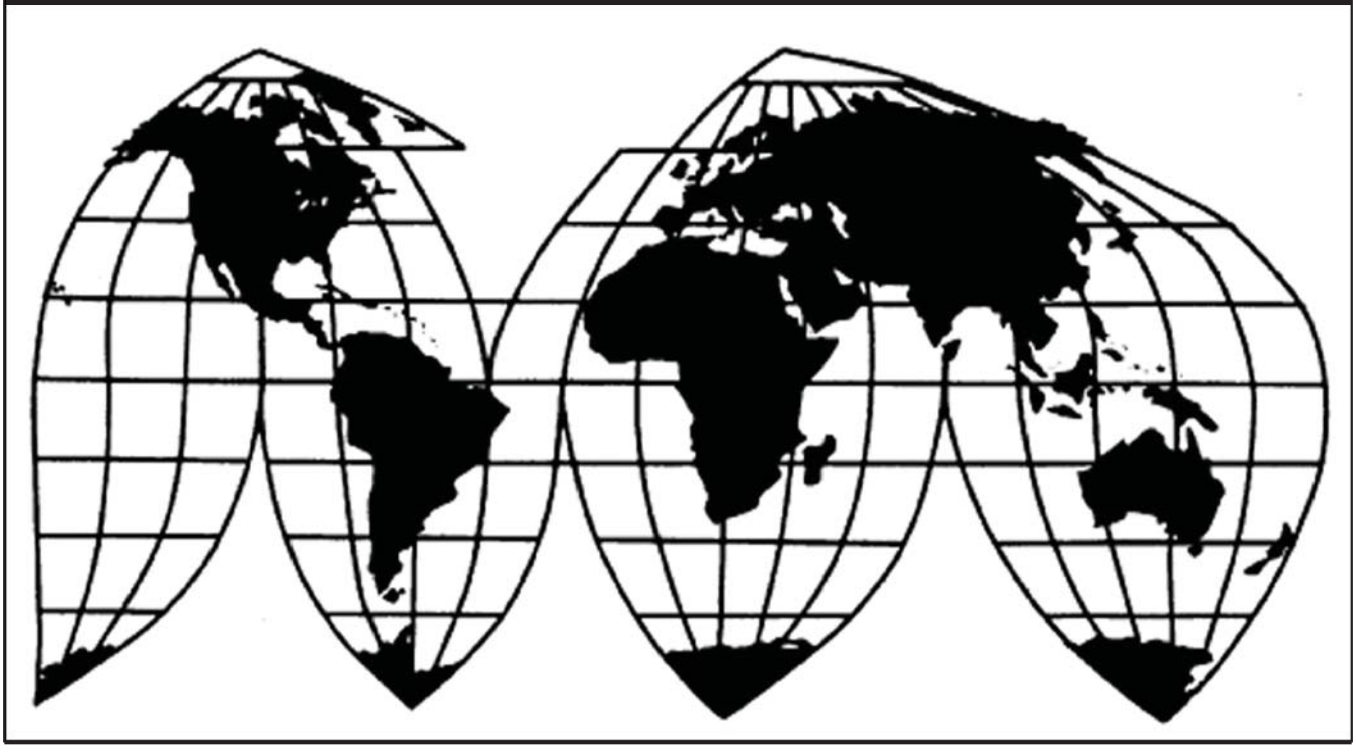
Polytetrafluoroethylene Resin from China and India

Investigation Nos. 701-TA-588 and 731-TA-1392-1393 (Final)

Publication 4801 **July 2018**

U.S. International Trade Commission



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

U.S. International Trade Commission

Washington, DC 20436
www.usitc.gov

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UNITED STATES INTERNATIONAL TRADE COMMISSION

Investigation No. 701-TA-588 (Final)

Polytetrafluoroethylene Resin from India

DETERMINATION

On the basis of the record[1] developed in the subject investigation, 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 not materially injured or threatened with material injury, and the establishment of an industry in the United States is not materially retarded by reason of imports of polytetrafluoroethylene resin from India, provided for in subheadings 3904.61.00 and 3904.69.50 of the Harmonized Tariff Schedule of the United States, that have been found by the U.S. Department of Commerce ("Commerce") to be subsidized by the government of India.[2] [3]

BACKGROUND

The Commission, pursuant to section 705(b) of the Act (19 U.S.C. 1671d(b)), instituted this investigation effective September 28, 2017, following receipt of a petition filed with the Commission and Commerce by The Chemours Company FC LLC, Wilmington, Delaware. The final phase of the investigation was scheduled by the Commission following notification of a preliminary determination by Commerce that imports of polytetrafluoroethylene resin from India were being subsidized within the meaning of section 703(b) of the Act (19 U.S.C. 1671b(b)). Notice of the scheduling of the final phase of the Commission's investigation 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 March 23, 2018 (83 FR 12815). The hearing was held in Washington, DC, on May 17, 2018, and all persons who requested the opportunity were permitted to appear in person or by counsel.

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

[2] 83 FR 23423, May 21, 2018.

[3] Commissioner Kearns did not participate in this investigation.

Views of the Commission

Based on the record in the final phase of this investigation, we determine that an industry in the United States is neither materially injured nor threatened with material injury by reason of imports of polytetrafluoroethylene resin ("PTFE") found by the U.S. Department of Commerce ("Commerce") to be subsidized by the government of India.[1] [2]

I. Background

The petition in this case was filed on September 28, 2017 by The Chemours Company ("Chemours" or "petitioner"), a domestic producer of PTFE. Petitioner appeared at the hearing and submitted prehearing and posthearing briefs and final comments.

Two respondent entities participated in this investigation. AGC Chemicals Americas, Inc. ("AGC"), a domestic compounder of PTFE resin, appeared at the hearing and submitted prehearing and posthearing briefs and final comments. Also appearing at the hearing and submitting prehearing and posthearing briefs and final comments was the PTFE Processors Alliance, a group of importers, distributors, and downstream producers of PTFE resin, including the following producers and exporters of PTFE resin from China: Zhejiang Jusheng Fluorochemical Co., Ltd.; Shandong Dongyue Polymer Material Co., Ltd.; Shanghai Huayi 3F New Materials Sales Co., Ltd.; Zhonghao Chenguang Research Institute of Chemical Industry Co., Ltd.; Jianxi Lee & Man Chemical Ltd.; Shandong Huafu Fluro-Chemical Co., Ltd.; and China Chamber of Commerce of Metals, Minerals & Chemical Importers (collectively "PPA").[3]

Although petitions for antidumping duty investigations concerning imports of PTFE from China and India were filed on the same day, September 28, 2017, as the petition in this countervailing duty investigation concerning PTFE from India, the investigation schedules became staggered when Commerce did not align its final countervailing duty investigation with its final antidumping investigations. Consequently, Commerce reached an earlier final determination in the countervailing duty investigation on subject imports from India than in the antidumping investigations, which thereby necessitated an earlier final Commission determination in the countervailing duty investigation.[4]

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[1] Commissioner Kearns did not participate in this investigation.

[2] Whether establishment of an industry in the United States is materially retarded is not an issue in this investigation.

[3] Gujarat Fluorochemicals Limited ("GFL India") filed a posthearing brief. It did not appear at the hearing, although it appeared in the preliminary phase of this investigation. *See Polytetrafluoroethylene (PTFE) Resin From China and India*, Inv. Nos. 701-TA-588 and 731-TA-1392-93 (Preliminary), USITC Pub. 4741 (Nov. 2017) at 3 ("Preliminary Opinion").

[4] *See* 19 U.S.C. § 1677(7)(g)(iii). Pursuant to the statutory provision on staggered investigations, the record for the antidumping duty investigations will be the same as that for this countervailing duty investigation except that the final Commerce antidumping duty determinations and the parties' final comments concerning those determinations will be added to the record. Commerce is due to issue final antidumping duty determinations no later than September 19, 2018. *See Polytetrafluoroethylene Resin From the People's Republic of China: Preliminary Affirmative Determination of Sales at Less Than Fair*
(Continued...)

U.S. industry data are based on the questionnaire responses from eight firms believed to account for the vast majority of domestic production of PTFE in 2017. U.S. import data are based on official Commerce import statistics and from questionnaire responses of 16 U.S. importers of PTFE. Questionnaire responses accounted for *** percent of subject imports from China and *** percent of subject imports from India during 2017.[5] Foreign industry data and related information are based on the questionnaire responses of 10 producer/exporters of PTFE in China accounting for approximately *** percent of PTFE capacity in China in 2017 and approximately *** percent of production in China and *** percent of U.S. imports from China in 2017,[6] and the questionnaire response of one producer and exporter of PTFE from India accounting for *** percent of PTFE production in India and *** percent of U.S. imports from India in 2017.[7]

II. Domestic Like Product

A. In General

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."[8] Section 771(4)(A) of the Tariff Act of 1930, as amended ("the Tariff Act"), defines the relevant domestic industry as the "producers as a whole of a domestic like product, or those producers whose collective output of a domestic like product constitutes a major proportion of the total domestic production of the product."[9] In turn, the Tariff Act defines "domestic like product" as "a product which is like, or in the absence of like, most similar in characteristics and uses with, the article subject to an investigation."[10]

The decision regarding the appropriate domestic like product in an investigation is a factual determination, and the Commission has applied the statutory standard of "like" or "most similar in characteristics and uses" on a case-by-case basis.[11] No single factor is

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(…Continued)
Value, Postponement of Final Determination, and Extension of Provisional Measures, 83 Fed. Reg. 20035, 20037 (May 7, 2018).

[5] Confidential Report ("CR") at I-5, IV-1, Public Report ("PR") at I-4, IV-1.

[6] CR at VII-3, PR at VII-3.

[7] CR at VII-12, PR at VII-10.

[8] 19 U.S.C. § 1677(4)(A).

[9] 19 U.S.C. § 1677(4)(A).

[10] 19 U.S.C. § 1677(10).

[11] *See*, *e.g.*, *Cleo Inc. v. United States*, 501 F.3d 1291, 1299 (Fed. Cir. 2007); *NEC Corp. v. Department of Commerce*, 36 F. Supp. 2d 380, 383 (Ct. Int'l Trade 1998); *Nippon Steel Corp. v. United States*, 19 CIT 450, 455 (1995); *Torrington Co. v. United States*, 747 F. Supp. 744, 749 n.3 (Ct. Int'l Trade 1990), *aff'd*, 938 F.2d 1278 (Fed. Cir. 1991) ("every like product determination 'must be made on the particular record at issue' and the 'unique facts of each case'"). The Commission generally considers a number of factors, including the following: (1) physical characteristics and uses; (2) interchangeability; (Continued...)

dispositive, and the Commission may consider other factors it deems relevant based on the facts of a particular investigation.[12] The Commission looks for clear dividing lines among possible like products and disregards minor variations.[13] Although the Commission must accept Commerce's determination as to the scope of the imported merchandise that is subsidized or sold at less than fair value ("LTFV"),[14] the Commission determines what domestic product is like the imported articles Commerce has identified.[15]

B. Product Description

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

> The product covered by this investigation is polytetrafluoroethylene (PTFE) resin, including but not limited to granular, dispersion, or coagulated dispersion (also known as fine powder). PTFE is covered by the scope of this investigation whether filled or unfilled, whether or not modified, and whether or not containing co-polymer additives, pigments, or other materials. Also included is PTFE wet raw polymer. The chemical formula for PTFE is C_2F_4, and the Chemical Abstracts Service Registry number is 9002-84-0.

(…Continued)
(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).

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

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

[14] *See*, *e.g., USEC, Inc. v. United States*, 34 Fed. Appx. 725, 730 (Fed. Cir. 2002) ("The ITC may not modify the class or kind of imported merchandise examined by Commerce."); *Algoma Steel Corp. v. United States*, 688 F. Supp. 639, 644 (Ct. Int'l Trade 1988), *aff'd*, 865 F.3d 240 (Fed. Cir.), *cert. denied*, 492 U.S. 919 (1989).

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

> PTFE further processed into micropowder, having particle size typically ranging from 1 to 25 microns, and a melt-flow rate no less than 0.1 gram/10 minutes, is excluded from the scope of this investigation.
>
> PTFE is classified in the Harmonized Tariff Schedule of the United States (HTSUS) under subheadings 3904.61.0010 and 3904.61.0090. Subject merchandise may also be classified under HTSUS subheading 3904.69.5000. Although the HTSUS subheadings and CAS Number are provided for convenience and Customs purposes, the written description of the scope is dispositive.[16]

PTFE is a polymer more commonly known as Teflon, a registered trade name of Chemours.[17] It is used for various applications primarily for its low friction properties.[18] PTFE is used to produce gaskets, pipe liners, films, or coatings on another surface, among other products.[19]

All forms of PTFE are produced from tetrafluoroethylene ("TFE"). Because TFE is a volatile chemical, all domestic manufacturers of PTFE begin first by producing TFE on site and then polymerizing it to produce PTFE.[20] PTFE is produced in granular, fine powder, and dispersion (liquid) forms. Granular PTFE is produced through suspension polymerization during which dried PTFE particles are cut to achieve the desired size.[21] Fine powder PTFE is also a dried PTFE product, but one in which the particle sizes are generally larger than granular PTFE.[22] Fine powder PTFE is produced through dispersion polymerization and undergoes the additional steps of agglomeration, separation, and drying to produce the fine powder product. Dispersion PTFE is also produced by dispersion polymerization that suspends the PTFE particles, resulting in a white solution.[23]

C. Arguments of the Parties

Petitioner's Arguments. Petitioner contends that the Commission should continue to define a single domestic like product, coextensive with the scope, as it did in the preliminary phase of this investigation. It argues that in cases involving chemical products, the Commission has historically defined a single domestic like product consisting of various forms/grades of a chemical, despite differences in physical form.[24] Petitioner argues that PTFE products in all

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[16] *Polytetrafluoroethylene (PTFE) Resin from India: Final Affirmative Countervailing Duty Determination*, 83 Fed. Reg. 23422, 23423 (May 21, 2018).

[17] CR at I-10, PR at I-8.

[18] CR at I-11, PR at I-8.

[19] CR at I-14, PR at I-11.

[20] CR at I-14-15, PR at I-8-12.

[21] CR at I-14-17, PR at I-8-13.

[22] CR at I-17-19, PR at I-14-15.

[23] CR at I-17-19, PR at I-14-15.

[24] Petitioner Posthearing Brief at Exhibit I-11.

forms share the same chemical formula and the same physical characteristics such as chemical inertness, heat and chemical resistance, a low coefficient of friction, and functionality over a wide temperature range.[25] It contends that while the different forms of PTFE are produced using somewhat different processes, all forms begin with TFE, and that the two domestic producers, Chemours and Daikin, produce them on the same premises.[26] Petitioner asserts that there are overlaps in end uses among the different forms of PTFE, particularly between granular and fine powder PTFE, such as for gaskets, seals, rings, film, electrical insulation, and wire coating.[27] It observes that regardless of form, all PTFE can be blended with additives.[28] Petitioner contends that there are multiple ways of producing the same product using different forms of PTFE, and that different manufacturers use different technologies to produce the same end-use product.[29] It maintains that purchasers generally agreed that customers and producers perceive the different forms of PTFE as being somewhat comparable.[30] Petitioner asserts that questionnaire respondents indicated that there is overlap in channels of distribution between the different forms of PTFE, which are all sold directly to end users and distributors.[31] It also argues that PTFE, regardless of form, is sold at a wide and overlapping range of prices.[32]

Respondents' Arguments. PPA contends that the Commission should define three separate domestic like products consisting of granular, fine powder, and dispersion PTFE.[33] PPA contends that, in their questionnaire responses, market participants indicated clear distinctions between the different forms of PTFE.[34] PPA argues that the Commission took too broad an approach in its preliminary determinations and that it should reconsider its position based on distinct differences in physical characteristics and end uses as reported by questionnaire respondents.[35] It states that while all forms of PTFE could potentially be used for the same general applications, the nature of the final product produced from each form is sufficiently distinct to warrant clear dividing lines between all three forms.[36] PPA also argues that the

[25] Petitioner Prehearing Brief at 10-11.

[26] Tr. at 71 (Cannon); Petitioner Posthearing Brief at Exhibit I-23.

[27] Petitioner Prehearing Brief at 11-12. Petitioner contends that questionnaire respondents interpreted "interchangeability" literally and reported no interchangeability even if a change in form would change processing time. Petitioner Posthearing Brief at Exhibit I-15.

[28] Petitioner Posthearing Brief at Exhibit I-10.

[29] Tr. at 20-22 (Hoeck), 63-66 (Hayes); 68-69 (Alves); Petitioner Prehearing Brief at 16-17; Petitioner Posthearing Brief at 3.

[30] Petitioner Prehearing Brief at 17.

[31] Petitioner Prehearing Brief at 17.

[32] Petitioner Prehearing Brief at 18-19.

[33] PPA Prehearing Brief at 8-9. AGC takes no position on the domestic like product definition. Tr. at 190 (Freed). GFL argues that the Commission should define three domestic like products, but does not present any new support for this argument in the final phase of this investigation. GFL Posthearing Brief at 1.

[34] PPA Prehearing Brief at 9.

[35] PPA Prehearing Brief at 10-12.

[36] PPA Prehearing Brief at 13-14 (using film as an example).

Commission was correct in finding in the preliminary phase of this investigation that there is little interchangeability between the three forms of PTFE. It argues that 83 percent of questionnaire responses indicate that the three forms are not at all or only somewhat comparable.[37] With regard to manufacturing facilities, respondents argue that there is a clear dividing line between the manufacturing process used to produce granular PTFE and the processes used for fine powder and dispersion PTFE.[38] They contend that ***.[39] PPA argues that questionnaire responses indicate that producers and customers perceive the three forms of PTFE as not at all comparable.[40] It contends that the different forms of PTFE also have different ASTM numbers, highlighting the differences between the three forms.[41] PPA argues that prices for granular PTFE are generally lower than prices for dispersion PTFE and fine powder PTFE, with questionnaire respondents reporting that fine powder PTFE is generally the most expensive form of PTFE.[42] PPA further maintains that there are differences in channels of distribution in that dispersion PTFE must be protected from freezing whereas fine powder PTFE is shipped refrigerated.[43]

D. Domestic Like Product Analysis

In the preliminary determinations, we defined a single domestic like product, consisting of PTFE, coextensive with the scope.[44] In the final phase of this investigation, we continue to define a single domestic like product consisting of PTFE, coextensive with the scope.

Physical Characteristics and Uses. The three forms have an identical chemical formula. Granular and fine powder PTFE look similar in that they are both dry granules, and they have a substantial overlap in particle size.[45] Dispersion PTFE has a distinct appearance because it is a liquid in which particles of PTFE are suspended.[46] All PTFE has the same chemical properties regardless of form; it is inert, heat resistant, and, among other characteristics, has a low coefficient of friction.[47] The combination of these properties in PTFE contribute to the versatility of its end uses. A commonly cited attribute of end-use PTFE products is their low friction properties. Moreover, end users use PTFE specifically for the low-friction properties that all forms of PTFE share. The majority of questionnaire respondents indicated that the three forms of PTFE were not at all comparable in physical characteristics, but other evidence

[37] PPA Prehearing Brief at 16-18; PPA Posthearing Brief at 8.

[38] PPA Prehearing Brief at 19.

[39] PPA Prehearing Brief at 20.

[40] PPA Prehearing Brief at 22-23.

[41] PPA Posthearing Brief at 2.

[42] PPA Prehearing Brief at 23-24.

[43] PPA Prehearing Brief at 25-26.

[44] Preliminary Opinion, USITC Pub. 4741 at 8-10.

[45] CR at I-11, PR at I-9. Granular PTFE has particle sizes ranging from 20 to 650 microns, and fine powder PTFE has particle sizes ranging from 370 to 675 microns. *Id.*

[46] CR at I-14, PR at I-11.

[47] CR at I-13-14, PR at I-8.

on the record shows that there is overlap in end uses.[48] PTFE in all forms can be used to manufacture film,[49] pipe liners,[50] tubing,[51] and gaskets.[52] There are some distinct end uses for which only one form of PTFE is generally used, such as dispersion PTFE to coat cookware.[53]

Manufacturing Facilities, Production Processes and Employees. All forms of PTFE are produced from TFE and in the same facilities, although there are some differences in machinery. The production of TFE accounts for the majority of the total cost of producing all three forms of PTFE.[54] Granular PTFE is not produced on the same equipment as fine powder and dispersion PTFE, which share some common machinery.[55] Chemours reports that it uses the same workforce to maintain machinery, which also shares utilities and support services, and that all forms of PTFE are produced on the same premises.[56]

Channels of Distribution. Questionnaire respondents generally agreed that all three forms of PTFE were at least somewhat similar in channels of distribution, as each is sold to end users and distributors.[57] Chemours reported that *** of its shipments of granular PTFE went to *** and *** of its shipments of fine powder and dispersion PTFE went to *** and *** to distributors.[58] Daikin reported that ***.[59]

Interchangeability. Most questionnaire respondents reported that the three forms of PTFE are not at all comparable as to interchangeability. Purchasers reported that because their equipment can only process one form of PTFE, they were unable to substitute one form of PTFE for another.[60] The record also shows that all three forms of PTFE can generally be used to manufacture the same or similar end-use product, using different machinery and processes, and with some differences in mechanical properties.[61] Purchasers thus select the form of PTFE

[48] CR at I-23-24, PR at I-17-18; CR at D-14, D-24, and D-29, PR at D-3; Petitioner Posthearing Brief at Table 2 (listing confirmed end use and hearing testimony supporting overlap in forms used).

[49] Tr. at 21-24 (Hoeck).

[50] Tr. at 22 (Hoeck).

[51] Tr. at 24-25, 62-63 (Hoeck).

[52] Tr. at 33, 61-62 (Hoeck).

[53] Tr. at 103 (Bailie); CR/PR at Table D-2 (***).

[54] Petitioner Prehearing Brief at 9.

[55] CR at I-14-18, PR at I-11-14, CR/PR at Figure I-2; Tr. at 19 (Hoeck). The majority of questionnaire respondents indicated that the three forms of PTFE were not comparable in terms of manufacturing. CR/PR at Table I-4.

[56] Tr. at 19 (Hoeck).

[57] CR at I-26, Table I-4, D-4-8, D-26, D-30, D-33-34, PR at I-19, Table I-4, D-3. Some responding firms observed that ***. CR at D-4-5, and D-16-17, PR at D-3.

[58] Chemours U.S. Producer Questionnaire Response, EDIS Doc. 644153 at II-8, II-13, and II-18.

[59] Daikin U.S. Producer Questionnaire Response, EDIS Doc. 647783 at II-8, II-13, and II-18.

