylvanillin	Unit value	13.24	10.25	8.02
Distributors	Methylvanillin	Share of quantity	***	***	***
Food end users	Methylvanillin	Share of quantity	***	***	***
Fragrance end users	Methylvanillin	Share of quantity	***	***	***
Other end users	Methylvanillin	Share of quantity	***	***	***
All channels of distribution	Methylvanillin	Share of quantity	100.0	100.0	100.0
Distributors	Methylvanillin	Share of value	***	***	***
Food end users	Methylvanillin	Share of value	***	***	***
Fragrance end users	Methylvanillin	Share of value	***	***	***
Other end users	Methylvanillin	Share of value	***	***	***
All channels of distribution	Methylvanillin	Share of value	100.0	100.0	100.0

Table continued.

Table E.4 (Continued) Vanillin: U.S. importers' U.S. shipments of imports from all import sources, by channel of distribution and period

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

Channel of distribution	Product type	Measure	2022	2023	2024
Distributors	Ethylvanillin	Quantity	***	***	***
Food end users	Ethylvanillin	Quantity	***	***	***
Fragrance end users	Ethylvanillin	Quantity	***	***	***
Other end users	Ethylvanillin	Quantity	***	***	***
All channels of distribution	Ethylvanillin	Quantity	609	973	1,506
Distributors	Ethylvanillin	Value	***	***	***
Food end users	Ethylvanillin	Value	***	***	***
Fragrance end users	Ethylvanillin	Value	***	***	***
Other end users	Ethylvanillin	Value	***	***	***
All channels of distribution	Ethylvanillin	Value	8,839	7,689	8,262
Distributors	Ethylvanillin	Unit value	***	***	***
Food end users	Ethylvanillin	Unit value	***	***	***
Fragrance end users	Ethylvanillin	Unit value	***	***	***
Other end users	Ethylvanillin	Unit value	***	***	***
All channels of distribution	Ethylvanillin	Unit value	14.53	7.90	5.49
Distributors	Ethylvanillin	Share of quantity	***	***	***
Food end users	Ethylvanillin	Share of quantity	***	***	***
Fragrance end users	Ethylvanillin	Share of quantity	***	***	***
Other end users	Ethylvanillin	Share of quantity	***	***	***
All channels of distribution	Ethylvanillin	Share of quantity	100.0	100.0	100.0
Distributors	Ethylvanillin	Share of value	***	***	***
Food end users	Ethylvanillin	Share of value	***	***	***
Fragrance end users	Ethylvanillin	Share of value	***	***	***
Other end users	Ethylvanillin	Share of value	***	***	***
All channels of distribution	Ethylvanillin	Share of value	100.0	100.0	100.0

Table continued.

Table E.4 (Continued) Vanillin: U.S. importers' U.S. shipments of imports from all import sources, by channel of distribution and period

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

Channel of distribution	Product type	Measure	2022	2023	2024
Distributors	Natural and biosynthetic vanillin	Quantity	***	***	***
Food end users	Natural and biosynthetic vanillin	Quantity	***	***	***
Fragrance end users	Natural and biosynthetic vanillin	Quantity	***	***	***
Other end users	Natural and biosynthetic vanillin	Quantity	***	***	***
All channels of distribution	Natural and biosynthetic vanillin	Quantity	1,878	1,863	2,456
Distributors	Natural and biosynthetic vanillin	Value	***	***	***
Food end users	Natural and biosynthetic vanillin	Value	***	***	***
Fragrance end users	Natural and biosynthetic vanillin	Value	***	***	***
Other end users	Natural and biosynthetic vanillin	Value	***	***	***
All channels of distribution	Natural and biosynthetic vanillin	Value	59,825	58,667	65,800
Distributors	Natural and biosynthetic vanillin	Unit value	***	***	***
Food end users	Natural and biosynthetic vanillin	Unit value	***	***	***
Fragrance end users	Natural and biosynthetic vanillin	Unit value	***	***	***
Other end users	Natural and biosynthetic vanillin	Unit value	***	***	***
All channels of distribution	Natural and biosynthetic vanillin	Unit value	31.86	31.49	26.80
Distributors	Natural and biosynthetic vanillin	Share of quantity	***	***	***
Food end users	Natural and biosynthetic vanillin	Share of quantity	***	***	***
Fragrance end users	Natural and biosynthetic vanillin	Share of quantity	***	***	***
Other end users	Natural and biosynthetic vanillin	Share of quantity	***	***	***
All channels of distribution	Natural and biosynthetic vanillin	Share of quantity	100.0	100.0	100.0
Distributors	Natural and biosynthetic vanillin	Share of value	***	***	***
Food end users	Natural and biosynthetic vanillin	Share of value	***	***	***
Fragrance end users	Natural and biosynthetic vanillin	Share of value	***	***	***
Other end users	Natural and biosynthetic vanillin	Share of value	***	***	***
All channels of distribution	Natural and biosynthetic vanillin	Share of value	100.0	100.0	100.0