[60] *See, e.g.,* Tr. at 61-62 (Hoeck); Petitioner Posthearing Brief at Exhibit 1-15; CR/PR at Tables D-1-3 (***).

[61] *See* PPA Prehearing Brief at 13-15 (all three forms of PTFE "could potentially be used in the same general application").

they will use to manufacture a product based on characteristics desired for the specific application and based on the specific equipment they have available.[62]

Producer and Customer Perceptions. The majority of questionnaire respondents indicated that they perceived granular, dispersion, and fine powder PTFE as not comparable.[63] Several of the narrative responses concerning producer and customer perceptions focus on the differences in equipment needed for processing.[64]

Price. The record indicates that, on a per pound basis, prices for the two domestically produced fine powder products were generally higher than the two domestically produced granular products, and that the price for the domestically produced dispersion product generally overlapped the prices for granular products.[65] There is a broad range of prices for granular products, and in some quarters the higher priced domestically produced granular product was closer in price to the lower priced fine powder product than to the lower priced granular product.[66]

Conclusion. We acknowledge that the record contains material indicating both substantial similarities and substantial distinctions between the various forms of PTFE. Indeed, there are several differences between the granular, fine powder, and dispersion PTFE, particularly with respect to interchangeability and customer perceptions. On the other hand, PTFE in all forms has the same chemical formula and low-friction, stable characteristics, although the different forms vary in their appearance. All three forms share common end-use applications. The record also shows that all forms of in-scope PTFE share similar channels of distribution in that all forms are sold to end users and distributors. There are distinctions in equipment used to produce granular, fine powder, and dispersion PTFE, although dispersion and fine powder PTFE production share some overlapping production equipment. Nonetheless, the information in the record indicates that Chemours, ***, produces all three forms using the same employees and in the same facilities. We recognize that market participants indicated in questionnaire responses that the three forms have limitations in interchangeability and are not comparable with respect to producer and customer perceptions. The Commission, however, "[has] never viewed complete interchangeability as a definitive requirement for inclusion of multiple domestic products in single like product."[67] Furthermore, there are no clear dividing lines between prices for the different forms of PTFE, given the overlap between the granular and fine dispersion prices and the broad range of prices for granular products. On balance, we find that the similarities between the various forms of PTFE outweigh the distinctions, and consequently define a single domestic like product, coextensive with the scope.

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[62] Tr. at 21-22 (Hoeck), 33 (Hayes), 61-63 (Hoeck), 65-67 (Hayes), 130 (Ebnesajjad); CR/PR at Table D-2 (***) ("properties of the finished article are more important than what it is made from").

[63] CR/PR at Table I-4.

[64] CR/PR at Table D-2-3 (***). One purchaser reported that ***. *Id.* at Table D-3.

[65] CR/PR at Tables V-3-7. The majority of responding purchasers found the three different PTFE products not comparable in terms of price. CR/PR at Table I-4.

[66] CR/PR at Tables V-3-4, V-6.

[67] *Polyethylene Terephthalate File, Sheet, and Strip from Japan and the Republic of Korea*, Inv. Nos. 731-TA-458 and 459 (Final), USITC Pub. 2383 at 4 (May 1991).

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

There are two sets of domestic industry issues in this investigation. The first involves whether certain processors of PTFE engage in sufficient production-related activities to be considered producers of the domestic like product. The second concerns whether appropriate circumstances exist to exclude any producers from the domestic industry pursuant to the statutory related parties provision.[69]

A. Sufficient Production-Related Activities

In deciding whether a firm qualifies as a producer of the domestic like product, the Commission generally analyzes the overall nature of a firm's U.S. production-related activities, although production-related activity at minimum levels could be insufficient to constitute domestic production.[70]

1. Arguments of the Parties

Petitioner's Arguments. Petitioner argues that the Commission should define the domestic industry as consisting solely of two PTFE producers (Chemours and Daikin), and should not include six processors that submitted responses to the producer's questionnaire.[71] It contends that the processors' capital expenditures were much lower than those of Chemours

[68] 19 U.S.C. § 1677(4)(A).

[69] In the preliminary determinations, both of these issues were raised. The Commission declined to include processors in the domestic industry on the basis that it did not have sufficient information on the preliminary record for an analysis and found appropriate circumstances did not exist to exclude any related parties from the domestic industry. Preliminary Opinion, USITC Pub. 4741 at 10-13.

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

[71] Petitioner Prehearing Brief at 19. Blenders, fillers, and compounders all perform similar functions and the three terms are used interchangeably by parties in this investigation. *See* Tr. at 54 (Hayes). AGC Posthearing Brief at 1. For purposes of this opinion, we refer to all blenders, fillers, and compounders as "processors."

and Daikin.[72] Petitioner asserts that Chemours and Daikin had higher employment levels, greater value added, and *** greater share of parts sourced in the United States. It observes that processing does not alter the chemical or polymeric structure of the product.[73]

Respondents' Arguments. Respondents contend that processors should be included in the domestic industry.[74] They assert that the extent of capital investment for processors *** the capital expenditures made by producers.[75] They contend that processors' aggregate research and development ("R&D") expenses exceeded the R&D expenses for PTFE producers.[76] Respondents argue that conversion costs for PTFE filling were *** than for PTFE production, but that the value added is high.[77] Respondents contend that the number of production related workers ("PRWs") is *** for both producers and processors.[78]

2. Analysis and Conclusion

Source and extent of the firm's capital investment. Chemours' and Daikin's capital investments during the 2015-17 period of investigation (POI) were far greater than those of processors.[79]

Technical expertise involved. PTFE production begins with volatile chemicals, notably TFE, which must be contained, resulting in a highly controlled process that ends with PTFE. By contrast, PTFE processing begins with one of three forms of PTFE and utilizes many diverse formulas and recipes for manufacturing filled, blended, or compounded PTFE.[80] Hourly wages paid to PRWs engaged in processing activities were higher than the hourly wages paid to PRWs engaged in PTFE production.[81] Respondents assert that processing operations employ trained engineers with advanced degrees and that factory floor workers are highly trained due to the precise nature of processing.[82] AGC asserts that R&D expenses reflect the higher level of technical expertise required for PTFE processing. It contends that its factory floor workers are more highly trained than factory floor workers at Chemours or Daikin because PTFE production is almost entirely automated whereas PTFE compounding requires different recipes and

[72] Petitioner Prehearing Brief at 20.

[73] Petitioner Prehearing Brief at 20-21.

[74] Tr. at 13-14, 145-146 (Schutzman); Respondents Prehearing Brief at 5.

[75] AGC Prehearing Brief at 3.

[76] AGC Prehearing Brief at 3-4.

[77] AGC Prehearing Brief at 4; AGC Posthearing Brief at 12.

[78] AGC Prehearing Brief at 4.

[79] CR/PR at Table III-4.

[80] AGC Posthearing Brief at 13.

[81] *Compare* CR/PR at Table III-15 to Table III-16. Hourly wages for PRWs engaged in PTFE production were *** per hour in 2015, 2016, and 2017 respectively. Hourly wages for PRWs engaged in PTFE processing were *** per hour in 2015, 2016, and 2017 respectively. *Id.*

[82] AGC Posthearing Brief at 12-13.

accurate manual operation of machinery.[83] Processors' R&D expenses during the POI exceeded those of Chemours and Daikin.[84]

Value added to the product in the United States. The value added for PTFE manufacturing ranged from *** percent of the total cost of goods sold ("COGS") during the POI, and value added for PTFE processing ranged from *** percent.[85]

Employment levels. The number of PRWs in PTFE manufacturing was *** in 2015, *** in 2016, and *** in 2017.[86] The number of PRWs in PTFE processing was *** in 2015, *** in 2016, and *** in 2017.[87]

Quantity and type of parts sourced in the United States. The value of domestically sourced raw materials for PTFE production was far higher than that for PTFE processing.[88] On an annual basis, domestic PTFE represented between *** percent of individual processors' total PTFE inputs; the average for all processors during the POI was *** percent.[89] By contrast, for individual processors, subject imports comprised *** percent of total PTFE inputs on an annual basis and averaged *** percent for all processors.[90]

Conclusion. While the amount for capital investment for processing PTFE was *** lower than that for PTFE production, processors' capital investment was not insubstantial. Similarly, the degree of technical expertise, as reflected in R&D expenses, required for PTFE processing is high. The number of PRWs in PTFE production and PTFE processing are roughly comparable. Although PTFE production contributes greater valued added than PTFE processing, the value added by PTFE processing is still high. Domestically produced PTFE encompassed an appreciable proportion of domestic processors' PTFE inputs, although this proportion was smaller than the proportion of subject import inputs. In light of processors' high levels of employment, value added, and technical expertise, we find that processors engage in sufficient production-related activity to be considered producers of the domestic like product.

B. Related Parties

We next 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.[91] Exclusion of such a producer is within the Commission's discretion based upon the facts presented in each investigation.[92]

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[83] AGC Posthearing Brief at 13.

[84] CR/PR at Table VI-8.

[85] CR/PR at Table III-4.

[86] CR/PR at Table III-15

[87] CR/PR at Table III-16.

[88] CR/PR at Table III-4.

[89] CR/PR at Table III-14.

[90] CR/PR at Table III-14.

[91] *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 (Continued...)

*** domestic PTFE producers and processors *** are related parties because each imported subject merchandise during the POI.[93]

Petitioner's Arguments. Petitioner contends that appropriate circumstances exist to exclude *** processors from the domestic industry as importers of subject merchandise.[94] It asserts that ***. Petitioner argues that *** of PTFE inputs used by five processors.[95] It asserts that the processors' primary interests lie in importation of subject imports rather than domestic production.[96]

Respondents' Arguments. AGC argues that its *** and asserts that this shows that it did not benefit from its subject imports.[97]

Analysis. We discuss below for each of the related party producers whether appropriate circumstances exist to exclude it from the domestic industry.

Chemours. Chemours is a related party because it imported subject merchandise during the POI.[98] Chemours is the petitioner in this investigation and accounted for *** percent of domestic PTFE production operations in 2017.[99] Chemours imported *** pounds of PTFE from *** in 2015, *** pounds in 2016, and *** pounds in 2017; it imported *** pounds of PTFE from *** in 2017.[100] Its ratio of subject imports to domestic production was *** percent in 2015, *** percent in 2016, and *** percent in 2017. It states that it imported ***.[101] Chemours'

(…Continued)
(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).

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

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

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

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

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

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

[93] CR/PR at Tables III-3 and III-13-14.

[94] Petitioner Prehearing Brief at 22. This argument appears to be based on a misinterpretation of Table III-14 in the prehearing report. ***. *See* *** Revised U.S. Producer Questionnaire Response, EDIS Doc. 644155 at Question II-6.

[95] Petitioner Prehearing Brief at 22.

[96] Petitioner Prehearing Brief at 22-23.

[97] AGC Posthearing Brief at 9.

[98] Additionally, Chemours shares common ownership with The Chemours China Holding Co. Ltd., ***. CR/PR at Table III-3.

[99] CR/PR at Table III-1. Production and processing operations have been tabulated separately.

[100] CR/PR at Table III-13.

[101] CR/PR at Table III-13.

ratio of imports to domestic production declined but its operating income fluctuated during the POI. Its operating income ratio was *** percent in 2015, *** percent in 2016, and *** percent in 2017.[102] Because Chemours' principal interest lies in domestic production, we find that appropriate circumstances do not exist to exclude Chemours as a related party.

Daikin. Daikin is a related party because it imported subject merchandise from *** during the POI.[103] It accounted for *** percent of domestic production of PTFE in 2017. It *** the petitions.[104] Daikin's volume of subject imports declined irregularly over the POI. It imported *** pounds of subject merchandise *** in 2015, *** pounds in 2016, and *** pounds in 2017.[105] Its ratio of subject imports to domestic production was *** percent in 2015, *** percent in 2016, and *** percent in 2017. Daikin states that its reasons for importing are ***.[106] Daikin's operating income ratio was *** percent in 2015, *** percent in 2016, and *** percent in 2017.[107] Because Daikin's principal interest lies in domestic production, we find that appropriate circumstances do not exist to exclude Daikin from the domestic industry as a related party.

3M. 3M is a processor that accounted for *** percent of reported domestic processing operations in 2017. It *** the petitions.[108] 3M imported *** pounds of subject merchandise in 2015, *** pounds in 2016, and *** pounds in 2017. Its ratio of subject imports to domestic production decreased from *** percent in 2015 to *** percent in 2016, then increased to *** percent in 2017.[109] Its operating ratio was *** percent in 2015, *** percent in 2016, and *** percent in 2017.[110] 3M does not appear to have benefitted from its imports of subject merchandise. Although 3M's operating ratio and subject imports both increased overall during the POI, 3M's operating ratio increased between 2015 and 2016 despite a decline in subject imports. Because 3M's domestic production far exceeds its subject imports, we find that appropriate circumstances do not exist to exclude 3M from the domestic industry as a related party.

AGC Chemicals. AGC is a processor that imported subject merchandise during the POI and.[111] AGC accounted for *** percent of reported domestic processing operations in 2017.[112] It appeared at the hearing in opposition to the petitions.[113] AGC imported *** pounds of subject merchandise *** in 2015, *** pounds in 2016, and *** pounds in 2017. AGC's ratio of subject imports to domestic production was *** percent in 2015, *** percent in 2016, and ***

[102] CR/PR at Table VI-7.
[103] CR/PR at Table III-13. Additionally, Daiken is ***. CR/PR at Table III-3.
[104] CR/PR at Table III-1.
[105] CR/PR at Table III-13.
[106] CR/PR at Table III-13.
[107] CR/PR at Table VI-7.
[108] CR/PR at Table III-2.
[109] CR/PR at Table III-14.
[110] CR/PR at Table VI-7.
[111] AGC also ***. *See* AGC U.S. Producer Questionnaire Response, EDIS Doc. 642399 at 5, AGC Importer Questionnaire Response, EDIS Doc. 643133 at 5.
[112] CR/PR at Tables III-2-3.
[113] Tr. at 119-25 (Dougherty).

percent in 2017.[114] Its operating income ratio was *** percent in 2015, *** percent in 2016, and *** percent in 2017.[115] It does not appear to have benefitted from its imports of subject merchandise; its operating ratio fluctuated during the POI and did not correlate with its imports of subject merchandise. We therefore find that appropriate circumstances do not exist to exclude AGC from the domestic industry as a related party.

Flontech. Flontech accounted for *** percent of reported domestic processing operations in 2017. It *** the petitions.[116] Flontech imported *** pounds of subject merchandise in 2015, *** pounds in 2016, and *** pounds in 2017. Its ratio of subject imports to domestic production was *** percent in 2015, *** percent in 2016, and *** percent in 2017.[117] Its operating income ratio was *** percent in 2015, *** percent in 2016, and *** percent in 2017.[118] Flontech does not appear to have benefitted from its imports of subject merchandise; its operating income ratio fluctuated during the POI and did not correlate with its imports of subject merchandise. We therefore find that appropriate circumstances do not exist to exclude Flontech from the domestic industry as a related party.

Freudenberg. Freudenberg began domestic sales in 2016 and accounted for *** percent of reported domestic processing operations in 2017.[119] It *** the petitions.[120] It imported *** pounds of subject merchandise in 2016, and *** pounds in 2017. Freudenberg's ratio of imports of subject merchandise to U.S. production was *** percent in 2016, and *** percent in 2017.[121] Its operating ratio was *** percent in 2016, and *** percent in 2017.[122] Although Freudenberg imported an increasing volume of subject imports during the POI, its ratio of subject imports to domestic production decreased.[123] Despite its *** ratios of subject merchandise to domestic production, Freudenberg's operating ratio improved as its domestic production increased, and there is no indication that it benefitted by its importation of subject merchandise.[124] We find that appropriate circumstances do not exist to exclude Freudenberg from the domestic industry as a related party.

GFL. GFL is a processor that ***.[125] It accounted for *** percent of reported domestic processing operations in 2017.[126] It ***.[127] GFL imported *** pounds of subject merchandise *** in 2015, *** pounds in 2016, and *** pounds in 2017. GFL's ratio of subject imports to

[114] CR/PR at Table III-14.
[115] CR/PR at Table VI-7.
[116] CR/PR at Table III-2.
[117] CR/PR at Table III-14.
[118] CR/PR at Table VI-7.
[119] CR/PR at VI-1 n.3, Table III-2.
[120] CR/PR at Table III-2.
[121] CR/PR at Table III-14.
[122] CR/PR at Table VI-7.
[123] CR/PR at Table III-14.
[124] CR/PR at Table III-14.
[125] CR/PR at Table III-14.
[126] CR/PR at Tables III-2-3.
[127] CR/PR at Table III-2.

domestic production was *** percent in 2015, *** percent in 2016, and *** percent in 2017.[128] GFL reports that it ***.[129] Its operating ratio was *** percent in 2015, *** percent in 2016, and *** percent in 2017.[130] GFL is directly related to a subject producer and *** percent of its compounding activities are performed using subject imports.[131] Its ratio of subject imports to domestic production is extremely high. GFL's principal interest appears to be in the importation of subject merchandise. We therefore find that appropriate circumstances exist to exclude GFL from the domestic industry as a related party.

C. Conclusion

For the foregoing reasons, and in light of our domestic like product definition, we define a single domestic industry consisting of all U.S. producers and processors of PTFE and find that appropriate circumstances exist to exclude GFL from the domestic industry as a related party.[132]

IV. Cumulation[133]

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

[128] CR/PR at Table III-14.

[129] CR/PR at Table III-14.

[130] CR/PR at Table VI-7.

[131] CR/PR at Table III-14.

[132] We observe that the responding processors comprise a small portion of the domestic industry and that the exclusion of their data would not change the underlying trade, market share, employment, or financial trends for the domestic industry during the POI. *Compare* CR/PR at Table C-1 *with id.* at Table C-2. Similarly, we find that including data from GFL also would not change the underlying domestic industry trends. *Compare* CR/PR at Table C-2 *with id.* at Table C-6.

[133] Pursuant to Section 771(24) of the Tariff Act, imports from a subject country of merchandise corresponding to a domestic like product that account for less than 3 percent of all such merchandise imported into the United States during the most recent 12 months for which data are available preceding the filing of the petition shall be deemed negligible. 19 U.S.C. §§ 1671b(a), 1673b(a), 1677(24)(A)(i), 1677(24)(B); *see also* 15 C.F.R. § 2013.1 (developing countries for purposes of 19 U.S.C. § 1677(36)). In the case of countervailing duty investigations involving developing countries (as designated by the United States Trade Representative), the statute indicates that the negligibility limits are 4 percent and 9 percent, rather than 3 percent and 7 percent. 19 U.S.C. § 1677(24)(B). India is a developing country and thus the 4 percent negligibility threshold applies to this investigation. 15 C.F.R. § 2013.1.

Imports from India exceed the statutory negligibility threshold. From September 2016 to August 2017, the 12-month period prior to filing of the petitions, subsidized subject imports from India accounted for *** percent of total PTFE imports. CR/PR at Table IV-3.

imports compete with each other and with the domestic like product, the Commission generally has considered four factors:

(1) the degree of fungibility between subject imports from different countries and between subject imports and the domestic like product, including consideration of specific customer requirements and other quality related questions;

(2) the presence of sales or offers to sell in the same geographic markets of subject imports from different countries and the domestic like product;

(3) the existence of common or similar channels of distribution for subject imports from different countries and the domestic like product; and

(4) whether the subject imports are simultaneously present in the market.[134]

While no single factor is necessarily determinative, and the list of factors is not exclusive, these factors are intended to provide the Commission with a framework for determining whether the subject imports compete with each other and with the domestic like product.[135] Only a "reasonable overlap" of competition is required.[136]

A. Arguments of the Parties

Petitioner's Arguments. Petitioner argues that the Commission should consider subject imports on a cumulated basis. It contends that regardless of purported grade differences, subject imports from China and India are sufficiently fungible with each other and with the domestic like product to satisfy the Commission's fungibility criterion for cumulation.[137]

Respondents' Arguments. Respondents argue that PTFE from China is not fungible with PTFE from India due to differences in grade. They contend that PTFE from India is almost wholly reported as commodity grade whereas PTFE from China is predominantly specialty

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

[135] *See*, *e.g.*, *Wieland Werke, AG v. United State*s, 718 F. Supp. 50 (Ct. Int'l Trade 1989).

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

[137] Petitioner Posthearing Brief at 4.

grade.[138] Respondents argue that because the Commission found in its preliminary determinations that commodity grade cannot be substituted for specialty grade PTFE, it follows that only commodity grade PTFE is fungible with other commodity grade PTFE.[139] Respondents contend that with respect to channels of distribution, *** PTFE from China was sold to fillers and processors in contrast to only a small portion of PTFE from India.[140] Respondents argue that *** of PTFE from China entered the United States in the western region, whereas PTFE from India ***.[141] Respondents do not challenge the Commission's use of its traditional four-factor analysis, but they assert that additional considerations compel against cumulation. Specifically, they mention disparate subject import volume trends between subject imports from China and India, and differences in average unit values (AUVs).[142]

B. Analysis and Conclusion

We consider subject imports from China and India on a cumulated basis, because the criteria for cumulation are satisfied. As an initial matter, the statutory threshold for cumulation is satisfied in this investigation because petitioner filed the antidumping/countervailing duty petitions with respect to both countries on the same day, September 28, 2017.[143] [144]

Fungibility. The parties' arguments on fungibility focus on asserted differences between subject imports from China and India. The data in the record do not indicate a lack of comparability between subject imports from China and India. Indeed, a majority of purchasers found that subject imports from China and India were comparable to each other in all 19 product factors surveyed, including product range.[145] Moreover, there were numerous pricing observations for the domestic product, subject imports from China, and subject imports from

[138] PPA Prehearing Brief at 28.

[139] PPA Prehearing Brief at 30.

[140] PPA Prehearing Brief at 33.

[141] PPA Prehearing Brief at 33-34.

[142] PPA Prehearing Brief at 34.

[143] None of the statutory exceptions to cumulation applies. We observe that these investigations involve preliminary dumping findings regarding PTFE from China and India and subsidy findings regarding PTFE from India. Consequently, any decision to cumulate imports from all subject sources in these investigations will involve "cross-cumulating" dumped imports with subsidized imports. We have previously explained why we are continuing our longstanding practice of cross-cumulating. *See Polyethylene Terephthalate (PET) Resin from Canada, China, India, and Oman,* Inv. Nos. 701-TA-531-532 and 731-TA-1270-1273 (Final), USITC Pub. 4604 at 9-11 (April 2016).

[144] Respondents' argument that the Commission should consider additional non-statutory factors, such as volume and AUV trends, in considering whether to cumulate for its analysis of material injury by reason of subject imports, does not suggest that the factors on which the Commission has long relied in determining reasonable overlap of competition are inconsistent with the statute.