Table continued.

Table E.4 (Continued) Vanillin: U.S. importers' U.S. shipments of imports from all import sources, by channel of distribution and period

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

Channel of distribution	Product type	Measure	2022	2023	2024
Distributors	All vanillin products	Quantity	***	***	***
Food end users	All vanillin products	Quantity	***	***	***
Fragrance end users	All vanillin products	Quantity	***	***	***
Other end users	All vanillin products	Quantity	***	***	***
All channels of distribution	All vanillin products	Quantity	8,506	6,614	9,291
Distributors	All vanillin products	Value	***	***	***
Food end users	All vanillin products	Value	***	***	***
Fragrance end users	All vanillin products	Value	***	***	***
Other end users	All vanillin products	Value	***	***	***
All channels of distribution	All vanillin products	Value	148,380	105,072	116,816
Distributors	All vanillin products	Unit value	***	***	***
Food end users	All vanillin products	Unit value	***	***	***
Fragrance end users	All vanillin products	Unit value	***	***	***
Other end users	All vanillin products	Unit value	***	***	***
All channels of distribution	All vanillin products	Unit value	17.44	15.89	12.57
Distributors	All vanillin products	Share of quantity	***	***	***
Food end users	All vanillin products	Share of quantity	***	***	***
Fragrance end users	All vanillin products	Share of quantity	***	***	***
Other end users	All vanillin products	Share of quantity	***	***	***
All channels of distribution	All vanillin products	Share of quantity	100.0	100.0	100.0
Distributors	All vanillin products	Share of value	***	***	***
Food end users	All vanillin products	Share of value	***	***	***
Fragrance end users	All vanillin products	Share of value	***	***	***
Other end users	All vanillin products	Share of value	***	***	***
All channels of distribution	All vanillin products	Share of value	100.0	100.0	100.0

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

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

Figure E.4 Vanillin: U.S. importers' U.S. shipments of imports from all import sources in 2024, by product type and channel of distribution

* * * * * * *

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

Note: The average unit values of the shipments are shown in the graphic's labels. Not all channel and product type boxes shown include labels due to their relative small size, please see table E.4 for the full data.

Table E.5 Vanillin: U.S. shipments from all sources (U.S. producers' and U.S. importers'), by channel of distribution and period

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

Channel of distribution	Product type	Measure	2022	2023	2024
Distributors	Methylvanillin	Quantity	***	***	***
Food end users	Methylvanillin	Quantity	***	***	***
Fragrance end users	Methylvanillin	Quantity	***	***	***
Other end users	Methylvanillin	Quantity	***	***	***
All channels of distribution	Methylvanillin	Quantity	***	***	***
Distributors	Methylvanillin	Value	***	***	***
Food end users	Methylvanillin	Value	***	***	***
Fragrance end users	Methylvanillin	Value	***	***	***
Other end users	Methylvanillin	Value	***	***	***
All channels of distribution	Methylvanillin	Value	***	***	***
Distributors	Methylvanillin	Unit value	***	***	***
Food end users	Methylvanillin	Unit value	***	***	***
Fragrance end users	Methylvanillin	Unit value	***	***	***
Other end users	Methylvanillin	Unit value	***	***	***
All channels of distribution	Methylvanillin	Unit value	***	***	***
Distributors	Methylvanillin	Share of quantity	***	***	***
Food end users	Methylvanillin	Share of quantity	***	***	***
Fragrance end users	Methylvanillin	Share of quantity	***	***	***
Other end users	Methylvanillin	Share of quantity	***	***	***
All channels of distribution	Methylvanillin	Share of quantity	100.0	100.0	100.0
Distributors	Methylvanillin	Share of value	***	***	***
Food end users	Methylvanillin	Share of value	***	***	***
Fragrance end users	Methylvanillin	Share of value	***	***	***
Other end users	Methylvanillin	Share of value	***	***	***
All channels of distribution	Methylvanillin	Share of value	100.0	100.0	100.0

Table continued.