[145] CR/PR at Table II-11. Majorities or pluralities of purchasers found domestic PTFE resin and subject imports from China comparable in nine of these factors, and domestic PTFE resin and subject imports from India comparable in 14 of these factors. *Id*. Additionally, all purchasers found subject imports from China and India frequently or sometimes interchangeable with each other. CR/PR at Table II-12.

India in four of the five pricing products.[146] Respondents' have challenged the pricing data on the grounds that it does not distinguish between "commodity" and "specialty" products, and point to questionnaire data indicating a distinction between the proportion of "commodity" and "specialty" products imported from China and India. Even if we were to take respondents' characterization of the record at face value, we do not agree that a distinction between "commodity" and "specialty," to the extent it exists, limits fungibility between subject imports from China and India. There are no standard industry definitions of commodity and specialty grades.[147] The record indicates that the vast majority of PTFE purchasers require qualification or certification of PTFE, which therefore indicates that there is little practical significance whether the product the purchaser uses is categorized as commodity or specialty grade PTFE.[148] Indeed, petitioner observes, and we agree, that questionnaire respondents and market participants appear to define commodity and specialty grades solely by the requirements of their customers.[149] The record also shows that ***, which blurs the lines between specialty and commodity grade PTFE.[150] Moreover, at least one purchaser ***,[151] which, coupled with respondents' shifting contentions concerning the characteristics of certain subject imports, further highlights the muddled distinctions between these terms.[152] Consequently, the record indicates an overlap in the products offered by both domestic producers and imports from China and India, and does not indicate any clear distinctions between the products imported from different subject sources.

Channels of Distribution. *** subject imports from China are sold to end users and *** are sold to processors.[153] The *** of subject imports from India are sold *** end users with *** to processors.[154] The domestic like product is sold mainly to processors, but a large portion of domestic PTFE is sold to end users, and a modest share is sold to distributors. Consequently, a substantial proportion (at least *** percent) of each year's shipments of PTFE resin from domestic producers, subject imports from China, and subject imports from India were sold to end users, and there was an overlap in sales to the other channels of distribution as well.[155]

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[146] CR/PR at Tables V-3-6.

[147] *E.g.* Tr. at 49 (Cannon), 154 (Ebensajjad) (discussing an attempt to classify PTFE), 199 (Cannon).

[148] CR/PR at Table II-9. Respondents state that "specialty grade PTFE is a broad basket category, encompassing myriad types of very specific and unique grades that are intricately designed for precise and specific applications." PPA Prehearing Brief at 30. They elaborated that they defined commodity grade PTFE as PTFE that does not require further qualification on the part of the customer. Tr. at 149 (Dougan).

[149] Petitioner Prehearing Brief at 24-26.

[150] Petitioner Posthearing Brief at Exhibit 5.

[151] *See* Petitioner Posthearing Brief at Exhibit 1-32 (citing CR at V-35).

[152] *Compare* Conference Tr. at 118, 126 (Baillie) (asserting that all PTFE from China is commodity) *with* Hearing Tr. at 193-94 (Baillie) (asserting there is specialty PTFE from China).

[153] CR/PR at Table II-1.

[154] CR/PR at Table II-1.

[155] CR/PR at Table II-1.

Geographic Overlap. During the POI, subject imports from China and India were present in all geographic markets except Alaska, Hawaii, Puerto Rico, and the U.S. Virgin Islands. The domestic like product was sold in all regions of the United States.[156]

Simultaneous Presence in Market. The record indicates that subject imports from China and India and the domestic like product were present in the U.S. market throughout the POI.[157]

Conclusion. Purchasers' reports of comparability between subject imports from China and India and the fact that the domestic product and subject imports from China and India were all present in the majority of the pricing products indicates that there is not a sufficient distinction between subject imports from China and India in terms of product qualities or characteristics to warrant a finding of a lack of fungibility. As previously discussed, we cannot give credence to respondents' claims that distinctions between specialty products from China and commodity products from India demonstrate a lack of fungibility between subject imports from China and India, as the record does not indicate any clear distinctions between products reported as commodity or specialty. Respondents' contentions concerning the remaining factors we consider in analyzing reasonable overlap of competition are similarly without merit, as the record indicates that there is a clear overlap between the domestic like product, subject imports from China, and subject imports from India with respect to channels of distribution, geographic markets, and simultaneous presence. In light of the foregoing, we find that there is a reasonable overlap of competition between the domestic like product and imports from each subject country and between imports from each subject country.

V. No Material Injury by Reason of Subject Imports

Based on the record in the final phase of this investigation, we find that an industry in the United States is not materially injured by reason of imports of PTFE from India that Commerce has found to be subsidized by the government of India.

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 threatened with material injury by reason of the imports under investigation.[158] 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

[156] CR/PR at Tables II-2 and IV-6.

[157] *See, e.g.* CR/PR at Tables III-9 and IV-7.

[158] 19 U.S.C. §§ 1671d(b), 1673d(b). The Trade Preferences Extension Act of 2015, Pub. L. 114-27, amended the provisions of the Tariff Act pertaining to Commission determinations of material injury and threat of material injury by reason of subject imports in certain respects. We have applied these amendments here.

like product, but only in the context of U.S. production operations.[159] The statute defines "material injury" as "harm which is not inconsequential, immaterial, or unimportant."[160] 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.[161] 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."[162]

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,[163] 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.[164] 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.[165]

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

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[159] 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).

[160] 19 U.S.C. § 1677(7)(A).

[161] 19 U.S.C. § 1677(7)(C)(iii).

[162] 19 U.S.C. § 1677(7)(C)(iii).

[163] 19 U.S.C. §§ 1671d(a), 1673d(a).

[164] *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).

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

injury threshold.[166] In performing its examination, however, the Commission need not isolate the injury caused by other factors from injury caused by unfairly traded imports.[167] 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.[168] It is clear that the existence of injury caused by other factors does not compel a negative determination.[169]

Assessment of whether material injury to the domestic industry is "by reason of" subject imports "does not require the Commission to address the causation issue in any particular way" as long as "the injury to the domestic industry can reasonably be attributed to the subject imports" and the Commission "ensure{s} that it is not attributing injury from other sources to

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

[167] 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.").

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

[169] *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.").

the subject imports."[170] Indeed, the Federal Circuit has examined and affirmed various Commission methodologies and has disavowed "rigid adherence to a specific formula."[171]

The Federal Circuit's decisions in *Gerald Metals, Bratsk*, and *Mittal Steel* all involved cases where the relevant "other factor" was the presence in the market of significant volumes of price-competitive nonsubject imports. The Commission interpreted the Federal Circuit's guidance in *Bratsk* as requiring it to apply a particular additional methodology following its finding of material injury in cases involving commodity products and a significant market presence of price-competitive nonsubject imports.[172] The additional "replacement/benefit" test looked at whether nonsubject imports might have replaced subject imports without any benefit to the U.S. industry. The Commission applied that specific additional test in subsequent cases, including the *Carbon and Certain Alloy Steel Wire Rod from Trinidad and Tobago* determination that underlies the *Mittal Steel* litigation.

Mittal Steel clarifies that the Commission's interpretation of *Bratsk* was too rigid and makes clear that the Federal Circuit does not require the Commission to apply an additional test nor any one specific methodology; instead, the court requires the Commission to have "evidence in the record" to "show that the harm occurred 'by reason of' the LTFV imports," and requires that the Commission not attribute injury from nonsubject imports or other factors to subject imports.[173] Accordingly, we do not consider ourselves required to apply the replacement/benefit test that was included in Commission opinions subsequent to *Bratsk*.

The progression of *Gerald Metals, Bratsk*, and *Mittal Steel* clarifies that, in cases involving commodity products where price-competitive nonsubject imports are a significant factor in the U.S. market, the Court will require the Commission to give full consideration, with adequate explanation, to non-attribution issues when it performs its causation analysis.[174]

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

[171] *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.").

[172] *Mittal Steel*, 542 F.3d at 875-79.

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

[174] To that end, after the Federal Circuit issued its decision in *Bratsk*, the Commission began to present published information or send out information requests in the final phase of investigations to producers in nonsubject countries that accounted for substantial shares of U.S. imports of subject merchandise (if, in fact, there were large nonsubject import suppliers). In order to provide a more complete record for the Commission's causation analysis, these requests typically seek information on capacity, production, and shipments of the product under investigation in the major source countries that export to the United States. The Commission plans to continue utilizing published or requested (Continued...)

The question of whether the material injury threshold for subject imports is satisfied notwithstanding any injury from other factors is factual, subject to review under the substantial evidence standard.[175] Congress has delegated this factual finding to the Commission because of the agency's institutional expertise in resolving injury issues.[176]

B. Conditions of Competition and the Business Cycle

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

1. Demand Conditions

Demand for PTFE is driven by downstream market applications and tends to track overall growth in gross domestic product.[177] PTFE is commonly used in the automotive, chemical, electronics, and oil and gas industries.[178] PTFE accounts for a moderate share of the cost of these industrial end uses.[179]

Demand fluctuated but ultimately showed little change during the POI with apparent U.S. consumption increasing by *** percent from 2015 to 2017.[180] The majority of market participants reported that demand increased during the POI.[181] Demand as measured by apparent U.S. consumption was *** pounds in 2015, *** pounds in 2016, and *** pounds in 2017.[182] The record indicates that the drop in apparent U.S. consumption in 2016 was due to lower demand from the oil and gas industry.[183]

2. Supply Conditions

During the POI, the U.S. market was supplied by the domestic industry, subject imports, and nonsubject imports. The domestic industry consists of two PTFE producers — Chemours

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(…Continued)
information in the final phase of investigations in which there are substantial levels of nonsubject imports.

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

[176] *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.").

[177] CR at II-12, PR at II-8.

[178] CR at II-1, PR at II-1.

[179] CR at II-9, PR at II-6; CR/PR at Table C-6.

[180] CR at IV-21, PR at IV-10.

[181] CR/PR at Table II-5.

[182] CR/PR at Table C-6.

[183] CR at IV-18, PR at IV-9; Tr. at 124 (Dougherty); AGC Posthearing Brief at 10–11.

(the largest individual domestic producer) and Daikin — and five processors.[184] The domestic industry was the largest supplier of PTFE to the U.S. market in 2015 and 2017, and the second-largest in 2016. Its share of the quantity of apparent U.S. consumption consistently increased during the POI from *** percent in 2015 to *** percent in 2016 and *** percent in 2017.[185]

The record indicates that the two producers had difficulty satisfying domestic PTFE demand during the POI.[186] This supply squeeze was due to *** by Chemours and Daikin, and high capacity utilization, particularly in 2017, which constrained the two producers' ability to increase production.[187] Additionally, ***.[188] *** responding U.S. producers reported having to refuse, decline, or being unable to supply orders of PTFE during the POI.[189] The majority of purchasers reported that supply constraints have been present in the PTFE market since the beginning of the POI.[190] Purchasers reported that capacity disruptions and demand exceeding global supply affected availability in the market.[191] The record also indicates that domestic producers do not offer specific products available from subject import sources.[192] Several domestic producers and processors imported large quantities of PTFE during the POI.[193]

Cumulated subject imports were the third-largest source of supply to the U.S. market during the POI. Their share of apparent U.S. consumption was *** percent in 2015, decreased to *** percent in 2016, and then increased to *** percent in 2017.[194]

Nonsubject imports were the largest source of supply to the U.S. market in 2016 and the second-largest source during 2015 and 2017. Their share of apparent U.S. consumption increased from *** percent in 2015 to *** percent in 2016 and then declined to *** percent in 2017.[195] The largest sources of nonsubject imports during the POI were Germany and Italy.[196]

3. Substitutability and Other Conditions

We find that there is a moderate degree of substitutability between domestically produced PTFE and PTFE imported from subject sources and that price is one of several important purchasing factors.[197] The vast majority of purchasers reported that domestic PTFE

[184] CR/PR at Tables III-1-2. As discussed above, we have excluded a sixth processor, GFL, from the domestic industry as a related party.

[185] CR/PR at Table IV-11; *see also* CR/PR at Table C-6 n.4.

[186] *See, e.g.* Petitioner Posthearing Brief at Exhibit 5.

[187] CR at II-7-8, PR at II-4; CR/PR at Table III-7.

[188] CR at VI-17 n.9, PR at VI-5 n.9.

[189] CR at II-7, PR at II-5.

[190] CR at II-7–8, PR at II-5.

[191] CR at II-8, PR at II-5; CR/PR at Table V-16-18.

[192] Tr. at 119 (Haley), 179 (Ebnesajjad), 183–84 (Baillie); CR/PR at Table V-16-18.

[193] CR/PR at Tables III-12-14.

[194] CR/PR at Table C-6.

[195] CR/PR at Table C-6.

[196] CR at I-4, PR at I-3. In 2016, Commerce revoked an antidumping duty order concerning imports of granular PTFE from Italy. CR at I-6, PR at I-5.

[197] CR at II-14, PR at II-10.

was frequently or sometimes interchangeable with imports from each subject country.[198] As discussed earlier, the record shows that the vast majority of PTFE purchasers require the supplier to be qualified or certified. Purchasers reported a wide variety of certification processes used to qualify a supplier and qualification time, which ranged from 30 to 400 days.[199] The non-standard certification methods, time to qualify, and producer-specific specifications limit the substitutability of PTFE from different sources. Almost all purchasers reported that domestic PTFE always or usually met quality specifications; a slight majority of purchasers stated that PTFE from China always or usually met quality specifications, and a large majority of purchasers reported the same of PTFE from India.[200] The majority of purchasers reported that domestic PTFE always met ASTM specifications while most purchasers reported that PTFE from China and India always or usually met ASTM specifications.[201]

While price is an important factor in purchasing decisions for PTFE resin, purchasers more frequently reported that quality was the top purchasing factor, and purchasers named seven other factors (including quality and availability/supply) more frequently than price as a very important purchasing factor.[202] Purchasers most frequently named price as the third-most important factor in their purchasing decisions.[203] The majority of purchasers (18 of 35) reported that they only sometimes purchase the lowest-priced product.[204] Purchasers that reported purchasing PTFE resin from one source despite the availability of a comparable product at lower price cited customer specifications, quality concerns, diversification of supply, and technical support as reasons for purchasing higher-priced PTFE.[205]

Domestic producers report that PTFE production is a high fixed cost industry.[206] The primary raw material for PTFE is TFE, which is produced from fluorospar, sulfuric acid, and chloroform. Because TFE is unstable and dangerous to transport, all domestic PTFE begins with the production of TFE on site before subsequently being transformed into PTFE.[207] Raw material costs fluctuated during the POI, but generally were lower at the end of the POI than at the beginning.[208] Although the majority of purchasers reported that raw material costs have a substantial effect on PTFE prices,[209] the record does not indicate clearly the nature of this effect.

[198] CR at II-23, PR at II-15.
[199] CR at II-17, PR at II-12.
[200] CR/PR at Table II-13.
[201] CR/PR at Table II-14.
[202] CR/PR at Tables II-7-8.
[203] CR at II-15, PR at II-10.
[204] CR at II-15, PR at II-10.
[205] CR at II-16, PR at II-11.
[206] Petitioner Prehearing Brief at 41.
[207] CR at I-15, PR at I-12.
[208] *See* CR/PR at Figure V-1.
[209] CR at V-2, PR at V-1.

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."[210]

The volume of cumulated subject imports fluctuated in tandem with demand during the POI. It declined from *** pounds in 2015 to *** pounds in 2016, when apparent U.S. consumption declined. Apparent U.S. consumption increased in 2017, and cumulated subject imports that year increased to *** pounds.[211] As a share of apparent U.S. consumption, cumulated subject imports were *** percent in 2015, *** percent in 2016, and *** percent in 2017.[212] Although cumulated subject imports gained market share from 2015 to 2017, they did so solely at the expense of nonsubject imports, whose market share declined overall from *** percent in 2015 to *** percent in 2017, even after an antidumping duty order was lifted on imports of granular PTFE from Italy in 2016.[213]

We find the volume and increase in volume of subject imports to be significant in absolute terms. We also find the volume of subject imports to be significant relative to consumption in the United States. However, for the reasons we discuss below, we do not find that the subject imports caused significant price effects or had a significant adverse impact on the domestic industry.

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.[214]

As explained above, there is a moderate degree of substitutability between domestically produced PTFE and subject imports and price is one of several important factors in purchasing decisions. Customer qualification requirements may affect the level of interchangeability and purchasing decisions.

The Commission collected quarterly pricing data from U.S. producers and importers for five PTFE products, although not all firms reported pricing for all products for all quarters.[215]

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[210] 19 U.S.C. § 1677(7)(C)(i).
[211] CR/PR at Tables IV-2, C-6.
[212] CR/PR at Table C-6.
[213] CR/PR at Table IV-11.
[214] 19 U.S.C. § 1677(7)(C)(ii).

The pricing data accounted for approximately *** percent of U.S. producers' U.S. shipments of PTFE, *** percent of U.S. shipments of PTFE from China, and *** percent of U.S. shipments of PTFE from India in 2017.[216]

We consider all quarterly price comparisons for our price effects analysis. Petitioner argues that we should accord reduced weight to the data for the fourth quarter of 2017, maintaining that the filing of the petitions in this investigation led to increased prices.[217] However, we observe that subject import volume increased throughout 2017, even after the filing of the petitions, and prices for domestically produced products began to rise in early 2017, prior to the filing of the petitions in September 2017.[218] Additionally, quarterly pricing product data on the record do not show that subject import quantities fell consistently following filing of the petition.[219] Because the record indicates that any increased prices for domestic product in the fourth quarter of 2017 were a continuation of existing price trends rather than a reaction to the filing of the petitions, we have not accorded reduced weight to this data.

We find significant underselling by subject imports. Cumulated subject imports undersold the domestic like product in 92 of 104 quarterly price comparisons, involving *** pounds of subject imports at margins of *** percent. The average margin of underselling by cumulated subject imports was 29.4 percent. There was overselling in the remaining 12 quarterly comparisons, involving *** pounds of subject imports, at an average margin of 17.1 percent.[220] However, despite significant volumes of low-priced

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[215] The pricing products are:

Product 1: Granular PTFE resin, fine cut, bulk density 400-500g/L, 25-40µm average particle size, not modified, not filled, in packages of 25kg or greater.

Product 2: Granular PTFE resin, free flowing, bulk density 500-850g/L, 290-700µm average particle size, not modified, not filled, in packages of 25kg or greater.

Product 3: PTFE fine powder resin, not modified, not filled, in packages of 25kg or greater.

Product 4: PTFE fine powder resin, modified, in packages of 25kg or greater.

Product 5: PTFE dispersion, general purpose, 50-65% solid content, packaged in drums or totes of 50 gallons or greater.

CR at V-6, PR at V-3-4.

[216] CR at V-7, PR at V-4.

[217] Petitioner Posthearing Brief at Exh. 1 – 42.

[218] CR/PR at Tables IV-7, V-3-7. Although the data in Table IV-7 include out of scope PTFE resin, it is the best available data for monthly subject import volume in 2017. Subject imports of PTFE began to increase at the beginning of 2017, declined slightly in September, when the petitions were filed, but immediately increased to the second- and third-highest monthly levels of the year in October and November. Cumulated subject import quantities for the fourth quarter of 2017 also exceeded those of the fourth quarter of 2016, as well as the preceding third quarter of 2017. CR/PR at Table IV-7.

[219] CR/PR at Tables V-3-7.

[220] CR/PR at Table V-13. We have also considered import purchase cost data for direct imports of PTFE. The Commission obtained import purchase cost data from importers representing approximately *** percent of imports from China and *** percent of imports from India in 2017. CR at V-18, PR at V-5-6. Usable quarterly purchase cost data were obtained for Pricing Products 1, 2, 3, and 5. The record (Continued...)

subject imports, the domestic industry did not lose market share to subject imports. Instead, it gained market share, particularly in 2017, when cumulated subject import volume was highest and such imports engaged in pervasive underselling.[221]

We also examined pricing trends, and particularly focused on the extent to which they correlated with subject import volumes. Prices for the domestic like product generally decreased from 2015 to 2016 and then increased in 2017.[222] In 2016, when prices for the domestic like product declined to their lowest level during the POI, the volume of cumulated subject imports also declined by *** percent to the lowest levels of the POI.[223] Prices for the domestic like product increased in 2017, as the volume and market penetration of cumulated subject imports also increased and underselling remained pervasive.[224] Consequently, the record does not indicate a causal nexus between subject import volumes and the declines in prices for the domestic like product during 2016. We therefore find that the cumulated imports did not depress prices of the domestic like product to a significant degree.[225]

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shows that the purchase cost of direct imports of subject imports was lower than the prices for the domestic like product in *** purchase cost comparisons, accounting for *** pounds of imported PTFE. Derived from CR/PR at Tables V-8-11.

We recognize that the direct import purchase cost data and U.S. producer pricing data may not be directly comparable because the direct import purchase cost data do not necessarily capture the total cost associated with importing; thus, if anything, direct import purchase cost data may understate the total cost to the purchaser. *See Tool Chests and Cabinets from China*, Inv. No. 701-TA-575 (Final), USITC Pub. 4753 at 40 n.149 (Jan. 2018). Consequently, we requested that direct importers provide additional estimated costs above landed duty paid value associated with their importing activities. Firms reported logistical or supply costs ranging from one to 12 percent, insurance costs of one percent, and warehousing costs of one percent. CR at V-18, PR at V-7. However, the average differences between direct import purchase costs and domestic prices ranged from *** percent, which is higher than the estimated additional costs reported by direct importers for their importing activities. Derived from CR/PR at Tables V-8-11. The available direct import data consequently support our finding of significant underselling based on the pricing data.

[221] Cumulated subject imports undersold the domestic like product during 32 of 36 quarterly comparisons in 2017. CR/PR at Tables V-3-7.

[222] CR/PR at Figures V-2-6.

[223] Derived from CR/PR at Table IV-2.

[224] *Compare* CR/PR at Table IV-2 *with* Tables V-8-11.

[225] While *** responding purchasers indicated in their questionnaire responses that price was a primary reason they purchased subject imports rather than the domestic like product, the responding purchasers as a whole reported that they increased the share of total purchases from the domestic industry during the POI. CR/PR at Tables V-14, V-16-18. *** purchasers that stated that price was a principal reason for purchasing subject imports rather than the domestic like product actually increased their share of total purchases from the domestic industry during the POI. *Id.* Furthermore, a substantial number of purchasers that confirmed purchasing subject imports rather than the domestic product cited non-price reasons for doing so, particularly those related to the availability of the domestic like product. *See* CR/PR at Tables V-16-18. Even if certain purchasers did increase their purchases of subject imports due to their low prices, these did not lead to the domestic industry losing market share over the POI. In (Continued...)

Instead, other conditions of competition in the market correspond more closely with the price trends over the POI. As discussed earlier, apparent U.S. consumption declined in 2016 when demand in the oil and gas markets fell. Apparent U.S. consumption then increased in 2017 to levels higher than in 2015.[226] Domestic prices declined during the same year, 2016, in which demand declined, and increased in 2017, when demand recovered from the 2016 drop. Consequently, the record indicates that prices for the domestic like product correlate with demand trends in the U.S. market rather than the presence of cumulated subject imports in the market.[227]

We have also considered whether cumulated subject imports prevented price increases that otherwise would have occurred. The record indicates that in 2017, when the domestic industry was able to increase prices notwithstanding the increased presence of low-priced subject imports, it was able to improve its cost recovery. The domestic industry's ratio of COGS to net sales was *** percent in 2015, *** percent in 2016, and *** percent in 2017, which was lower than the 2015 figure.[228] While the domestic industry's COGS to net sales ratio increased between 2015 and 2016, as discussed earlier, demand for PTFE also declined in 2016, so during that period the domestic industry could not realistically have expected to institute price increases.[229]

In view of the foregoing, we find that cumulated subject imports did not have the effect of depressing prices or preventing price increases for the domestic like product that would otherwise have occurred to a significant degree. Even with the presence of pervasive and significant underselling, the domestic industry increased prices and gained market share in 2017 while subject import volume increased; prices declined only when demand (and subject import volume) decreased in 2016. Accordingly, we do not find that the subject imports caused significant price effects.

E. Impact of the Subject Imports

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

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addition, the record contains a low number of confirmed lost revenue reports from purchasers. CR/PR at Tables V-20-22. We find that the available information regarding lost sales and lost revenue does not detract from our finding that cumulated subject imports did not have significant price effects.

[226] CR/PR at Table IV-11.

[227] U.S. prices for raw material products generally decreased in 2016 and remained at lower levels in 2017. CR/PR at Figure V-1. Although these raw material price trends do not bear a close resemblance to price trends for PTFE, we note that a majority of purchasers (12 of 23) reported that raw material costs have a "substantial effect" on the prices each firm pays for PTFE resin. CR/PR at Figures V-2-6; CR at V-2, PR at V-1. Therefore, lower raw material costs also likely contributed to lower PTFE prices in 2016 and net declines that occurred over the full POI in certain pricing products.

[228] CR/PR at Table C-6.

[229] The domestic industry's unit COGS also declined every year of the POI, with an overall decrease of *** percent from 2015 to 2017. CR/PR at Table C-6.

the state of the industry."[230] 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."[231]

By nearly all measures, the domestic PTFE industry's performance improved during the POI. Although several indicators declined in 2016 when demand fell, almost every indicator of industry performance was in a better position in 2017 than in 2015.

Domestic producers' capacity showed little overall change during the POI, declining from *** pounds in 2015 to *** pounds in 2016 but recovering to *** pounds in 2017, above the 2015 level.[232] Domestic fillers and processors' capacity increased during the POI from *** pounds in 2015 to *** pounds in 2016 and *** pounds in 2017.[233] Domestic producers' production increased *** percent during the POI from *** pounds in 2015 to *** pounds in 2016 and *** pounds in 2017.[234] Production of domestic fillers and processors increased from *** pounds in 2015 to *** pounds in 2016 and *** pounds in 2017.[235] Correspondingly, capacity utilization of domestic producers increased from *** percent in 2015 to *** percent in 2016 and *** percent in 2017.[236] Capacity utilization of fillers and processors declined from *** percent in 2015 to *** percent in 2016 and then increased to *** percent in 2017, above the 2015 level.[237] The industry's U.S. shipments declined from *** pounds in 2015 to *** pounds in 2016 and increased to a period high of *** pounds in 2017.[238] End-of-period inventories declined from *** pounds in 2015 to *** pounds in 2016 and then increased to *** pounds in 2017, which was below the 2015 level.[239]

As previously discussed, notwithstanding the significant volume of cumulated subject imports, the domestic industry's share of apparent U.S. consumption rose throughout the POI.

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[230] 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.").

[231] 19 U.S.C. § 1677(7)(C)(iii). This provision was amended by the Trade Preferences Extension Act of 2015, Pub. L. 114-27.

[232] CR/PR at Table III-7.

[233] CR/PR at Table C-6.

[234] CR/PR at Table III-7.

[235] CR/PR at Table C-6.

[236] CR/PR at Table III-7.

[237] CR/PR at Table C-6.

[238] CR/PR at Table C-6. Measured by value, U.S. shipments increased from $*** in 2015 to $*** in 2016 and $*** in 2017.

[239] CR/PR at Table C-6.

The industry's market share rose from *** percent in 2015 to *** percent in 2016 and *** percent in 2017.[240]

The domestic industry's employment indicators also improved during the POI. The number of PRWs declined from *** in 2015 to *** in 2016 but increased to *** in 2017, which was higher than the 2015 level.[241] The number of hours worked followed a similar trend, declining from *** in 2015 to *** in 2016 but increasing to a period high of *** in 2017.[242] Total wages paid increased from $*** in 2015 to $*** in 2016 and $*** in 2017.[243] Average hourly wages showed little overall change during the period, increasing from $*** in 2015 to $*** in 2016 but declining to $*** in 2017, still slightly above 2015 levels.[244] Worker productivity increased from *** pounds dry weight per hour in 2015 to *** in 2016 and *** in 2017.[245]

The domestic industry's financial performance showed significant improvements from 2015 to 2017. The value of total net sales declined from $*** in 2015 to $*** in 2016 but increased to a period high, $***, in 2017.[246] Gross profits similarly declined from $*** in 2015 to $*** in 2016 and then increased substantially to $*** in 2017, which was well above the 2015 level.[247] The ratio of gross profits to sales followed a similar trend, decreasing from *** percent in 2015 to *** percent in 2017.[248] The domestic industry's COGS showed little change over the period, declining from $*** in 2015 to $*** in 2016 then increasing to $*** in 2017.[249] As previously discussed, the domestic industry's ratio of COGS to net sales improved from 2015 to 2017: it was *** percent in 2015, *** percent in 2016, and *** percent in 2017.[250] Operating income improved to a *** level in 2017, declining from *** in 2015 to *** in 2016 but increasing to *** in 2017.[251] The ratio of operating income to sales followed a similar trend, declining from *** percent in 2015 to *** percent in 2016 and then increasing to *** percent in 2017.[252] Net income also reached a *** level in 2017, declining from *** in 2015 to *** in 2016, and then improving to *** in 2017.[253]

The domestic industry's capital expenditures and R&D expense trends also showed increases from 2015 to 2017. Capital expenditures increased from $*** in 2015 to $*** in

[240] CR/PR at Table C-6.
[241] CR/PR at Table C-6.
[242] CR/PR at Table C-6.
[243] CR/PR at Table C-6.
[244] CR/PR at Table C-6.
[245] CR/PR at Table C-1.
[246] CR/PR at Table C-6.
[247] CR/PR at Table C-6.
[248] Derived from CR/PR at Table VI-7.
[249] CR/PR at Table C-6.
[250] CR/PR at Table C-6.
[251] CR/PR at Table C-6.
[252] CR/PR at Table C-6.
[253] CR/PR at Table C-6.

2016 and then declined to $*** in 2017, still above 2015 levels.[254] R&D expenses increased from $*** in 2015 to $*** in 2016 and $*** in 2017.[255]

In a market with very little overall increase in apparent U.S. consumption, the domestic industry experienced improvements across virtually all indicators from 2015 to 2017. The domestic industry experienced growing market share even as market demand fluctuated and cumulated subject imports increased in volume and market share from 2015 to 2017. The record indicates that the domestic industry never ceded market share to subject imports during this period. To the contrary, it experienced its largest gains in market share between 2016 and 2017, even as cumulated subject import volume and market share increased.[256] Petitioner maintains that the domestic industry should have gained more market share in 2017 than it did, due to increasing demand, and that any supply issues were limited to the post-petition period as subject imports purportedly exited the market.[257] However, the record contains ample evidence showing that the domestic industry was either unable or unwilling to fulfill numerous purchasers' requests in 2017.[258] Numerous purchasers reported that they had difficulty sourcing from the domestic industry throughout the POI and subsequently turned to subject imports.[259] Additionally, as discussed above, the record shows that subject imports decidedly did not exit the market during the last portion of 2017.[260] There was a small decline in subject import volume in September 2017, but subject import volume increased to higher levels during the subsequent three-month period, notwithstanding the filing of the petitions.[261] The record consequently does not support a finding that the increased presence of low-priced subject imports in the market in 2017 prevented the domestic industry from increasing its output or

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[254] CR/PR at Table VI-8.

[255] CR/PR at Table VI-8. Cash flow for the domestic industry decreased from *** in 2015 to *** in 2016, then increased to *** in 2017, which was higher than in 2015. Derived from data on the record. ***. CR/PR at Table VI-10.

[256] CR/PR at Table IV-11.

[257] Petitioner Posthearing Brief at 13-15.

[258] *See, e.g.,* Petitioner Posthearing Brief at 10 (***) and Exhibit I-38 (inability to supply dispersion PTFE in 2017); CR at II-7-8, PR at II-5 (***).

Chemours suggests that it was forced to discontinue certain grades of PTFE because it could not sell them profitably. In particular, it claims that it was asked to sell at prices ***. Chemours Posthearing Brief at Exhibit 1-37, Exhibit 5. Chemours's stated rationale for declining to offer these products cannot be reconciled with the fact that during the POI, it regularly ***. *See* CR/PR at Table VI-7 (indicating that Chemours ***). Indeed, given the high fixed costs involved in PTFE production, Chemours would have had an incentive to increase sales in an effort to spread its high fixed costs over a larger production quantity, as long as marginal revenues incurred in such sales would exceed the marginal costs involved in additional production. The materials Chemours submitted do not establish that the sales it decided to forego would have frustrated such an objective.

[259] CR at II-7, PR at II-5.

[260] The petitions were filed on September 28, 2017, suggesting that the subject import trends of that month were driven by factors other than the filing of the petitions.

[261] *See* CR/PR at Table IV-7.

market share materially that year. In fact, the domestic industry was able to increase its output and achieve a high capacity utilization (*** percent) despite its supply difficulties.[262]

Petitioner also argues that the domestic industry suffered injury because it was "forced to export PTFE at unfavorable prices."[263] We find this argument unconvincing for several reasons. The domestic industry's success at increasing its shipments outside the United States, contributing to its ability to spread its fixed costs and increase its profitability, does not support a finding of material injury. As petitioner concedes, the increase in the domestic industry's exports was accompanied by an increase in the industry's U.S. shipments in 2017,[264] and as we have already observed, the two domestic PTFE producers reported high and increasing capacity utilization in 2017. In addition, the record indicates that ***.[265] Since these sales were ***, the record does not provide clear support for the proposition that they were "forced," as ***.[266] Moreover, while domestic producers' export shipments increased in 2017, export shipments constituted an appreciable share of total shipments throughout the POI.[267] Finally, information on the record regarding lost sales show that, as a whole, purchasers generally increased their share of purchases from the domestic industry and that numerous purchasers that purchased subject imports rather than the domestic like product did so for non-price reasons.[268]

Petitioner also contends that its financial performance was unsatisfactory.[269] Regardless of the merits of this argument on factual grounds, as a legal matter it is insufficient to establish material injury by reason of subject imports. We have long stated that "the inquiry that the statute directs us to address *** whether there is a nexus between the subject imports and the industry's acknowledged poor operating performance."[270] Even assuming *arguendo* that the domestic industry's performance was poor or unsatisfactory, this is not a function of the subject imports, given our prior findings that the subject imports had no significant price effects and did not significantly impair or displace domestic production.

In light of the foregoing, we find that cumulated subject imports have not had a significant adverse impact on the domestic industry.

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[262] *See* CR/PR at Table C-6.

[263] Petitioner Posthearing Brief at Exhibit I-34-36.

[264] Petitioner Posthearing Brief at Exhibit I-36; CR/PR at Table E-1.

[265] CR at VI-16 n.8, PR at VI-5 n.8; Petitioner Posthearing Brief at Exhibit I-36 and Exhibit 10.

[266] Indeed, the record shows that Chemours engaged in export sales throughout the POI. CR/PR at Table III-9.

[267] CR/PR at Table III-9.

[268] CR/PR at Tables V-16-18.

[269] *E.g.* Tr. at 9-10 (Cannon).

[270] *Certain Frozen or Canned Warmwater Shrimp and Pawns From Brazil, China, Ecuador, India,Thailand, and Vietnam*, Inv. Nos. 731-TA-1063-1068 (Final), USITC Pub. 3748 at 34 (Jan. 2005).

VI. No Threat of Material Injury by Reason of Subject Imports

A. Legal Standard

Section 771(7)(F) of the Tariff Act directs the Commission to determine whether the U.S. industry is threatened with material injury by reason of the subject imports by analyzing whether "further dumped or subsidized imports are imminent and whether material injury by reason of imports would occur unless an order is issued or a suspension agreement is accepted."[271] The Commission may not make such a determination "on the basis of mere conjecture or supposition," and considers the threat factors "as a whole" in making its determination whether dumped or subsidized imports are imminent and whether material injury by reason of subject imports would occur unless an order is issued.[272] In making our determination, we consider all statutory threat factors that are relevant to this investigation.[273]

[271] 19 U.S.C. § 1677(7)(F)(ii).

[272] 19 U.S.C. § 1677(7)(F)(ii).

[273] These factors are as follows:

(I) if a countervailable subsidy is involved, such information as may be presented to it by the administering authority as to the nature of the subsidy (particularly as to whether the countervailable subsidy is a subsidy described in Article 3 or 6.1 of the Subsidies Agreement) and whether imports of the subject merchandise are likely to increase,

(II) any existing unused production capacity or imminent, substantial increase in production capacity in the exporting country indicating the likelihood of substantially increased imports of the subject merchandise into the United States, taking into account the availability of other export markets to absorb any additional exports,

(III) a significant rate of increase of the volume or market penetration of imports of the subject merchandise indicating the likelihood of substantially increased imports,

(IV) whether imports of the subject merchandise are entering at prices that are likely to have a significant depressing or suppressing effect on domestic prices and are likely to increase demand for further imports,

(V) inventories of the subject merchandise,

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

…

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

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

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

B. Cumulation for Threat

Under section 771(7)(H) of the Tariff Act, the Commission may "to the extent practicable" cumulatively assess the volume and price effects of subject imports from all countries as to which petitions were filed on the same day if the requirements for cumulation in the material injury context are satisfied.[274]

Respondents contend that the Commission should exercise its discretion not to cumulate subject imports from China and India for purposes of threat analysis.[275] They argue that subject imports from China and India are not fungible with one another and that imports from China and India followed dramatically different price and volume trends during the POI.[276]

We found in section IV above that there is a reasonable overlap of competition among subject imports from China and India and between subject imports from each country and the domestic like product. These considerations also apply to our decision to cumulate subject imports for the purposes of our threat analysis.

The record does not indicate that there would likely be any significant difference in the conditions of competition between subject imports from China and India, although we acknowledge some differences in each subject country's import volume trends during portions of the POI. After examining these differences, we find that they are not significant enough to warrant a determination to not cumulate subject imports from China and India. Subject imports from both China and India both increased in quantity and market share from 2016 to 2017,[277] and subject imports from each country pervasively undersold the domestic like product.[278] Therefore, we exercise our discretion to cumulate subject imports from China and India for the purposes of our threat analysis.

C. Analysis

1. Likely Volume

In section V.C. above, we found the volume of cumulated subject imports to be significant. While cumulated subject import volume and market share reached period peaks in 2017, these gains did not occur at the expense of the domestic industry. Instead, both cumulated subject imports and the domestic industry gained market share between 2015 and 2017, and between 2016 and 2017 specifically, at the expense of nonsubject imports.[279] Subject import volume followed the same trends as demand throughout the POI, falling in 2016 when apparent U.S. consumption declined, and increasing in 2017 when apparent U.S. consumption rose. We observe that the domestic industry was able to increase market share

[274] 19 U.S.C. § 1677(7)(H).

[275] PPA Prehearing Brief at 92–93.

[276] PPA Prehearing Brief at 93. Petitioner did not directly address cumulation for threat in its briefs.

[277] CR/PR at Table C-6.

[278] CR/PR at Table V-13.

[279] CR/PR at Table IV-11.

between 2015 and 2017, a period that showed little overall change in demand.[280] Nothing in the record indicates that there is likely to be any change in conditions of competition in the imminent future that will likely cause a deviation from the patterns observed during the POI: that subject imports increased only when demand did, and that subject import market share increases did not reduce the market share of the domestic industry.

The record indicates that the capacity of the subject industries is high both absolutely and relative to apparent U.S. consumption.[281] It also indicates appreciable quantities of excess capacity held by the subject industries, although capacity utilization was rising during the POI and is projected to increase further.[282] Nevertheless, notwithstanding the existence of excess capacity throughout the POI, responding subject producers' export shipments to the United States increased only from 2016 to 2017, when U.S. demand rose. We consequently do not find that the existence of unused capacity is likely to result in substantially increased imports of the subject merchandise to the United States in the imminent future.[283]

We observe that a *** majority of the subject producers' shipments during the POI were directed to their home markets,[284] and that export shipments to other markets were *** greater than those to the United States during the POI and increased by a greater amount than exports to the United States both from 2015 to 2017 and from 2016 to 2017, specifically.[285] Consequently, the record does not indicate either that the subject producers have a particularly large focus on exports to the U.S. market, or that the United States is growing in importance relative to other export markets. Particularly given that global PTFE consumption is growing faster than consumption in the U.S. market, increasing by an average *** percent annually from 2015 to 2020, and that China is projected to have the largest growth in consumption of any region, at *** percent,[286] we do not believe that the subject producers are likely to divert

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[280] CR/PR at Table C-6.

[281] *Compare* CR/PR at Table VII-8 *with* CR/PR at Table C-6. Subject producers' capacity was *** short tons in 2015, *** short tons in 2016, and *** short tons in 2017. CR/PR at Table VII-8. Subject producers' projected capacity for 2018 and 2019 is below the 2017 level. *Id*.

[282] CR/PR at Table VII-8. Subject producers' capacity utilization was *** percent in 2015, *** percent in 2016, and *** percent in 2017. Subject producer capacity utilization is forecast to increase to *** percent in 2018 and *** percent in 2019.

[283] The potential for product shifting is limited. Only one producer *** reported production of out-of-scope products on the same equipment used to produce PTFE. CR at VII-15, PR at VII-11. *** reported the production of any other products using the same equipment used to produce PTFE. CR at VII-8, PR at VII-7.

[284] Home market shipments increased from *** pounds in 2015 to *** pounds in 2016 and *** in 2017. CR/PR at Table VII-8. Subject producers project that home market shipments will continue to increase in 2018 and 2019. *Id*.

[285] CR/PR at Table VII-8. Subject producers' export shipments to the United States are projected to decrease from *** pounds in 2017 to *** pounds in 2018 and *** pounds in 2019 while export shipments to all other markets are projected to continue to increase from *** pounds in 2017 to *** pounds in 2018 and *** pounds in 2019. *Id*.

[286] CR/PR at Table VII-11. By comparison, projected annual U.S. consumption growth over the same 2015 to 2020 period is ***. *Id*.

shipments from home markets or other export markets to the U.S. market in the imminent future.[287]

U.S. inventories of imports from subject sources decreased from *** pounds in 2015 to *** pounds in 2016 and *** pounds in 2017.[288] Inventories of subject merchandise in the subject countries declined from *** pounds in 2015 to *** pounds in 2016 and *** pounds in 2017.[289] Consequently, inventory trends do not indicate a likelihood of increased subject imports.

As stated above, the record does not indicate that there has been a significant rate of increase of the volume or market penetration of imports of the subject merchandise during the POI. Nor are substantially increased imports likely in the imminent future in light of the likely growth and availability of other export markets and lack of growth in inventories. Additionally, in light of the experience during the POI, any potential increase in subject import volume is unlikely to cause any decline in the market share of the domestic industry given that observed increases in subject import volumes have come at the expense of nonsubject imports.[290]

2. Likely Price Effects

In section V.D. above, we found significant underselling by the subject imports. We also found that notwithstanding the presence of a significant volume of low-priced subject imports, subject imports did not have significant effects on prices for the domestic like product.

With respect to likely price levels during the imminent future, we observe that prices for the domestic like product fluctuated with demand and began to increase in early 2017 and continued to increase throughout the year, even as subject import volume increased to their highest levels and pervasive underselling continued. Therefore, even if there is some increase in the volume of cumulated subject imports entering the U.S. market in the imminent future, the

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[287] We note that PTFE imports from China have been subject to an antidumping duty order in India since 2005. CR at VII-24, PR at VII-15. Nevertheless, the Chinese industry's export shipments to non-U.S. markets increased throughout the POI. CR/PR at Table VII-3.

[288] CR/PR at Table VII-9.

[289] CR/PR at Table VII-8.

[290] In our analysis, we have considered the nature of the subsidies Commerce has found to be countervailable, particularly whether the countervailable subsidies are ones described in Articles 3 or 6.1 of the Agreement on Subsidies and Countervailing Measures, and whether imports of the subject merchandise are likely to increase. 19 U.S.C. § 1677(7)(F)(i)(I). We observe that Commerce found two countervailable subsidy programs provided reduced taxes on production of export merchandise, one provided licensing benefits to exporters, and three provided reduced utility costs. *Polytetrafluoroethylene Resin From India: Final Affirmative Countervailing Duty Determination*, 83 Fed. Reg. 23422 (May 21, 2018) and accompanying I&D Memo. Additionally, we observe that Commerce found one program contingent upon export performance, *see* I&D Memo at 14-15, which is among the types of subsidies described in Article 3.1 of the WTO Agreement on Subsidies and Countervailing Measures. We have taken these subsidy findings into account in our analysis of likely subject import volume. Particularly probative to this analysis is the information provided in the text concerning subject import trends during the POI, and the levels and trends of subject producers' home market shipments and shipments to other export markets.

record indicates no likely imminent change in conditions of competition which would likely change the lack of causal relationship between significant volumes of low-priced subject imports and prices of the domestic like product observed during the POI. We consequently find that imports of the subject merchandise are unlikely to enter at prices that would be likely to have a significant depressing or suppressing effect on domestic prices or that would be likely to increase demand for further subject imports.