Table E.5 (Continued) Vanillin: U.S. shipments from all sources (U.S. producers' and U.S. importers'), by channel of distribution and period

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

Channel of distribution	Product type	Measure	2022	2023	2024
Distributors	Ethylvanillin	Quantity	***	***	***
Food end users	Ethylvanillin	Quantity	***	***	***
Fragrance end users	Ethylvanillin	Quantity	***	***	***
Other end users	Ethylvanillin	Quantity	***	***	***
All channels of distribution	Ethylvanillin	Quantity	***	***	***
Distributors	Ethylvanillin	Value	***	***	***
Food end users	Ethylvanillin	Value	***	***	***
Fragrance end users	Ethylvanillin	Value	***	***	***
Other end users	Ethylvanillin	Value	***	***	***
All channels of distribution	Ethylvanillin	Value	***	***	***
Distributors	Ethylvanillin	Unit value	***	***	***
Food end users	Ethylvanillin	Unit value	***	***	***
Fragrance end users	Ethylvanillin	Unit value	***	***	***
Other end users	Ethylvanillin	Unit value	***	***	***
All channels of distribution	Ethylvanillin	Unit value	***	***	***
Distributors	Ethylvanillin	Share of quantity	***	***	***
Food end users	Ethylvanillin	Share of quantity	***	***	***
Fragrance end users	Ethylvanillin	Share of quantity	***	***	***
Other end users	Ethylvanillin	Share of quantity	***	***	***
All channels of distribution	Ethylvanillin	Share of quantity	100.0	100.0	100.0
Distributors	Ethylvanillin	Share of value	***	***	***
Food end users	Ethylvanillin	Share of value	***	***	***
Fragrance end users	Ethylvanillin	Share of value	***	***	***
Other end users	Ethylvanillin	Share of value	***	***	***
All channels of distribution	Ethylvanillin	Share of value	100.0	100.0	100.0

Table continued.

Table E.5 (Continued) Vanillin: U.S. shipments from all sources (U.S. producers' and U.S. importers'), by channel of distribution and period

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

Channel of distribution	Product type	Measure	2022	2023	2024
Distributors	Natural and biosynthetic vanillin	Quantity	***	***	***
Food end users	Natural and biosynthetic vanillin	Quantity	***	***	***
Fragrance end users	Natural and biosynthetic vanillin	Quantity	***	***	***
Other end users	Natural and biosynthetic vanillin	Quantity	***	***	***
All channels of distribution	Natural and biosynthetic vanillin	Quantity	***	***	***
Distributors	Natural and biosynthetic vanillin	Value	***	***	***
Food end users	Natural and biosynthetic vanillin	Value	***	***	***
Fragrance end users	Natural and biosynthetic vanillin	Value	***	***	***
Other end users	Natural and biosynthetic vanillin	Value	***	***	***
All channels of distribution	Natural and biosynthetic vanillin	Value	***	***	***
Distributors	Natural and biosynthetic vanillin	Unit value	***	***	***
Food end users	Natural and biosynthetic vanillin	Unit value	***	***	***
Fragrance end users	Natural and biosynthetic vanillin	Unit value	***	***	***
Other end users	Natural and biosynthetic vanillin	Unit value	***	***	***
All channels of distribution	Natural and biosynthetic vanillin	Unit value	***	***	***
Distributors	Natural and biosynthetic vanillin	Share of quantity	***	***	***
Food end users	Natural and biosynthetic vanillin	Share of quantity	***	***	***
Fragrance end users	Natural and biosynthetic vanillin	Share of quantity	***	***	***
Other end users	Natural and biosynthetic vanillin	Share of quantity	***	***	***
All channels of distribution	Natural and biosynthetic vanillin	Share of quantity	100.0	100.0	100.0
Distributors	Natural and biosynthetic vanillin	Share of value	***	***	***
Food end users	Natural and biosynthetic vanillin	Share of value	***	***	***
Fragrance end users	Natural and biosynthetic vanillin	Share of value	***	***	***
Other end users	Natural and biosynthetic vanillin	Share of value	***	***	***
All channels of distribution	Natural and biosynthetic vanillin	Share of value	100.0	100.0	100.0