3. Likely Impact

We found in section V.E. above that from 2015 to 2017 the domestic industry improved in nearly all measures of its financial performance, including existing research and development expenses, and that in 2017 the domestic industry had *** operating and net income for the first time in the POI. In light of our findings that there is not likely to be a significant increase in subject import volume during the imminent future that will result in any decline in the domestic industry's market share and that subject imports will not likely have significant price effects, the record does not indicate a probability that material injury by reason of subject imports is imminent.

VII. Conclusion

For the reasons stated above, we determine that an industry in the United States is neither materially injured nor threatened with material injury by reason of subsidized subject imports of PTFE from India.

PART I: INTRODUCTION

BACKGROUND

These investigations result from petitions filed with the U.S. Department of Commerce ("Commerce") and the U.S. International Trade Commission ("USITC" or "Commission") by The Chemours Company FC LLC ("Chemours"), Wilmington, Delaware, on September 28, 2017, 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 polytetrafluoroethylene ("PTFE") resin[1] from China and India. The following tabulation provides information relating to the background of these investigations.[2] [3]

Effective date	Action
September 28, 2017	Petitions filed with Commerce and the Commission; institution of the Commission's investigations (82 FR 46284, October 4, 2017)
October 18, 2017	Commerce's notice of initiation (82 FR 49587 and 82 FR 49592, October 26, 2017)
November 13, 2017	Commission's preliminary determinations
March 8, 2018	Commerce's preliminary countervailing duty determination concerning India (83 FR 9842, March 8, 2018); scheduling of final phase of Commission investigations (83 FR 12815, March 23, 2018)
May 1, 2018	Commerce's preliminary antidumping duty determination concerning China and India (83 FR 20039 and 83 FR 20035)
May 17, 2018	Commission's hearing
May 21, 2018	Commerce's final determinations
June 22, 2018	Commission's vote on countervailing duties concerning India
July 6, 2018	Commission's views on countervailing duties concerning India

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

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

[3] Appendix B of this report presents the list of witnesses that appeared at the hearing.

STATUTORY CRITERIA AND ORGANIZATION OF THE REPORT

Statutory criteria

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

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

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

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

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

effects on the existing development and production efforts of the domestic industry, including efforts to develop a derivative or more advanced version of the domestic like product, and (V) in {an antidumping investigation}, the magnitude of the margin of dumping.

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

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

Organization of report

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

MARKET SUMMARY

PTFE resin is generally used to produce downstream products, such as gaskets, seals, linings, films, insulation, packing for chemical applications, and pipe liners and coatings. These products are used in a wide range of industries, including the oil and gas, automotive, aerospace, industrial, chemical, and semiconductor industries. The leading U.S. producers of PTFE resin in 2017 are Chemours and Daikin America Inc. ("Daikin") , while leading producers of PTFE resin outside the United States include The Chemours China Holding Company Limited ("Chemours China") and Daikin Fluorochemicals (China) Co. Ltd. ("Daikin China") of China and Gujarat Fluorochemicals Limited ("GFL India) of India. The leading U.S. importers of PTFE resin from China in 2017 are ***, while the leading importers of PTFE resin from India are ***. Leading importers of product from nonsubject countries (primarily Germany and Italy) include ***. U.S. purchasers of PTFE resin are firms that produce seals, gaskets, bearings, films, and tapes, among a large variety of other downstream products; leading purchasers include ***.

Apparent U.S. consumption of PTFE resin totaled approximately *** in 2017. Currently, two firms are known to produce PTFE resin in the United States and six firms are known to be

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

U.S. fillers/processors of PTFE resin in the United States. U.S. producers' and U.S. fillers'/processors' U.S. shipments of PTFE resin totaled *** in 2017, and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value. U.S. imports from subject sources totaled *** in 2017 and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value. U.S. imports from nonsubject sources totaled *** in 2017 and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value.

SUMMARY DATA AND DATA SOURCES

A summary of data collected in these investigations is presented in appendix C. Except as noted, U.S. industry data are based on questionnaire responses of eight firms (two U.S. integrated producers and six U.S. fillers/processors) that accounted for a majority of U.S. production of PTFE resin during 2017. U.S. imports are based on official import statistics, as adjusted to remove out-of-scope PTFE resin using questionnaire responses of 16 firms that accounted for *** percent from China, *** percent from India, and *** percent of imports from nonsubject countries during 2017.

PREVIOUS AND RELATED INVESTIGATIONS

On November 6, 1987, E.I. du Pont de Nemours & Co., Inc. ("DuPont") filed petitions with Commerce and the Commission alleging that an industry in the United States was materially injured by reason of dumped imports of granular PTFE resin from Italy and Japan.[6] In August 1988, Commerce made final affirmative dumping determinations, with margins as follows: Italy - Montefluos S.p.A./Ausimont U.S.A., 46.46 percent, and all others, 46.46 percent;[7] Japan - Daikin Industries, Inc., 103.00 percent, Asahi Fluoropolymers Co., Ltd., 51.45 percent; and all others, 91.74 percent.[8] The Commission made its final affirmative injury determinations in August 1988,[9] and Commerce issued antidumping duty orders on August 24, 1988 (Japan) and August 30, 1988 (Italy). [10]

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[6] *Granular Polytetrafluoroethylene Resin from Italy and Japan, Inv. Nos. 731-TA-385 and 386 (Final)*, USITC Pub. 2112 (August 1988) ("USITC Pub. 2112").

[7] *Final Determination of Sales at Less Than Fair Value: Granular Polytetrafluoroethylene Resin From Italy*, 53 FR 26096, July 11, 1988.

[8] *Notice of Final Determination of Sales at Less Than Fair Value: Granular Polytetrafluoroethylene Resin From Japan*, 53 FR 25191, July 5, 1988.

[9] *Granular Polytetrafluoroethylene Resin from Italy and Japan, Investigation Nos. 731-TA-385 and 386 (Final),* USITC Publication 2112, August 1988, p. 1.

[10] *Antidumping Duty Order; Granular Polytetrafluoroethylene Resin from Italy*, 53 FR 33163, August 30, 1988; *Antidumping Duty Order; Granular Polytetrafluoroethylene Resin From Japan*, 53 FR 32267, August 24, 1988.

Commerce revoked the antidumping duty order on Granular PTFE resin from Japan in 2011[11] and the antidumping duty order on Granular PTFE resin from Italy in 2016[12] as the domestic interested parties did not participate in Commerce's second and third five-year reviews, respectively, the orders are as follows:

	Order Issued		Order Revoked	
	Published	Date	Published	Date
Granular PTFE Resin from Japan	53 FR 32267	Aug. 24, 1988	76 FR 3614	Jan. 20, 2011
Granular PTFE Resin from Italy	53 FR 33163	Aug. 30, 1988	81 FR 53119	Aug. 11, 2016

The antidumping orders on imports of granular PTFE resin from Japan and Italy were limited to imports of the granular form of PTFE resin, whether filled or unfilled. The order on granular PTFE resin from Italy was later amended to include wet raw polymer PTFE.[13] Imports of dispersions (including coagulated dispersions) were not within the scope of the 1988 antidumping duty investigations or the resulting orders.[14]

NATURE AND EXTENT OF SUBSIDIES AND SALES AT LTFV

Subsidies

On May 21, 2018, Commerce published a notice in the *Federal Register* of its final determination of countervailable subsidies for producers and exporters of PTFE resin from India.[15] Table I-1 presents Commerce's findings of subsidization of PTFE resin in India.

Table I-1
PTFE resin: Commerce's final subsidy determination with respect to imports from India

Entity	Final countervailable subsidy margin (*percent*)
Gujarat Fluorochemicals Limited (GFL)	3.60
All others	3.60

Source: 83 FR 23423, May 21, 2018.

[11] *Granular Polytetrafluoroethylene Resin From Japan: Final Results of Sunset Review and Revocation of Antidumping Duty Order,* 76 FR 3614, January 20, 2011.

[12] *Granular Polytetrafluoroethylene Resin From Italy: Final Results of Sunset Review and Revocation of Antidumping Duty Order,* 81 FR 53119, August 11, 2016.

[13] *Granular Polytetrafluoroethylene Resin From Italy; Final Affirmative Determination of Circumvention of Antidumping Duty Order*, 58 FR 26100, April 30, 1993.

[14] *Granular Polytetrafluoroethylene Resin from Italy and Japan, Investigation Nos. 731-TA-385 and 386 (Final*), USITC Publication 2112, August 1988, p. A-2.

[15] *Polytetrafluoroethylene Resin From India: Final Affirmative Countervailing Duty Determination*, 83 FR 23422, May 21, 2018.

Sales at LTFV

On May 7, 2018, Commerce published a notice of its preliminary determination of sales at LTFV with respect to imports from China [16] and India.[17] Tables I-2 and I-3 present Commerce's dumping margins with respect to imports of product from China and India.

Table I-2
PTFE resin: Commerce's preliminary weighted-average LTFV margins with respect to imports from China

Exporter	Producer	Preliminary dumping margin (*percent*)
Daikin Fluorochemicials (China) Co., Ltd.	Daikin Fluorochemicals (China) Co., Ltd.	84.75
Shandong Dongyue Polymer Material Co., Ltd.	Shandong Dongyue Polymer Material Co., Ltd.	69.34
Hangzhou Fine Fluorotech Co., Ltd.	Qingdao Orientalflon New Materials Co., Ltd.	78.74
Hangzhou Fine Fluorotech Co., Ltd.	Zhejiang Juhua Co., Ltd. Fluor-Polymeric Plant	78.74
Shanghai Huayi 3f New Materials Sales Co., Ltd.	Shanghai 3f New Materials Co., Ltd.	78.74
China-Wide Entity		208.16

Source: *Polytetrafluoroethylene Resin from the People's Republic of China: Preliminary Determination of Sales at Less Than Fair Value, Postponement of Final Determination, and Extension of Provisional Measures*, 83 FR 20039, May 7, 2018.

Table I-3
PTFE resin: Commerce's preliminary weighted-average LTFV margins with respect to imports from India

Exporter/producer	Estimated weighted-average dumping margin (percent *ad valorem)*	Cash deposit rate (adjusted for export subsidy offset) (percent *ad valorem)*
Gujarat Fluorochemicals Limited	18.49	17.16
All others	18.49	17.16

Source: *Polytetrafluoroethylene Resin from India: Preliminary Determination of Sales at Less Than Fair Value, Postponement of Final Determination, and Extension of Provisional Measures*, 83 FR 20035, May 7, 2018.

[16] *Polytetrafluoroethylene Resin from the People's Republic of China: Preliminary Determination of Sales at Less Than Fair Value, Postponement of Final Determination, and Extension of Provisional Measures*, Department of Commerce, A-570-066, May 1, 2018.

[17] *Polytetrafluoroethylene Resin from India: Preliminary Determination of Sales at Less Than Fair Value, Postponement of Final Determination, and Extension of Provisional Measures*, Department of Commerce, A-533-879, May 1, 2018.

THE SUBJECT MERCHANDISE

Commerce's scope

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

> *The product covered by this investigation is polytetrafluoroethylene (PTFE) resin, including but not limited to granular, dispersion, or coagulated dispersion (also known as fine powder). PTFE is covered by the scope of this investigation whether filled or unfilled, whether or not modified, and whether or not containing co-polymer additives, pigments, or other materials. Also included is PTFE wet raw polymer. The chemical formula for PTFE is C2F4, and the Chemical Abstracts Service Registry number is 9002-84-0.*
>
> *PTFE further processed into micropowder, having particle size typically ranging from 1 to 25 microns, and a melt-flow rate no less than 0.1 gram/10 minutes, is excluded from the scope of this investigation.*
>
> *PTFE is classified in the Harmonized Tariff Schedule of the United States (HTSUS) under subheadings 3904.61.0010 and 3904.61.0090. Subject merchandise may also be classified under HTSUS subheading 3904.69.5000. Although the HTSUS subheadings and CAS Number are provided for convenience and Customs purposes, the written description of the scope is dispositive.*[18]

Tariff treatment

Granular, dispersion, and fine powder PTFE resin is classified in the Harmonized Tariff Schedule of the United States ("HTSUS") in subheading 3904.61.00 and is reported under its two statistical reporting numbers, 3904.61.0010 and 3904.61.0090. PTFE resin of subheading 3904.61.00 may contain additives, such as fillers, coloring matter, stabilizers, and plasticizers "chiefly intended to give the finished product special physical properties or other desirable characteristics." Small amounts of additives or impurities do not change the classification.[19]

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[18] *Polytetrafluoroethylene Resin From India: Final Affirmative Countervailing Duty Determination*, 83 FR 23424, May 21, 2018.

[19] In HQ 952836 (February 19, 1993), "PTFE powder and powder mixed with irregularly shaped lumps" that contained "contaminants such as oil, dirt or other unwanted material that must be physically separated," were classified under HTS subheading 3504.61. U.S. Customs and Border Protection noted that "Where plastics are in a primary form in their condition as imported, the presence of contaminants does not qualify the plastic as waste of HTS heading 3915."

PTFE copolymer resins in dispersion form may be classified under heading 3904.69.10 or 3904.69.50 of the HTS if the PTFE content falls below 95 percent by weight. Thus, in HQ 085931 (February 6, 1990), "other" fluoropolymer resin and PTFE resin blended in the United Kingdom were classified under subheading 3904.69 because the PTFE content was less than 95 percent by weight. In NY G89571 (May 3, 2001), Teflon fluoropolymers, "designated Teflon nos. 455-296, 459-10200, 455-500, 459-900, and 459-910 {and consisting} of polytetrafluoroethylene (PTFE) based copolymer resins in aqueous dispersions intended for use as coatings in the manufacture of non-stick cooking utensils" were classified under HTS 3904.69. Similarly, modified PTFE resin may meet the definition of a chemically modified polymer for purposes of Subheading Note 1 to Chapter 39 of the HTS. In such cases, the modified PTFE resin is classified under HTS subheading 3904.69.[20] PTFE imported under statistical reporting numbers 3904.61.0010, 3904.61.0090, and 3904.69.5000 is accorded a column-1 general duty rate of 5.8 percent, 5.8 percent, and 6.5 percent, ad valorem, respectively. Decisions on the tariff classification and treatment of imported goods are within the authority of U.S. Customs and Border Protection.

THE PRODUCT

Description and applications

Polytetrafluoroethylene ("PTFE") is a crystalline polymer of tetrafluoroethylene ("TFE") consisting of repeating units of carbon and fluorine, or C_2F_4.[21] PTFE is commonly referred to as Teflon®, a registered product of the Chemours Company,[22] although every producer of PTFE resin has their own specific trade name associated with the product.[23] PTFE resin has a variety of end-use applications due to its chemical inertness, heat and chemical resistance, electrical insulation properties, low coefficient of friction, and functionality over a wide temperature range (-40°C to 260°C).[24] PTFE's properties are attributable to its strong interatomic carbon-fluorine bonds, making the resin resistant to oxidation and reaction with other chemicals (e.g.,

[20] HTS, Ch. 39, Subheading Note 1 ("Chemically modified polymers are to be classified in the subheading named 'Other,' provided that the chemically modified polymers are not more specifically covered by another subheading").

[21] Chemical Abstracts Service ("CAS") registry number for PTFE is 9002-84-0.

[22] Hearing transcript, p. 9 (Cannon), p. 18 (Hoeck).

[23] For example, PTFE manufactured by GFL is sold under the trade name Inoflon®; PTFE manufactured by Daikin is sold under the trade name Polyflon™; PTFE manufactured by Dyneon is sold under the trade name "Dyneon TF"; PTFE manufactured by Solvay is sold under the trade name "Algoflon."

[24] Hearing transcript, p. 11, 20 (Hoeck).

strong acids, alkalis, and oxidizing agents).[25] In order to benefit from PTFE's properties, TFE must be polymerized to an extremely high molecular weight.[26]

The scope of these investigations includes three primary forms of PTFE resin: granular,[27] dispersion,[28] and fine powder,[29] as outlined in the following tabulation:[30]

Form of PTFE	Particle size (micron, µ)		Bulk density (gram/liter, g/L)	
	Minimum	Maximum	Minimum	Maximum
Dispersion	0.05	0.5	1,246	1,520
Granular	20	650	250	700
Coagulated Dispersion (fine powder)	370	675	460	550

Note-- A micron is one millionth of a meter.

There is a fourth commonly recognized form of PTFE resin that falls outside the scope of these investigations: micronized powder, or micropowder.[31] Micronized powder represents low molecular weight PTFE,[32] and has an average particle size that ranges from 1 – 20 µm.[33] Because micronized powder has a lower molecular weight, the material loses some strength and tensile properties.[34] PTFE micronized powder has a melt flow rate that is greater than 0.1 g/10 min,[35] and the three forms of PTFE resin that fall within the scope of these investigations have a melt flow of zero.[36]

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[25] Fluorogistx, "*Properties*" http://www.fluorogistx.com/applications-na/properties/, retrieved April 19, 2018.

[26] Gangal, S.V., Brothers, P.D. "*Perfluorinated Polymers, Polytetrafluoroethylene*" Kirk-Othmer Encyclopedia of Chemical Technology, https://doi.org/10.1002/0471440264.pst233.pub2, retrieved April 19, 2018.

[27] ASTM designation D 4894. PTFE Processors Alliance PPA posthearing brief p. 2.

[28] ASTM designation D 4441. PTFE Processors Alliance PPA posthearing brief p. 2.

[29] ASTM designation D 4895. PTFE Processors Alliance PPA posthearing brief p. 2.

[30] Petitions, p. 16. Fine powder can also be referred to as "coagulated dispersion." Hearing transcript, p. 19 (Hoeck).

[31] Petitioner's posthearing brief, Exhibit 1, p. 20.

[32] The material is either produced at a low molecular weight or is post-processed to reduce the low molecular weight from other forms of PTFE. Conference transcript, p. 48 (Hoeck).

[33] Jannerfeldt, Claes Gustav; Pabon, Jean-Jacques; Nelissen, Jo Ann. Particles comprising polytetrafluoroethylene and perfluoropolyether. U.S. Patent Application 20170114190 A1 filed June 9, 2015, and published April 27, 2017. https://patents.google.com/patent/US20170114190?oq=20170114190, retrieved April 19, 2018.

[34] Conference transcript, p. 60 (Hoeck).

[35] Melt flow is the measure of the ease of flow of the melt of a thermoplastic polymer. Jannerfeldt, Claes Gustav, Pabon, Jean-Jacques; Nelissen, Jo Ann. Particles comprising polytetrafluoroethylene and perfluoropolyether. U.S. Patent Application 20170114190 A1 filed June 9, 2015, and published April 27, 2017. https://patents.google.com/patent/US20170114190?oq=20170114190, retrieved April 19, 2018; Conference transcript, p. 49 (Hoeck); Hearing transcript, p. 18 (Hoeck)

[36] PTFE resins enter a 'gel' state at 621°F (327 °C) which lends to a measure of '0' for melt flow (i.e., there is no flow to measure because it is not liquid enough), Ibid.

Each form of PTFE resin is sold in a variety of grades[37] to obtain different properties for usefulness in specific applications.[38] End uses for PTFE include the following: gaskets and parts; film or tape; pipe, tube, hose components; wire coating or insulation; coatings for food applications; fabrics, yarns, or membranes.[39] In addition, Chemours notes that there are overlapping applications for PTFE resin in its different forms, such as films and electrical insulation, as seen in the following tabulation.[40]

Application	Granular PTFE resin (mold)	Fine powder PTFE resin (extrude)	Dispersion PTFE resin (coat)
Gaskets, seals, and rings for automotive and aerospace applications	X	X	
Gaskets, linings, and packing for chemical applications	X	X	
Film	X	X	X
Insulation	X	X	X
Wire coating, jacketing, and tubing	X	X	
Pipe liners	X	X	
Pipe coating			X
Coating and impregnating woven goods			X

Source: Chemours postconference brief, p. 10.

As previously indicated, the different forms of PTFE resin can be used in a variety of applications. For example, granular and fine powder PTFE resin can both be used in gaskets and pipe-liners applications, but are chosen based on desired end-use properties.[41] Also, dispersion PTFE resin is customarily used in coating applications.[42] 'Filled'[43] PTFE resin refers to PTFE resin that is compounded with additives including, but not limited to, carbon, graphite, glass fiber, stainless steel, bronze, aromatic polyester, or pigments.[44] Filling a PTFE resin can enhance the mechanical properties, such as resistance to abrasion.[45]

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[37] Different formulation techniques are utilized to elicit various grades in the three forms of PTFE resin. Fabrication techniques for granular resins include molding, sintering, and ram extrusion. Fine powdered resins undergo paste-extrusion and dispersions can undergo dip coating and coagulation.

[38] Gangal, S.V., Brothers, P.D. "*Perfluorinated Polymers, Polytetrafluoroethylene"* Kirk-Othmer Encyclopedia of Chemical Technology, https://doi.org/10.1002/0471440264.pst233.pub2, retrieved April 19, 2018.

[39] Chemours posthearing brief, Exhibit 1, p. 13.

[40] Petition, p. 12; Hearing transcript, p. 20 (Hoeck).

[41] Hearing transcript, p. 20 (Hoeck); Chemours posthearing brief p. 3.

[42] Hearing transcript, p. 20 (Hoeck).

[43] The terms filler, blender, and compounder are used interchangeably to describe producers of filled compounds. AGC Chemicals America posthearing brief, Exhibit 1, p. 1.

[44] Gangal, S.V., Brothers, P.D. "*Perfluorinated Polymers, Polytetrafluoroethylene"* Kirk-Othmer Encyclopedia of Chemical Technology, https://doi.org/10.1002/0471440264.pst233.pub2, retrieved April 19, 2018.

[45] Ibid.

Chemically, the forms of PTFE resin have similar chemical compositions and chemical properties;[46] however, physically, the three forms of PTFE resin possess somewhat different characteristics.[47] Both granular (or free flow) powder and fine (or fine cut) powder are white powders of different particle sizes,[48] but fine powder PTFE resin smears due to it having a 'sheer' physical property.[49] Dispersion PTFE resin differs from the other two forms in that the PTFE fine powder particles are dispersed in liquid and may appear as a milky white solution.[50] Granular and fine powder PTFE resin have a high melting point and melt viscosity. Consequently, granular PTFE resin cannot be processed by conventional thermoplastic methods, such as injection molding or extrusion. Instead, granular PTFE resin is typically processed by compression molding or ram extrusion, followed by sintering (heating to just below the melting point to fuse individual particles together). Compression molded products are typically fabricated into basic shapes, e.g., cylinders and cubes. These shapes are then machined into seals, bearings, bushings, piston rings, and diaphragms. Fine powder PTFE resin has the same properties of high melting point and viscosity. However, due to the small particle size, fine powder PTFE resin may be processed into a finished product by paste extrusion.[51] Also, dispersion PTFE resin can be directly applied as a coating, or a thin coating may be dried and removed to create a film.

[46] These properties include chemical inertness, heat and chemical resistance, electrical insulation properties, low coefficient of friction, and functionality over a wide range of temperatures. Hearing transcript, p. 20 (Hoeck).

[47] Processors Alliance postconference brief, pp. 1-2.

[48] Hearing transcript, pp. 20-22 (Hoeck). The petitioner argues that all forms of PTFE resin share the same key physical characteristics that are imparted by the polymer. It adds that there is a continuum of particle sizes and density and that there is a degree of overlap between granular and fine powder PTFE across a range of values.; petition, p. 7.

[49] Processors Alliance postconference brief, pp. 1-2.

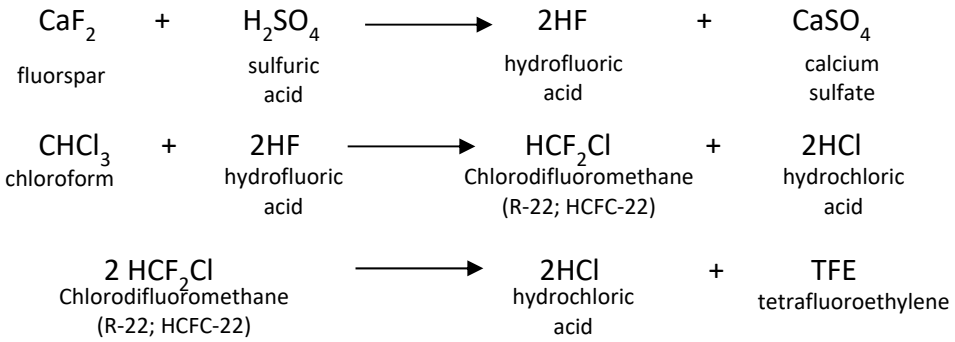
[50] Hearing transcript, p. 103 (Baillie).

[51] Since fine powder PTFE resin readily absorbs organic solvents, a paste may be formed that can be easily extruded. Gujarat postconference brief, exhibit 1; Hearing transcript, p. 128 (Ebnesajjad), p. 33 (Hayes).

Manufacturing processes

All forms of PTFE resin start with the production of tetrafluoroethylene ("TFE"). TFE is produced with fluorospar (CaF_2), sulfuric acid, and chloroform. TFE, the simplest perfluorinated alkene, is a colorless and odorless gas that is unstable[52] (it will decompose to C and CF_4) and can form explosive peroxides in contact with air. In order to produce TFE, chloroform ($CHCl_3$) is fluorinated through a reaction with hydrogen fluoride (HF), produced from fluorospar, to produce chlorodifluoromethane (HCF_2Cl). Chlorodifluoromethane is also called "R-22."[53] R-22 is subsequently pyrolized[54] at 550-750°C, producing TFE and hydrochloric acid (HCl), as shown in Figure I-1.

Figure I-1:
PTFE resin: Manufacturing process



Source: Based on conference transcript p. 21, pp. 74-75 (Hoeck).

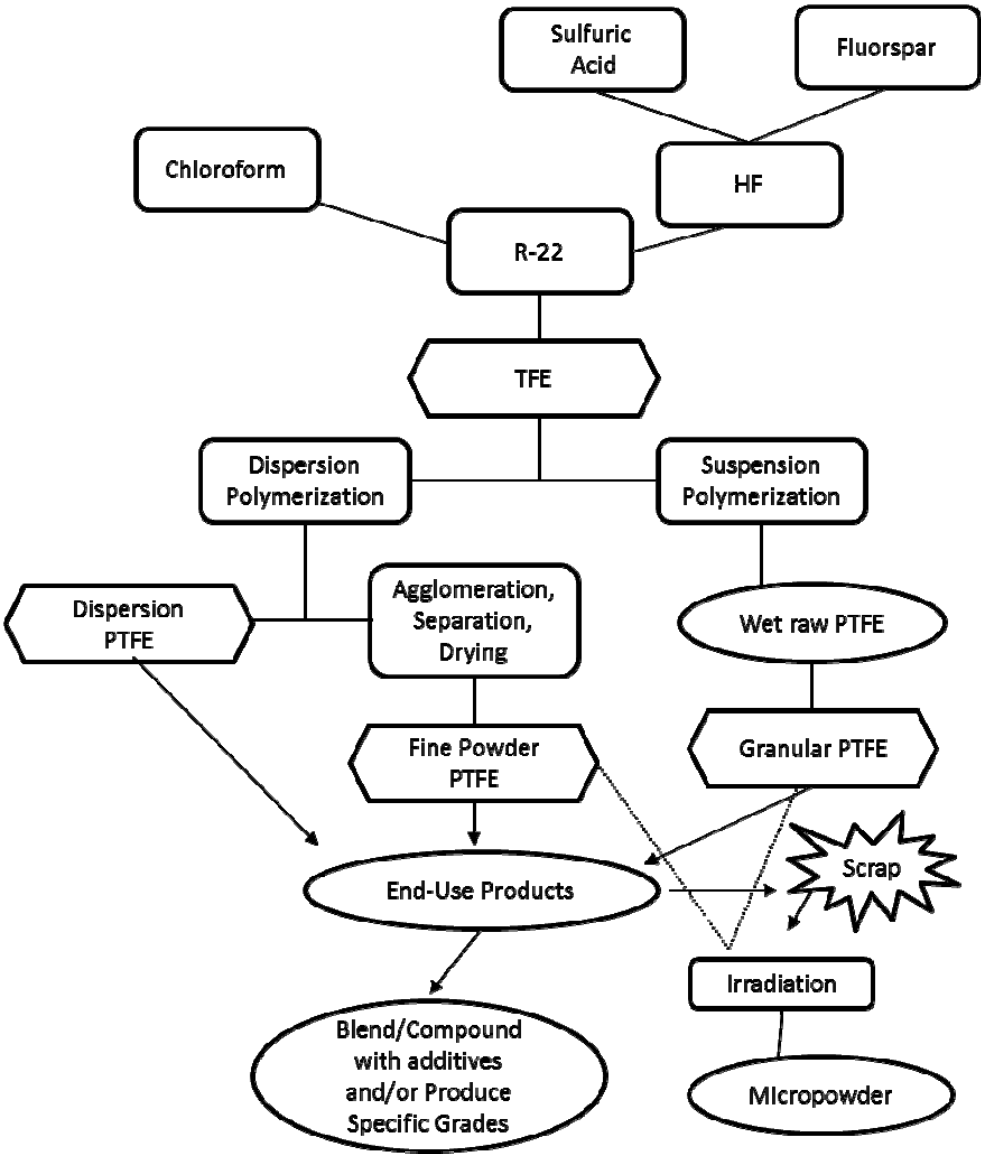
[52] TFE's instability makes it dangerous to transport, so TFE and PTFE production are usually on the same site. In fact, the domestic producers of TFE are also the only known domestic producers of PTFE. Hearing transcript, p. 18 (Hoeck).

[53] R-22 can also be referred to as HCFC-22. Conference transcript, p.92 (DeCarlo).

[54] Pyrolysis occurs in the absence or near absence of oxygen and is the chemical decomposition of organic (carbon-based) materials through the application of heat. https://www.britannica.com/science/pyrolysis, accessed April 19, 2018.

There are two separate methods utilized by the industry to polymerize TFE into PTFE: (1) suspension polymerization[55] and (2) dispersion polymerization[56] (Figure I-2).[57]

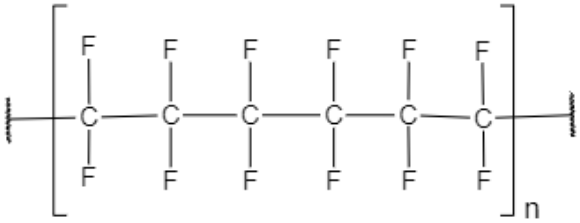
Figure I-2
PTFE resin: Processing pathways for the different forms of PTFE resin



Source: Chemours posthearing brief Exhibit 3, p. 2.

[55] Hearing transcript p. 18 (Hoeck).
[56] Hearing transcript p. 70 (Hoeck); p. 126 (Ebnesajjad).
[57] Petitioner's posthearing brief, Exhibit 3, p. 2.

Granular PTFE resin is produced from TFE through suspension polymerization. The process, which involves vigorous agitation and uses little or no surfactant to produce a precipitate resin, yields a polymer that consists of a repeating chain of TFE (C_2F_4), as shown below.[58]



After polymerization the wet polymer PTFE resembles string-like particles of raw polymer in a milky white solution. The particles are then cut to achieve the desired particle size, agglomerated, and dried. The dried resin can then be ground to produce granular PTFE resin, or ground and heated to produce pre-sintered PTFE resin.[59] The result of this process is a granular or powder product that typically ranges in particle size from 20 microns (μ) and a bulk density of 250 grams per liter (g/L), to 650 μ and 705 g/L depending upon the end-use application, as denoted earlier. It is sold in several different grades, including various sizes of powder, pre-sintered powders, pellets, and compounded molding powders containing fillers and pigments, such as fiberglass, carbon, bronze, or carbon black.[60]

PTFE dispersions are obtained by dispersion polymerization. This process involves mild agitation to avoid coagulation and to keep the particles separated and suspended in solution.[61] Surfactants are also added to keep the particles dispersed in the solution.[62] [63] Following polymerization, additional surfactants may be added to form a stable aqueous dispersion of approximately 60 percent PTFE in water. This process yields a solution similar in appearance and consistency to milk.[64] The dispersion may be packaged and sold as PTFE dispersion. Alternatively, the suspended particles can be agglomerated, separated, and dried to produce a fine powder. Fine powder, despite the name, is generally larger in particle size than granular PTFE resin which has a particle size that usually ranges from 20-650 μ and has a bulk density of

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[58] Hearing transcript, p. 18 (Hoeck). n = number of repeating units of the monomer TFE.

[59] Gangal, S.V., Brothers, P.D. "*Perfluorinated Polymers, Polytetrafluoroethylene"* Kirk-Othmer Encyclopedia of Chemical Technology, https://doi.org/10.1002/0471440264.pst233.pub2, retrieved April 19, 2018.

[60] Compounded molding powder, or "filled" PTFE resin, is produced by mixing granular PTFE resin with inorganic fillers, from 5 to 60 percent by weight.

[61] Hearing transcript, p. 81 (Hoeck, Genna).

[62] Hearing transcript, p. 19 (Hoeck).

[63] Historically perfluorinated octanoic acid ("PFOA") was the surfactant of choice, but Chemours has eliminated the use of PFOA in their production, instead utilizing GenX and LX technologies. Some Chinese companies may still use PFOA. Conference transcript, pp. 123-124 (Baillie).

[64] Hearing transcript, p. 19 (Hoeck).

250-700 grams per liter (g/L). As described earlier, fine powder PTFE typically ranges in particle size from 400 µ and a bulk density of 475 g/L, to 490 µ and 550 g/L.

The production of granular PTFE is not performed on the same equipment as fine powder and dispersion PTFE.[65] For subsequent end-product fabrication, fine powder and dispersion PTFE need separate equipment.[66]

As noted above, all forms of PTFE resin may be compounded[67] with additives to produce filled PTFE resin. Compounding is a blending operation and does not involve a chemical reaction or manufacturing process, so it does not need to occur on the same site at TFE production.

DOMESTIC LIKE PRODUCT ISSUES

During the preliminary phase of these investigations, the petitioner proposed that the Commission find that there is a single domestic like product coextensive with the scope of the petitions.[68] The respondents proposed that PTFE resin in granular, dispersion, and fine powder forms each constitute a separate domestic product.[69] In the final phase of these investigations, the Commission received three comments to the draft questionnaires. PTFE Processors Alliance and Chinese respondents provided the Commission with definitions for commodity and specialty grade PTFE resin.

The Commission's decision regarding the appropriate domestic products that are "like" the subject imported product is based on a number of factors including: (1) physical characteristics and uses; (2) common manufacturing facilities and production employees; (3) interchangeability; (4) customer and producer perceptions; (5) channels of distribution; and (6) price. In its questionnaires, the Commission asked U.S. producers, U.S. fillers/processors, U.S. Importers, and U.S. purchasers to respond to these factors as either fully comparable, mostly comparable, somewhat comparable, never or not at all comparable, or no familiarity with products. Information provided by U.S. market participants regarding these domestic like product factors is displayed in table I-4 and is discussed below. For additional information on responses from U.S. producers, U.S. fillers/processors, U.S. Importers, and U.S. purchasers see appendix D.

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[65] Conference transcript, p. 21 (Hoeck) and pp. 115, 200 (Baillie).

[66] Conference transcript, p. 115 (Baillie).

[67] Also referred to as filling or blending. Hearing transcript, p. 54 (Hayes).

[68] *Polytetrafluorethylene (PTFE) Resin From China and India, Investigation Nos. 701-TA-588 and 731-TA-1392-1393 (Preliminary),* USITC Publication 4741, November 2017, p. I-14.

[69] Ibid.

Table I-4
PTFE resin: U.S. producers', U.S. importers', and U.S. purchasers' responses to the like product comparison

Firm	U.S. producers and U.S. fillers / processors			
	Fully comparable	Mostly comparable	Somewhat comparable	Not at all comparable
Granular vs dispersion.-- Physical characteristics	---	1	---	4
Interchangeability	---	---	1	4
Manufacturing	---	1	1	3
Channels	3	1	1	---
Perceptions	---	1	---	4
Price	---	1	2	2
Granular vs fine powder.-- Physical characteristics	---	1	1	2
Interchangeability	---	---	2	2
Manufacturing	---	1	1	3
Channels	3	1	1	---
Perceptions	---	1	---	4
Price	---	1	---	4
Fine powder vs dispersion.-- Physical characteristics	---	1	1	2
Interchangeability	---	---	2	2
Manufacturing	---	1	1	3
Channels	3	1	1	---
Perceptions	---	1	---	4
Price	---	1	---	4
Firm	**U.S. importers**			
	Fully	**Mostly**	**Somewhat**	**Not at all**
Granular vs dispersion.-- Physical characteristics	---	1	---	9
Interchangeability	---	---	1	9
Manufacturing	---	2	---	6
Channels	4	1	3	---
Perceptions	---	1	---	8
Price	---	1	2	6
Granular vs fine powder.-- Physical characteristics	---	1	2	10
Interchangeability	---	---	5	8
Manufacturing	---	2	1	9
Channels	4	1	6	2
Perceptions	---	1	---	12
Price	---	1	1	11
Fine powder vs dispersion.-- Physical characteristics	---	1	2	10
Interchangeability	---	---	5	8
Manufacturing	---	2	1	9
Channels	4	1	6	2
Perceptions	---	1	---	12
Price	---	1	1	11

Table continues on the next page.

Table I-4--Continued
PTFE resin: U.S. producers', U.S. importers', and U.S. purchasers' responses to the like product comparison

Firm	U.S. purchasers			
	Fully comparable	Mostly comparable	Somewhat comparable	Not at all comparable
Granular vs dispersion.-- Physical chartacteristics	---	1	1	16
Interchangeability	---	1	1	16
Manufacturing	---	3	2	8
Channels	3	4	4	1
Perceptions	1	2	1	13
Price	---	1	2	10
Granular vs fine powder.-- Physical chartacteristics	---	1	3	15
Interchangeability	---	1	4	14
Manufacturing	---	2	3	11
Channels	3	5	7	1
Perceptions	1	2	3	15
Price	---	1	2	14
Fine powder vs dispersion.-- Physical chartacteristics	---	1	3	15
Interchangeability	---	1	4	14
Manufacturing	---	2	3	11
Channels	3	5	7	1
Perceptions	1	2	3	15
Price	---	1	2	14

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

Physical characteristics and uses

In the preliminary phase, Petitioners argued that PTFE products in all forms share similar physical characteristics because they share the same properties, such as chemical inertness, overlapping particle sizes, heath and chemical resistance, a low coefficient of friction, and functionality over a wide temperature range.[70] The Commission requested information about the comparability of the physical characteristics of granular to dispersion PTFE resin, granular to fine powder PTFE resin, and fine powder to dispersion PTFE resin. Most U.S. producers and U.S. fillers/processors, U.S. importers, and U.S. purchasers viewed the physical characteristics as "not at all" comparable noting the differences in the physical forms of PTFE resin. However, ***.

[70] *Polytetrafluoroethylene (PTFE) Resin from China and India, Investigation Nos. 701-TA-588 and 731-TA-1392-1393 (Preliminary),* USITC Publication 4741, November 2017, p. 6.

Chemours stated in its posthearing brief that "Hearing testimony and questionnaire responses confirm that all three forms share some common end uses, such as film, electrical insulation, gaskets, linings, and packing for chemical applications; and wire coating, jacketing, and tubing."[71] Chemours specifically identified pipe liners as an end use product that "can also be made from all three forms of PTFE (by spraying dispersion into the pipe, molding granular into a mandrel, or sintering a fine powder paste-extruded liner)."[72] The PTFE Processors Alliance (PPA) and Chinese respondents argued in its posthearing brief that "the three PTFE forms are suitable for producing very different classes of end-use products – granular form is typically used to produce moldings and stock shape; fine powder is typically used to produce extruded paste and other porous materials; aqueous dispersion is typically used for coatings."[73] Furthermore, PPA and Chinese respondents state that "instances of alleged overlapping uses such as in the production of films are illusory and contradicted by record evidence showing that the different types of PTFE films made from the three types of PTFE are not interchangeable, and are distinct from one another in terms of thickness and actual application."[74]

Manufacturing facilities and production employees

In the preliminary phase of these investigations, the Commission found that while all forms of in-scope PTFE resin are produced from TFE, the record indicated some differences in production machinery.[75] The Commission requested information about the comparability of manufacturing facilities and production employees of granular to dispersion PTFE resin, granular to fine powder PTFE resin, and fine powder to dispersion PTFE resin. Respondent U.S. producers and U.S. fillers/processors, U.S. importers, and U.S. purchasers viewed the manufacturing facilities and production employees as "not at all" comparable, noting that the polymerization process for granular PTFE resin is different than for dispersion and fine powder PTFE resin in that granular PTFE resin is produced on a suspension reactor, whereas the polymerization process for dispersion and fine powder PTFE resin is performed on an emulsion reactor. ***.

Interchangeability

The Commission stated that "while there might be some overlap in end uses between granular, fine powder, and dispersion PTFE, no party contends that the different forms of PTFE

[71] Posthearing brief of Chemours, exh. 1-12

[72] Ibid.

[73] Posthearing brief of PTFE Processors Alliance and Chinese Respondents, responses to Commissioner questions, p. 8.

[74] Posthearing brief of PTFE Processors Alliance and Chinese Respondents, responses to Commissioner questions, p. 8.

[75] *Polytetrafluoroethylene (PTFE) Resin from China and India, Investigation Nos. 701-TA-588 and 731-TA-1392-1393 (Preliminary),* USITC Publication 4741 November 2017, pp. 8-9.

are interchangeable."[76] The Commission requested information about the interchangeability of granular to dispersion PTFE resin, granular to fine powder PTFE resin, and fine powder to dispersion PTFE resin. A majority of U.S. producers, U.S. fillers/processors, U.S. importers, and U.S. purchasers viewed the interchangeability not at all comparable. ***.

Customer and producer perceptions

The Commission requested information about the perceptions of granular to dispersion PTFE resin, granular to fine powder PTFE resin, and fine powder to dispersion PTFE resin. Most U.S. producers, U.S. fillers/processors, U.S. importers, and U.S. purchasers perceived the "not at all" comparable. ***.

Channels of distribution

The Commission requested information about the channels of distribution for granular to dispersion PTFE resin, granular to fine powder PTFE resin, and fine powder to dispersion PTFE resin. Firms were more likely to respond "fully", "mostly", and "somewhat" comparable than for other factors. Responses varied substantially; overall most U.S. producers and U.S. fillers/processors responded "fully" and a plurality of all responding importers and purchasers responded "somewhat". Specifically firms noted that they use the same channels for all PTFE resin.

Price

The Commission requested information about the prices for granular to dispersion PTFE resin, granular to fine powder PTFE resin, and fine powder to dispersion PTFE resin. Most U.S. producers, U.S. fillers/processors, U.S. importers, and U.S. purchasers perceived prices to be "not at all" comparable. Most firms noted that fine powder is the most expensive of the three PTFE products and granular is typically the least expensive. ***. Chemours reported in its posthearing brief that "PTFE that has been blended (or filled or compounded) with additives may be priced higher than PTFE that is not blended with additives, depending on the price of the additives."[77] PPA and Chinese respondents reported in their brief that "fine powder is the most expensive due to more intricate polymerization followed by critical finishing, storage and transportation requirements."[78] Furthermore, "Granular form is the least expensive of the three forms."[79]

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[76] *Polytetrafluoroethylene (PTFE) Resin from China and India, Investigation Nos. 701-TA-588 and 731-TA-1392-1393 (Preliminary),* USITC Publication 4741, November 2017, p. 9.

[77] Posthearing brief of Chemours, exhibit 1 – 18.

[78] Posthearing brief of PTFE Processors Alliance and Chinese respondents, p. 4.

[79] Ibid.

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

U.S. MARKET CHARACTERISTICS

PTFE resin is used in a wide range of industries, including the oil and gas, automotive, aerospace, industrial, chemical, and semiconductor industries. There are three major forms of PTFE resin sold in the United States: granular, dispersion, and fine powder. PTFE resin can also either be filled or unfilled. Two firms, ***, produce all domestic unfilled PTFE resin and sell it to fillers/processors, distributors, and end users. Fillers and processors generally sell filled PTFE resin to distributors and end users for use in other downstream products.[1] Common end uses include gaskets, seals, rings, linings, packing, film, tape, insulation, wire coating, jacketing, tubing, pipe liners and coating, and woven goods. All three forms of PTFE resin have similar physical characteristics,[2] and some applications, such as tape and film, may allow for interchangeable use.[3]

Apparent U.S. consumption of PTFE resin increased marginally between 2015 and 2017. Overall, reported apparent U.S. consumption in 2017 was *** percent higher than in 2015.

U.S. PURCHASERS

The Commission received 36 usable questionnaire responses from firms that have purchased PTFE resin during 2015.[4] Three responding purchasers are distributors, 24 are end users, 15 are fillers or further processors, and 2 are manufacturers.[5] In general, responding U.S. purchasers were located in the Northeast, Midwest, Southeast, Central Southwest, and Mountains regions. The responding purchasers represented firms in a variety of domestic industries, including chemical, electronic, manufacturing, and automotive. The largest responding purchasers of PTFE resin are ***.

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[1] The Commission requested fillers/processors to respond to the producer and importer questionnaires. Unless otherwise noted, fillers responses are categorized as importers in Part II.