Table continued.

Table E.5 (Continued) Vanillin: U.S. shipments from all sources (U.S. producers' and U.S. importers'), by channel of distribution and period

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

Channel of distribution	Product type	Measure	2022	2023	2024
Distributors	All vanillin products	Quantity	***	***	***
Food end users	All vanillin products	Quantity	***	***	***
Fragrance end users	All vanillin products	Quantity	***	***	***
Other end users	All vanillin products	Quantity	***	***	***
All channels of distribution	All vanillin products	Quantity	***	***	***
Distributors	All vanillin products	Value	***	***	***
Food end users	All vanillin products	Value	***	***	***
Fragrance end users	All vanillin products	Value	***	***	***
Other end users	All vanillin products	Value	***	***	***
All channels of distribution	All vanillin products	Value	***	***	***
Distributors	All vanillin products	Unit value	***	***	***
Food end users	All vanillin products	Unit value	***	***	***
Fragrance end users	All vanillin products	Unit value	***	***	***
Other end users	All vanillin products	Unit value	***	***	***
All channels of distribution	All vanillin products	Unit value	***	***	***
Distributors	All vanillin products	Share of quantity	***	***	***
Food end users	All vanillin products	Share of quantity	***	***	***
Fragrance end users	All vanillin products	Share of quantity	***	***	***
Other end users	All vanillin products	Share of quantity	***	***	***
All channels of distribution	All vanillin products	Share of quantity	100.0	100.0	100.0
Distributors	All vanillin products	Share of value	***	***	***
Food end users	All vanillin products	Share of value	***	***	***
Fragrance end users	All vanillin products	Share of value	***	***	***
Other end users	All vanillin products	Share of value	***	***	***
All channels of distribution	All vanillin products	Share of value	100.0	100.0	100.0

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

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

Figure E.5 Vanillin: U.S. shipments from all sources in 2024, by product type and channel of distribution

* * * * * * *

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

Note: The average unit values of the shipments are shown in the graphic's labels. Not all channel and product type boxes shown include labels due to their relatively small size, please see table E.5 for the full data.

APPENDIX F

U.S. OFFICIAL IMPORTS OF VANILLIN BY SOURCE AND PERIOD

Table F.1 Vanillin: U.S. official imports, by source and period

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

Source	Measure	2022	2023	2024
China	Quantity	7,717	5,107	7,313
Nonsubject sources	Quantity	3,677	1,766	3,810
All import sources	Quantity	11,394	6,873	11,123
China	Value	102,603	43,537	67,200
Nonsubject sources	Value	69,754	38,784	60,857
All import sources	Value	172,357	82,321	128,057
China	Unit value	13.30	8.52	9.19
Nonsubject sources	Unit value	18.97	21.96	15.97
All import sources	Unit value	15.13	11.98	11.51
China	Share of quantity	67.7	74.3	65.7
Nonsubject sources	Share of quantity	32.3	25.7	34.3
All import sources	Share of quantity	100.0	100.0	100.0
China	Share of value	59.5	52.9	52.5
Nonsubject sources	Share of value	40.5	47.1	47.5
All import sources	Share of value	100.0	100.0	100.0
China	Ratio	***	***	***
Nonsubject sources	Ratio	***	***	***
All import sources	Ratio	***	***	***

Source: Compiled from official U.S. import statistics of the U.S. Department of Commerce Census Bureau using HTS statistical reporting numbers 2912.41.0000 and 2912.42.0000, accessed on March 19, 2025. Imports are based on the imports for consumption data series. Value data reflect the landed duty-paid values.

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