[2] These physical properties include chemical inertness, heat and chemical resistance, electrical insulation properties, low coefficient of friction, and functionality over a wide range of temperatures. Preliminary conference transcript, pp. 10 (Nikakhtar), 18 (Hoeck).

[3] Conference transcript, pp. 18-20 (Hoeck), 23 (Hayes), 65-66 (Hoeck).

[4] Of the 36 responding purchasers, 35 purchased the domestic PTFE resin, 15 purchased imports of the PTFE resin from China, 18 purchased imports of the PTFE resin from India, and 21 purchased imports of PTFE resin from other sources.

[5] Seven purchasers provided more than one category.

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CHANNELS OF DISTRIBUTION

U.S. producers *** and importers sold mainly to fillers and processors, as shown in table II-1. Both U.S. producers and importers sold a relatively large share of PTFE resin to end users, and U.S. producers also sold a modest share to distributors.

Table II-1
PTFE resin: U.S. producers' and importers' U.S. commercial shipments, by sources and channels of distribution, 2015-17

* * * * * * *

GEOGRAPHIC DISTRIBUTION

U.S. producers and importers reported selling PTFE resin to all regions in the contiguous United States (table II-2). For U.S. producers, *** percent of sales were within 100 miles of their production facility, *** percent were between 101 and 1,000 miles, and *** percent were over 1,000 miles. Importers sold 5 percent within 100 miles of their U.S. point of shipment, 56 percent between 101 and 1,000 miles, and 39 percent over 1,000 miles.

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

Region	U.S. producers	Importers
Northeast	2	7
Midwest	2	5
Southeast	2	3
Central Southwest	2	5
Mountain	2	1
Pacific Coast	2	4
Other[1]	1	---
All regions (except Other)	2	1
Reporting firms	2	7

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

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

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SUPPLY AND DEMAND CONSIDERATIONS

U.S. supply

Table II-3 provides a summary of the supply factors regarding PTFE resin from U.S. producers, U.S. fillers/processors, and from China and India.

Table II-3

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

	Capacity (1,000 pounds dry weight)		Capacity utilization (percent)		Ratio of inventories to total shipments (percent)		Shipments by market, 2017 (percent)		Able to shift to alternate products
Country	2015	2017	2015	2017	2015	2017	Home market shipments	Exports to non-U.S. markets	No. of firms reporting "yes"
United States: Producers	***	***	***	***	***	***	***	***	1 of 2
Fillers/ processors	***	***	***	***	***	***	***	***	0 of 2[1]
China	***	***	***	***	***	***	***	***	0 of 10
India	***	***	***	***	***	***	***	***	1 of 1

[1] Only two of six fillers/processors provided a response to this question.

Note.-- Responding U.S. producers accounted for all of U.S. production of PTFE resin in 2017. Responding Chinese exporters accounted for more than half of U.S. imports of PTFE resin from China during 2017. Responding Indian exporters accounted for more than 75 percent of U.S. imports of PTFE resin from India during 2017. For additional data on the number of responding firms and their share of U.S. production and of U.S. imports from each subject country, please refer to Part I, "Summary Data and Data Sources."

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

Domestic production

Based on available information, U.S. producers of PTFE resin have the ability to respond to changes in demand with moderate changes in the quantity of shipments of U.S.-produced PTFE resin to the U.S. market.[6] The main contributing factors to this degree of responsiveness of supply are the modest availability of unused capacity and inventories and some ability to shift shipments from alternate markets. Factors mitigating responsiveness of supply include limited ability to shift production to or from alternate products.

[6] U.S. fillers and processors of PTFE resin have the ability to respond to changes in demand with moderate-to-large changes in the quantity of shipments of U.S.-produced PTFE resin to the U.S. market. The main contributing factors to responsiveness include large availability of unused capacity and inventory, but limited ability to shift to alternative markets and reported inability to shift production.

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U.S. producers reported capacity increasing by *** percent and production increasing by *** percent between 2015 and 2017, leading to a ***-percentage point increase in capacity utilization. *** reported being able to switch between fine powder and dispersion PTFE resins as both products are produced on the same polymerization reactor. Factors reportedly limiting U.S. producers' ability to shift production include granular PTFE resin not using the same polymerization reactor as dispersion PTFE resin and other products (e.g., FEP or PFA) being produced on different equipment.

Subject imports from China

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

Chinese producers reported capacity increasing by 3.8 percent and production increasing by 6.0 percent between 2015 and 2017, leading to an increase of 1.8 percentage points in capacity utilization. Outside the United States, China's largest export markets include South Korea, Italy, and Belgium. Two Chinese producers reported being able to produce fine powder and dispersion PTFE resins on the same equipment, but stated that other products, including granular, could not be produced on the same equipment.

Subject imports from India

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

Indian producers reported *** in capacity and production increasing by *** percent between 2015 and 2017, leading to an increase of *** percentage points in capacity utilization. Outside the United States, India's largest export markets include Germany and Italy. One Indian producer reported being able to produce fine powder and dispersion PTFE resins on the same equipment and using the TFE produced in house for other fluoropolymers and fluorochemicals, but stated that granular could not be produced on the same equipment.

Imports from nonsubject sources

Nonsubject imports accounted for *** percent of total U.S. imports in 2017. The largest sources of nonsubject imports during 2015-17 were Germany and Italy. Combined, these countries accounted for *** percent of nonsubject imports in 2017.

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Supply constraints

*** responding U.S. producers reported having to refuse, decline, or being unable to supply an order of PTFE resin since January 2015. ***. U.S. producer *** identified supply constraints due to increasing global demand for molding powder.[7] Five of 14 responding importers reported supply constraints since January 2015,[8] with *** reporting discontinuing certain grades of granular PTFE resin and removing grades that were no longer profitable in 2015. *** cited changing environmental regulations in China for reducing the capacity of fluoropolymers in 2017, causing lead times to increase for its granular PTFE resin business. The majority of purchasers (21 of 36) reported supply constraints in the PTFE resin market since January 2015, with 16 reporting changes in the availability U.S.-produced PTFE resin and 13 reporting changes in the availability of Chinese and Indian PTFE resin since January 2015. *** reported that *** was unable to supply dispersion PTFE resin on multiple occasions during 2017, and that other suppliers had placed the firm on allocation and were providing late shipments in 2018. *** reported being placed on allocation for certain grades of PTFE resin (including fine powder and granular). Multiple purchasers stated that suppliers are making late shipments or quoting extended lead times, with some suppliers not taking orders for immediate delivery or unforecasted orders. Purchasers reported capacity disruptions and demand exceeding global supply as reasons for changing availability in the market since January 2015.

New suppliers

Seven of 36 purchasers indicated that new suppliers entered the U.S. market since January 1, 2015. Purchasers listed GFL America and Hangzhou Fine Fluorotech Company as new suppliers.

U.S. demand

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

End uses and cost share

U.S. demand for PTFE resin depends on the demand for U.S.-produced downstream products. End uses were reported for granular, fine powder, and dispersion PTFE resin

[7] Molding powder is a grade of PTFE resin that has improved creep resistance and weldability, and is used for specific applications such as packing, gaskets, and linings. Daikin, *Product Information: Polyflon PTFE Molding Powder*, January 2002.

[8] U.S. producer and importer *** provided the same response in both its producer and importer questionnaire.

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separately. Reported end uses for granular PTFE resin include seals, gaskets, bearings, films, tapes, molded parts, fitting and pipe liners, PTFE dry micro powder, compounds, semiconductor pump body, bellows, and heads. Reported end uses for fine powder included seals, gaskets, bearings, films, tapes, expansion membranes/expansion joint laminate, PTFE sheeting, floating roof seal laminate, PTFE dry micro powder, PTFE dispersions, wax PTFE blend powder, auto cabling, high temp oxygen sensor wired, insulated wire and cable, electrode, slydway, and hoses. Reported uses for dispersion included seals, gaskets, bearings, films, tapes, coatings, insulation jacketing, expansion joints, cast film septa, base for nonstick coatings, wire, and fiber.

PTFE resin accounts for a moderate share of the cost of the end-use products in which it is used. The shares reported differ greatly between firms, however, most responses (42 of 81) were that PTFE resin's share was less than half the cost of the end use. Reported cost shares for some end uses were as follows:[9]

- Bearings, seals, and gaskets: 21 to 60 percent
- Wire cable and insulation: 12 to 64 percent
- Films, membranes, sheeting, and tapes: 47 to 48 percent
- Extruded shapes and molded parts: 31 percent
- PTFE hose, pipe, fittings, and liners: 6 to 60 percent

Categories of use

Purchasers were asked to report the frequency with which different forms of PTFE resin (i.e., granular, fine powder, and dispersion) can be used for certain applications. As seen in table II-4, the majority of responding purchasers stated that granular and fine powder PTFE resin can "never" be used in coatings and impregnating woven goods, while the vast majority reported that dispersion PTFE resin can "frequently" be used in such applications. Most responding purchasers reported that granular and fine powder PTFE resin can "frequently" or "sometimes" be used in a variety of applications, while dispersion PTFE resin can "frequently" be used in applications.[10]

[9] *** reported *** percent cost shares for multiple applications. *** reported a *** percent cost share for bearings, and *** reported a *** percent cost share for gasket materials.

[10] The majority of responding purchasers reported that dispersion PTFE resin can "never" be used in wire coating, jacketing, tubing, or pipe liners.

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Table II-4
PTFE resin: Categories of use, as reported by U.S. purchaser, 2017

Factor	Number of firms				
	Always	Frequently	Sometimes	Never	No familiarity
Granular					
Gaskets, seals, & rings for automotive & aerospace applications	3	6	3	1	0
Gaskets, lining, and packing for chemical applications	5	6	2	1	0
Film	1	1	3	1	0
Insulation	0	3	3	1	0
Wire coating, jacketing, and tubing	0	0	3	3	0
Pipe liners	1	2	4	1	0
Piper coating	0	0	2	1	0
Coatings and impregnating woven goods	0	0	1	5	0
Other applications	0	1	0	1	0
Fine powder					
Gaskets, seals, & rings for automotive & aerospace applications	2	5	2	2	0
Gaskets, lining, and packing for chemical applications	1	6	1	2	0
Film	3	5	1	3	0
Insulation	1	4	2	1	0
Wire coating, jacketing, and tubing	8	5	2	1	0
Pipe liners	0	3	2	3	0
Piper coating	0	0	2	2	0
Coatings and impregnating woven goods	0	1	1	6	0
Other applications	0	0	0	1	0
Dispersion					
Gaskets, seals, & rings for automotive & aerospace applications	1	2	3	5	0
Gaskets, lining, and packing for chemical applications	0	1	7	3	0
Film	0	2	4	2	0
Insulation	0	1	3	3	0
Wire coating, jacketing, and tubing	0	1	1	5	0
Pipe liners	0	0	1	5	0
Piper coating	0	0	3	3	0
Coatings and impregnating woven goods	3	8	0	1	0
Other applications	3	1	0	0	0

Note.-- Other reported applications included non-stick cookware coatings, fibers, coated fiberglass sewing thread, and components for semiconductor industry use.

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

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Business cycles

*** responding U.S. producers indicated that the market was not subject to business cycles and conditions of competition and did not elaborate. Most importers (10 of 15 responding) and purchasers (23 of 35) reported that the market was not subject to either business cycles or conditions of competition. Those reporting the presence of business cycles identified weaker demand in December and mid-summer for vacations and inventory adjustments, growth in demand up to twice as fast as GDP, resin subject to construction and capital spending cycles (granular and fine powered), and seasonal demand. Reported conditions of competition included performance of the oil and gas sector, and planned and unplanned plant shutdowns. Granular PTFE resin was reported as being more strongly influenced by major capital spending than dispersion and fine powder. For all three types of PTFE, firms identified Chemours' and Daikin's discontinued supply of commodity grades leading to increased imports, global capacity limits lead to price increases, and tight supplies from Daikin, as changes in competition since 2015.

Demand trends

PTFE resin is used in a wide range of industries, including automotive, chemical, and electronics. U.S. demand for PTFE resin largely follows demand trends in these sectors, though the most consistent indicator is overall GDP growth.[11] As shown in figure II-1, domestic GDP in current and real terms grew by 5.8 percent and 3.1 percent, respectively, between the first quarter of 2015 and the fourth quarter of 2016, and grew by 5.6 percent and 3.1 percent, respectively, between the fourth quarter of 2016 and the first quarter of 2018.

[11] Conference transcript, p. 70 (Genna).

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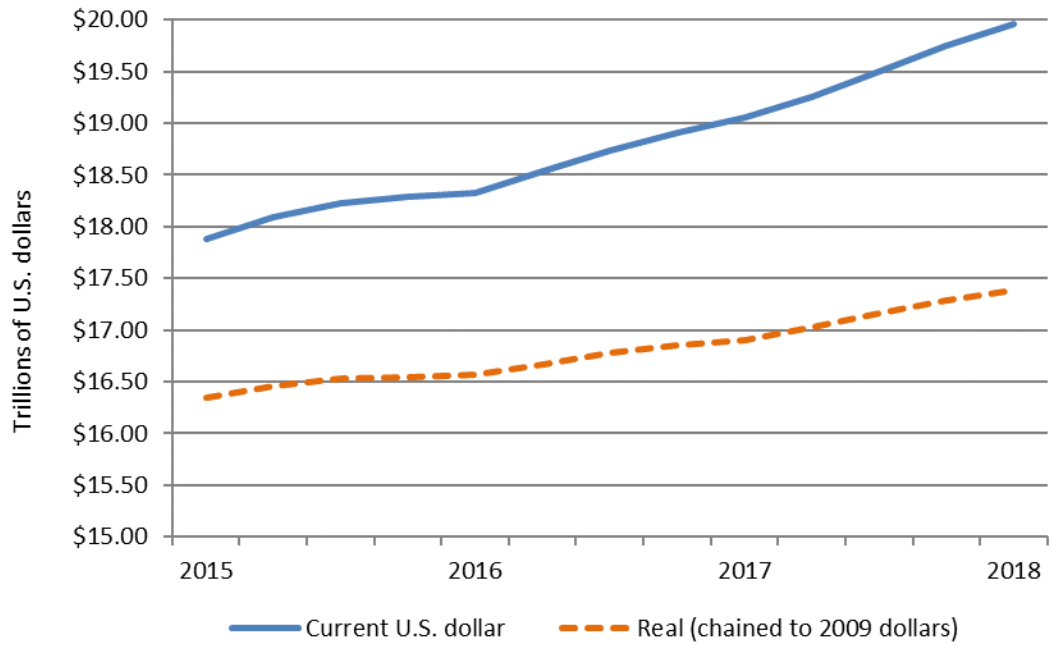
Figure II-1
GDP growth: Gross domestic product in the United States, current dollar and real (chained 2009 dollars), seasonally adjusted, by quarter, first quarter of 2015 through first quarter of 2018



Source: Bureau of Economic Analysis, updated May 30, 2018. Retrieved June 11, 2018.

The majority of firms reported an increase in U.S. demand for PTFE resin since January 1, 2015 (table II-5).

Table II-5
PTFE resin: Firms' responses regarding U.S. demand and demand outside the United States

Item	Increase	No change	Decrease	Fluctuate
Demand in the United States				
U.S. producers	2	---	---	---
Importers	11	1	1	2
Purchasers	15	2	3	8
Demand outside the United States				
U.S. producers	2	---	---	---
Importers	10	1	---	2
Purchasers	17	3	1	5

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

Substitute products

The vast majority of U.S. producers, importers, and purchasers reported that there were no substitutes for PTFE resin. Identified substitutes for some applications included PFA and FEP resins, silicone, and polyethylene.

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SUBSTITUTABILITY ISSUES

The degree of substitutability between domestic and imported PTFE resin depends upon such factors as relative prices, quality (e.g., grade standards, defect rates, etc.), and conditions of sale (e.g., price discounts/rebates, lead times between order and delivery dates, reliability of supply, product services, etc.). Based on available data, staff believes that there is moderate degree of substitutability between domestically produced PTFE resin and PTFE resin imported from subject sources.

Lead times

PTFE resin is primarily sold from inventory. U.S. producers sold *** percent of their commercial shipments from inventories, with lead times averaging 10 days. The remaining *** percent of their commercial shipments were produced-to-order, with lead times averaging 39 days. U.S. importers reported that *** percent of their commercial shipments were from U.S. inventory and *** percent from foreign inventories, with lead times averaging 7 days and 58 days, respectively. The remaining *** percent of their commercial shipments were produced-to-order, with lead times averaging 60 days.

Knowledge of country sources

Thirty-four purchasers indicated they had marketing/pricing knowledge of domestic product, 27 of Chinese product, 25 of Indian product, and 24 of nonsubject countries.

As shown in table II-6, most purchasers and their customers sometimes or never make purchasing decisions based on the producer or country of origin though half (18 of 36) of responding purchasers always or usually make decisions based on the producer. Of the 10 purchasers that reported that they always make decisions based the manufacturer, three firms cited the importance of purchasing from qualified producers who offer the specific product range they are looking to buy.

Table II-6
PTFE resin: Purchasing decisions based on producer and country of origin

Purchasing decision (purchaser/customer)	Always	Usually	Sometimes	Never
Purchaser makes decision based on producer	10	8	10	8
Purchaser's customers make decision based on producer	1	4	12	15
Purchaser makes decision based on country	2	7	6	21
Purchaser's customers make decision based on country	1	---	11	20

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

Factors affecting purchasing decisions

The most often cited top three factors firms consider in their purchasing decisions for PTFE resin were quality (27 firms), price (27 firms), and availability/supply (18 firms) as shown in table II-7. Quality was the most frequently cited first-most important factor (cited by 17 firms), followed by other factors (12 firms); various other factors were the most frequently reported as the second-most important factor (11 firms); and price was the most frequently reported

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third-most important factor (15 firms). The majority of purchasers (18 of 35) reported that they only sometimes purchase the lowest-priced product.

Table II-7

PTFE resin: Ranking of factors used in purchasing decisions as reported by U.S. purchasers, by factor

Factor	First	Second	Third	Total
Price / Cost	4	8	15	27
Quality	17	9	2	27
Availability / Supply	3	8	8	18
Other[1]	12	11	9	NA

[1] Other factors include product grades, physical properties, lead times, and supplier relationships.

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

When asked if they purchased PTFE resin from one source although a comparable product was available at a lower price from another source, 28 purchasers reported reasons including customer specifications, quality concerns, diversification of supply, and technical support.

When asked what characteristics their firm considers when determining the quality of PTFE resin, 33 purchasers reported characteristics including particle size, product consistency, ASTM requirements and meeting other industry specifications, processability, and cleanliness.

Importance of specified purchase factors

Purchasers were asked to rate the importance of 19 factors in their purchasing decisions (table II-8). The factors identified as most important were those associated with product characteristics and availability. The factors rated as very important by more than half of responding purchasers were availability and product consistency (35 each); reliability of supply (34); meet's my firm's qualification requirements (33); delivery time (32); quality meets industry standards (31); end use product specifications (30); particle size (28); price (22); and quality exceeds industry standards and technical support (18 each). Brand name, packaging, product range, and U.S. transportation costs were identified by a large majority of responding purchasers as somewhat or not important.

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Table II-8
PTFE resin: Importance of purchase factors, as reported by U.S. purchasers, by factor

Factor	Very important	Somewhat important	Not important
Availability	35	1	---
Brand name	---	11	23
Delivery terms	16	20	---
Delivery time	32	4	---
Discounts offered	6	19	11
End use product specifications	30	4	2
Extension of credit	8	18	10
Meet's my firm's qualification requirements	33	3	---
Minimum quantity requirements	8	14	14
Packaging	3	26	7
Particle size	28	5	3
Price	22	14	---
Product consistency	35	1	---
Product range	7	22	7
Quality meets industry standards	31	2	2
Quality exceeds industry standards	18	13	4
Reliability of supply	34	2	---
Technical support/service	18	17	1
U.S. transportation costs	9	23	4

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

Supplier certification

Thirty-three of 36 responding purchasers require their suppliers to become certified or qualified to sell PTFE resin to their firm (table II-9). Firms reported a wide variety of certification processes used to qualify PTFE. In addition to general use of tests and trials, quality assessment, and supplier inspections and audits, firms also cited various qualification standards such as ISO certification, UL standards, and ASTM standards. Purchasers reported that the time to qualify a new supplier ranged from 30 to 400 days. Nine purchasers reported that a domestic or foreign supplier, including ***, had failed in its attempt to qualify PTFE resin, or had lost its approved status since 2015.

Table II-9
PTFE resin: Supplier certification process, as reported by U.S. purchasers

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Changes in purchasing patterns

Purchasers were asked about changes in their purchasing patterns from different sources since 2015 (table II-10). Reasons reported for changes in sourcing included pricing, availability of specialty product, increased demand, need for additional sourcing for reliability of supply, and quality concerns. Eleven of 35 responding purchasers reported that they had changed suppliers since January 1, 2015. Specifically, firms dropped or reduced purchases from Zhonghao Chenguang and Shandong. Firms added or increased purchases from GFL Americas and AGC Chemicals to ease supply chain disruptions, access specialty applications, and reduce material costs. Firms also reported changes because of discontinuation of commodity grades and quality issues.

Table II-10
PTFE resin: Changes in purchase patterns from U.S., subject, and nonsubject countries

Source of purchases	Did not purchase	Decreased	Increased	Constant	Fluctuated
United States	1	6	9	9	13
China	15	4	5	4	3
India	15	1	11	---	5
Other	9	4	6	6	4

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

Importance of purchasing domestic product

Sixteen of 33 purchasers reported that purchasing U.S.-produced product was not required in their purchasing decisions. Seven reported that domestic product was required by law (for 2 to 20 percent of their purchases), 11 reported it was required by their customers (for 5 to 55 percent of their purchases), and eight reported other preferences for domestic product. Reasons cited for preferring domestic product included: shipping, performance, and customers not allowing changes in supply.

Comparisons of domestic products, subject imports, and nonsubject imports

Purchasers were asked a number of questions comparing PTFE resin produced in the United States, subject countries, and nonsubject countries. First, purchasers were asked for a country-by-country comparison on the same 19 factors (table II-11) for which they were asked to rate the importance.

Overall, most purchasers reported that U.S. PTFE resin and PTFE resin from China and India were superior or comparable on every factor except price and technical support. Overall, the majority of purchasers comparing PTFE resin from China with that from India reported that the countries were comparable on every factor. Of the factors purchasers rated as very important in purchasing decisions (table II-8), purchasers reported that U.S.-produced PTFE resin was superior to Chinese product on delivery time, end-use product specifications, quality meets industry standards, quality exceeds industry standards, and technical support and service. For the same "very important" factors, purchasers rated U.S.-produced PTFE resin superior to Indian product on delivery time and technical support and service.

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Table II-11
PTFE resin: Purchasers' comparisons between U.S.-produced and imported product

Factor	U.S. vs. China			U.S. vs. India			China vs. India		
	S	C	I	S	C	I	S	C	I
Availability	6	13	3	6	12	3	2	10	4
Brand name	14	6	1	14	6	1	3	13	1
Delivery terms	11	7	1	7	11	2	---	10	5
Delivery time	14	5	2	12	6	3	---	10	5
Discounts offered	1	11	6	---	15	6	2	12	---
End use product specifications	11	9	1	8	12	1	2	13	1
Extension of credit	5	13	1	3	15	2	---	11	4
Meet's my firm's qualification requirements	7	13	1	7	9	4	4	9	4
Minimum quantity requirements	7	11	1	4	14	2	3	10	3
Packaging	5	15	---	4	16	1	---	12	4
Particle size	3	17	---	4	16	1	1	13	2
Price[1]	1	7	12	1	9	9	3	11	1
Product consistency	12	9	1	11	9	1	3	12	2
Product range	10	8	1	8	8	4	1	12	2
Quality meets industry standards	12	9	---	5	16	---	3	11	3
Quality exceeds industry standards	11	8	---	8	13	---	---	10	4
Reliability of supply	8	10	3	8	11	1	3	9	3
Technical support/service	13	8	1	11	6	4	2	9	6
U.S. transportation costs[1]	9	11	---	5	13	1	2	10	4

Factor	U.S. vs. nonsubject			China vs. nonsubject			India vs. nonsubject		
	S	C	I	S	C	I	S	C	I
Availability	4	12	1	2	7	3	---	8	---
Brand name	4	11	---	---	6	6	---	4	4
Delivery terms	2	14	---	---	6	5	---	8	---
Delivery time	6	9	1	---	6	5	---	8	---
Discounts offered	3	12	---	1	6	1	---	6	---
End use product specifications	2	12	1	---	5	6	---	6	1
Extension of credit	2	11	---	---	5	4	---	6	---
Meet's my firm's qualification requirements	2	15	---	---	7	5	1	5	2
Minimum quantity requirements	1	14	---	---	7	4	---	8	---
Packaging	1	15	---	---	9	2	---	7	---
Particle size	1	15	---	---	10	1	---	8	---
Price[1]	2	12	1	5	6	---	2	5	---
Product consistency	1	16	---	---	7	5	---	6	2
Product range	1	14	1	---	8	3	1	5	2
Quality meets industry standards	1	16	---	---	9	3	---	7	1
Quality exceeds industry standards	1	15	---	---	5	6	---	5	3
Reliability of supply	2	13	2	3	6	3	1	6	---
Technical support/service	4	12	1	---	5	7	---	6	2
U.S. transportation costs[1]	1	13	1	1	7	3	1	6	---

[1] A rating of superior means that price/U.S. transportation cost is generally lower. For example, if a firm reported "U.S. superior," it meant that the U.S. product was generally priced lower than the imported product.

Note.--S=first listed country's product is superior; C=both countries' products are comparable; I=first list country's product is inferior.

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

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Comparison of U.S.-produced and imported PTFE resin

In order to determine whether U.S.-produced PTFE resin can generally be used in the same applications as imports from China and India, U.S. producers, importers, and purchasers were asked whether the products can always, frequently, sometimes, or never be used interchangeably. As shown in table II-12, *** reported that all PTFE resin was "frequently" interchangeable, regardless of source, and *** reported that it was "sometimes" interchangeable for all country comparisons. Among importers, a majority of firms reported that PTFE resin was "sometimes" interchangeable for all country comparisons. The vast majority of purchasers reported that U.S.-produced PTFE resin was frequently or sometimes interchangeable for all country comparisons, though more purchasers responded "sometimes" rather than "frequently" for the U.S.-China comparison.

Table II-12
PTFE resin: Interchangeability between PTFE resin produced in the United States and in other countries, by country pair

Country pair	Number of U.S. producers reporting				Number of U.S. importers reporting				Number of purchasers reporting			
	A	F	S	N	A	F	S	N	A	F	S	N
U.S. vs. subject countries:												
U.S. vs. China	---	1	1	---	1	2	11	1	1	6	14	---
U.S. vs. India	---	1	1	---	---	1	11	---	2	10	10	---
Subject countries comparisons:												
China vs. India	---	1	1	---	---	3	6	---	---	7	6	---
Nonsubject countries comparisons:												
U.S. vs. Germany	---	1	1	---	---	3	9	---	2	9	6	---
U.S. vs. Italy	---	1	1	---	---	2	7	---	1	8	4	---
U.S. vs. Other	---	1	1	---	---	1	8	---	---	5	7	---
China vs. Germany	---	1	1	---	---	2	5	2	---	5	5	---
China vs. Italy	---	1	1	---	---	1	7	---	---	3	6	---
China vs. Other	---	1	1	---	---	4	5	---	---	3	5	---
India vs. Germany	---	1	1	---	---	1	6	---	---	6	4	---
India vs. Italy	---	1	1	---	---	1	7	---	---	5	6	---
India vs. Other	---	1	1	---	---	3	5	---	---	4	4	---
Germany vs. Italy	---	1	1	---	---	2	5	---	1	6	3	---
Germany vs. Other	---	1	1	---	---	1	7	---	---	3	4	---
Italy vs. Other	---	1	1	---	---	---	5	---	---	5	2	---

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

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

Almost all responding purchasers reported that domestically produced product always or usually met minimum quality specifications (table II-13). A slight majority of responding purchasers reported that Chinese PTFE resin always or usually met minimum quality specifications, and a large majority of purchasers reported that Indian PTFE resin always or

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usually met minimum quality specifications. The majority (17 of 35) responding purchasers reported that domestically produced product always met ASTM specifications, while most purchasers reported that Chinese and Indian product "always" or "usually" meet ASTM specifications (table II-14).

Table II-13
PTFE resin: Ability to meet minimum quality specifications, by source[1]

Source	Always	Usually	Sometimes	Rarely or never
United States	19	14	1	1
China	3	7	6	3
India	4	11	3	1
Germany	7	7	2	2
Italy	2	7	3	1
Other	5	6	3	1

[1] Purchasers were asked how often domestically produced or imported PTFE resin meets minimum quality specifications for their own or their customers' uses.

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

Table II-14
PTFE resin: Ability to meet ASTM specifications, by source

Source	Always	Usually	Sometimes	Rarely or never
United States	17	10	0	0
China	6	5	3	1
India	6	7	2	1
Germany	7	4	1	0
Italy	3	5	1	0
Other	5	4	2	1

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

In addition, producers, importers, and purchasers were asked to assess how often differences other than price were significant in sales of PTFE resin from the United States, subject, or nonsubject countries (table II-15). ***. ***. Among importers, responses were mixed. A plurality of firms reported that non-price differences were "sometimes" a significant factor for all country comparisons. U.S. producer *** stated that logistics and availability can vary between U.S. product and German and Italian PTFE resin. U.S. importer

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*** stated, "The United States frequently does not have the ability to support our requirements with its existing capacity. *** does not have a current product in their mix *** which meets our standards. German supply is also very small compared to China's offerings and products are more readily available." ***, a U.S. importer, reported that Chinese PTFE resin has special properties when further processed that are preferred for automotive applications, and *** stated that compared to U.S.-produced granular PTFE resin, China and India only offer a broad range of commodity grade products with lower quality and varying availability.

Table II-15
PTFE resin: Significance of differences other than price between PTFE resin produced in the United States and in other countries, by country pair

Country pair	Number of U.S. producers reporting				Number of U.S. importers reporting				Number of purchasers reporting			
	A	F	S	N	A	F	S	N	A	F	S	N
U.S. vs. subject countries:												
U.S. vs. China	---	---	2	---	4	3	7	---	6	5	8	---
U.S. vs. India	---	---	2	---	2	1	8	---	5	7	9	---
Subject countries comparisons:												
China vs. India	---	---	2	---	---	1	5	2	2	---	9	---
Nonsubject countries comparisons:												
U.S. vs. Germany	---	1	1	---	3	2	6	1	4	1	10	---
U.S. vs. Italy	---	1	1	---	1	2	4	---	3	2	7	---
U.S. vs. Other	---	---	2	---	2	1	6	---	3	2	7	---
China vs. Germany	---	---	2	---	3	2	4	---	4	1	4	---
China vs. Italy	---	---	2	---	1	1	4	---	3	---	5	---
China vs. Other	---	---	2	---	1	1	6	1	2	---	6	---
India vs. Germany	---	---	2	---	1	1	5	---	2	1	5	---
India vs. Italy	---	---	2	---	1	1	4	---	3	1	4	---
India vs. Other	---	---	2	---	---	1	6	1	2	1	4	---
Germany vs. Italy	---	1	1	---	1	2	4	---	3	---	4	---
Germany vs. Other	---	---	2	---	2	1	5	---	3	---	4	---
Italy vs. Other	---	---	2	---	1	1	5	---	2	1	4	---

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

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

ELASTICITY ESTIMATES

This section discusses elasticity estimates; no parties have commented on these estimates.

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U.S. supply elasticity

The domestic supply elasticity[12] for PTFE resin measures the sensitivity of the quantity supplied by U.S. producers to changes in the U.S. market price of PTFE resin. 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 PTFE resin. Analysis of these factors above indicates that the U.S. industry has the ability to moderately increase or decrease shipments to the U.S. market; an estimate in the range of 2 to 4 is suggested.

U.S. demand elasticity

The U.S. demand elasticity for PTFE resin measures the sensitivity of the overall quantity demanded to a change in the U.S. market price of PTFE resin. 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 PTFE resin in the production of any downstream products. Based on the available information, the aggregate demand for PTFE resin is likely to be relatively inelastic; a range of -0.75 to -1.25 is suggested.

Substitution elasticity

The elasticity of substitution depends upon the extent of product differentiation between the domestic and imported products.[13] 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 PTFE resin and imported PTFE resin is likely to be in the range of 2 to 4.

[12] A supply function is not defined in the case of a non-competitive market.

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

PART III: U.S. PRODUCERS' PRODUCTION, SHIPMENTS, AND EMPLOYMENT

The Commission analyzes a number of factors in making injury determinations (see 19 U.S.C. §§ 1677(7)(B) and 1677(7)(C)). Information on the subsidies and dumping margins was presented in *Part I* of this report and information on the volume and pricing of imports of the subject merchandise is presented in *Part IV* and *Part V*. Information on the other factors specified is presented in this section and/or *Part VI* and (except as noted) is based on the questionnaire responses of two U.S. producers and six U.S. fillers/processors that accounted for the vast majority of U.S. production of PTFE resin during 2017.

U.S. PRODUCERS

The Commission issued a U.S. producer questionnaire to eight firms based on information contained in the petitions and staff research. Two U.S. producers and six U.S. fillers/processors provided usable data on their productive operations. Staff believes that these responses represent the vast majority of U.S. production of PTFE resin.

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

Table III-1
PTFE resin: U.S. producers of PTFE resin, their positions on the petitions, production locations, and shares of reported production, 2017

Firm	Position on petition	Production location(s)	Share of granular production (percent)	Share of fine powder production (percent)	Share of dispersion production (percent)	Share of all PTFE production (percent)
Chemours	Petitioner	Washington, WV	***	***	***	***
Daikin	***	Decatur, AL	***	***	***	***
Total			***	***	***	***

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

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

Table III-2 lists U.S. fillers/ processors of PTFE resin, their processing locations, positions on the petitions, and shares of total compounding / filling operations.

Table III-2
PTFE resin: U.S. fillers/processors of PTFE resin, their positions on the petitions, processing locations, and shares of filling operations, 2017

Firm	Positions on petitions	Processing location(s)	Share of compounding/ filling operations (percent)
3M	***	Aston, PA	***
AGC Chemicals	***	Downingtown, PA	***
Flontech	***	Pittston, PA	***
Freudenberg	***	Findlay, OH	***
GFL	***	Rockdale, TX	***
Whitford	***	Elverson, PA	***
Total			***

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

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

Table III-3 presents information on U.S. producers' ownership, related and/or affiliated firms of PTFE resin. *** U.S. producers *** are related to foreign producers in subject countries and to U.S. importers of the subject merchandise. In addition, *** U.S. processor / filler *** is owned by a foreign producer in a subject country.

Table III-3
PTFE resin: U.S. producers' and U.S. fillers/processors ownership, related and/or affiliated firms, 2017

* * * * * * *

Production related activities

In the preliminary phase of these investigations, the Commission defined the domestic industry as consisting of all U.S. producers of PTFE resin and did not include processors or

compounders.[1] In deciding whether a firm qualifies as a domestic producer, the Commission generally considers six factors: (1) source and extent of the firm's capital investment; (2) technical expertise involved in U.S. production activities; (3) value added to the product in the United States; (4) employment levels; (5) quantity and type of parts sourced in the United States; and (6) any other costs and activities in the United States directly leading to production of the like product.

Table III-4 compares U.S. producers' chemical manufacturing of PTFE resin and PTFE resin filling/processing activities.

Table III-4
PTFE resin: Comparison of chemical manufacturing of PTFE and PTFE filling/processing activities, 2017

Factor	PTFE chemical manufacturing	PTFE filling / processing
Source and extent of the firm's capital investment[1]	$***	$***
Technical expertise involved in U.S. production activities[2]	***	***
Value added to the product in the United States[3]	***	***
Employment levels[4]	***	***
Quantity and type of parts sourced in the United States[5]	***	***

[1] Net assets (range 2015-17).
[2] Technical expertise based on aggregate Research and Development (R&D) 2017.
[3] Total conversion costs / total COGS (range, 2015-17).
[4] Aggregate production and related workers (PRW) for 2017.
[5] Aggregate raw material values for U.S. producers. Aggregate raw material values using domestically manufactured PTFE for processors.

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

Table III-5 presents information on U.S. fillers'/processors' rating of the complexity and importance of PTFE resin filling and compounding activities.

Table III-5
PTFE resin: U.S. fillers'/processors' rating of the complexity and importance of PTFE resin filling and compounding activities and narratives on the sufficient production related activities factors

* * * * * * *

[1] Polytetrafluoroethylene (PTFE) Resin From China and India, Investigation Nos. 701-TA-588 and 731-TA-1392-1393 (Preliminary), USITC Publication 4741, November 2017, pg. 13.

Changes in operations

Table III-6 presents U.S. producers' reported changes in operations since January 1, 2015.

Table III-6
PTFE resin: U.S. producers' reported changes in operations, since January 1, 2015

* * * * * * *

U.S. PRODUCTION, CAPACITY, AND CAPACITY UTILIZATION

Table III-7 and figure III-1 present U.S. producers' production, capacity, and capacity utilization.

Table III-7
PTFE resin: U.S. producers' production, capacity, and capacity utilization, 2015-17

* * * * * * *

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

* * * * * * *

U.S producers' capacity increased by *** percent from 2015 to 2017. ***. U.S. producers' production of all forms of PTFE increased by *** percent from 2015 to 2017. Most of the increase in U.S. producers' production of PTFE was accounted for by ***, which reported a *** pound (*** percent) *** in production from 2015 to 2017, while *** reported a *** pound (*** percent) *** in production from 2015 to 2017. The increase in U.S. producers' production of PTFE was driven by increases in the production of granular and fine powder forms of PTFE, offset in part by a decrease in dispersion form PTFE over the 2015 to 2017 period. Given that capacity remained relatively constant over the period, while U.S. producers' U.S. production of PTFE increased, aggregate capacity utilization over the period increased by *** percentage points.

Table III-8 and figure III-2 present U.S. fillers'/processors' filling or compounding production, capacity, and capacity utilization. U.S. fillers'/processors' compounding capacity increased by *** pounds (*** percent) from 2015 to 2017. New entrant *** accounted for most (*** percent) of the increase, or *** pounds, over this period. U.S. fillers'/processors' filling or compounding production increased by *** pounds (*** percent) from 2015 to 2017. *** of the seven responding fillers/ processors' reported increasing in the volume of their compounding activities over the 2015 to 2017 period, with new entrant *** accounting for most (*** percent) of the increase, or *** pounds. Since on a relative or percentage basis, U.S fillers'/processors' capacity increased by less than their compounding /filling production

increased, their capacity utilization rates, in turn, increased by *** percentage points from 2015 to 2017. On an aggregated basis, most of the reporting fillers' / processors' compounding activities used imported unfilled PTFE, with subject unfilled PTFE accounting for an increasing share from 2015 to 2017. In comparison to U.S. producers of PTFE, fillers / processors were operating at lower capacity utilization rates over the 2015 to 2017 period.

Table III-8
PTFE resin: U.S. fillers' / processors' filling / compounding production, capacity, and capacity utilization, 2015-17

* * * * * * *

Figure III-2
PTFE resin: U.S. fillers' / processors' filling / compounding production, capacity, and capacity utilization, 2015-17

* * * * * * *

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

Table III-9 presents U.S. producers' U.S. shipments, export shipments, and total shipments of PTFE. U.S. producers' U.S. shipments increased by *** percent, export shipments increased by *** percent, and total U.S. shipments increased by *** percent from 2015 to 2017.

Table III-9
PTFE resin: U.S. producers' U.S. shipments, export shipments, and total shipments, 2015-17

* * * * * * *

Table III-10 presents U.S. fillers/processers' U.S. shipments, export shipments, and total shipments. U.S. fillers'/processors' U.S. shipments increased by *** percent, export shipments decreased by *** percent, and total shipments increased by *** percent from 2015 to 2017.

Table III-10
PTFE resin: U.S. fillers' / processors' U.S. shipments, export shipments, and total shipments, 2015-17

* * * * * * *

Table III-11 presents consolidated U.S. producer and U.S. fillers/ processors' U.S. shipments and total shipments for use in measuring apparent consumption.[2] Over the 2015 to 2017 period, the consolidated value of U.S. producers and U.S. fillers' / processors' U.S. shipments increased by $*** (*** percent). Most (or *** percent) of this increase related to an increase in the incremental domestic value added to imported PTFE resin by U.S. fillers/processors at $*** from 2015 to 2017. This contribution reflects the increasing quantities of imported PTFE being compounded or filled by U.S. fillers/ processors. The remainder of the increase (or *** percent) was accounted for by U.S. producers' U.S. shipment values plus the additional value conducted by U.S. fillers / processors on domestically manufactured PTFE, or $***.

Table III-11
PTFE resin: Consolidated U.S. producers' and U.S. fillers' / processors' U.S. shipments for use for apparent consumption, 2015-17

* * * * * * *

For additional information on U.S. producers and U.S. importers shipments based on product type, grade, and form see appendix E.

U.S. PRODUCERS' INVENTORIES

Table III-12 presents U.S. producers' end-of-period inventories and the ratio of these inventories to U.S. producers' production, U.S. shipments, and total shipments, as well as U.S. fillers' /processors' end-of-period inventories and the ratios of these inventories to U.S. fillers' / processors' compounding or filling production, U.S. shipments, and total shipments.

Table III-12
PTFE resin: U.S. producers' and U.S. fillers'/processors' U.S. inventories, 2015-17

* * * * * * *

U.S. producers' ending inventories decreased by *** percent from 2015 to 2017. *** U.S. producers reported declines in their inventory levels from 2015 to 2017, with all of

[2] The quantity for U.S. producers' U.S. shipments reflects the quantity of PTFE chemically manufactured in the United States. The value for U.S. producers' U.S. shipments reflects the value of PTFE chemically manufactured in the United States plus the additional value added to imported PTFE by U.S. fillers / processors. The average unit values presented for U.S. producers' U.S. shipments excludes the value added to imported PTFE. In measuring consumption and market share this methodology avoids reclassifying and/or double counting merchandise already reported once as an import.

the decline concentrated in the first portion of the period, offset partially by an increase in their inventory levels from 2016 to 2017. U.S. fillers'/processors' ending inventories increased by *** percent from 2015 to 2017. On a combined basis, U.S. producers' and U.S. fillers'/processors' ending inventories decreased by *** percent from 2015 to 2017, driven by the producers' inventory levels.

U.S. PRODUCERS' IMPORTS AND PURCHASES

Table III-13 presents U.S. producers' imports of PTFE resin. *** U.S. producers reported importing PTFE resin from subject and nonsubject sources over the 2015 to 2017 period. *** reported importing PTFE resin *** 2015 to 2017 period. The volumes of merchandise *** imported *** never exceeded *** percent of its domestic production (all forms).[3] The firm indicated that it ***. *** also imported a small volume of PTFE resin from *** in 2017, which accounted for less than *** percent of its domestic production that year. The firm indicated that it was ***. Additionally, *** indicated that it imported additional higher volumes of PTFE resins from a related company in the ***, a nonsubject source, for products *** to complement its domestically manufactured offerings.

Table III-13
PTFE resin: U.S. producers' U.S. production, imports, and ratio of imports to production, 2015-17

* * * * * * *

*** reported importing PTFE resin *** 2015 to 2017 period. The volumes of merchandise *** imported from *** never exceeded *** percent of its domestic production (all forms).[4] The firm indicated that it only imported ***.

Table III-14 presents U.S. fillers'/processors' compounding / filling production by source of input, imports, and ratio of imports to production. *** U.S. fillers/processors indicated they compounded /filled PTFE from imported sources, while *** U.S. fillers/processors *** indicated they compounded /filled at least some domestically produced PTFE as well.

Table III-14
PTFE resin: U.S. fillers'/processors' compounding / filling production by source of input, imports, and ratio of imports to production, 2015-17

* * * * * * *

[3] The majority (***) of the firm's imports *** related to *** form PTFE. As a ratio to domestic production of *** form PTFE, *** imports ***. ***.

[4] The majority (***) of the firm's imports *** related to *** form PTFE. As a ratio to domestic production of *** form PTFE, *** imports ***. ***.

U.S. EMPLOYMENT, WAGES, AND PRODUCTIVITY

Table III-15 shows U.S. producers' employment-related data. U.S. producers' PRWs increased by *** workers (*** percent) from 2015 to 2017. ***. U.S. producers' total hours worked by PRWs increased unevenly by *** hours (*** percent) from 2015 to 2017. ***. U.S. producers' wages paid decreased by $*** (*** percent) from 2015 to 2017. ***. U.S. producers' productivity increased by *** percentage points from 2015 to 2017. ***. U.S. producers' unit labor cost decreased by $*** per pound (*** percent) from 2015 to 2017. ***.

Table III-15
PTFE resin: U.S. producers' average number of production and related workers, hours worked, wages paid to such employees, hourly wages, productivity, and unit labor costs, 2015-17

* * * * * * *

Table III-16 shows U.S. fillers'/processors' employment-related data. U.S. fillers'/processors' PRWs increased by *** workers (*** percent) from 2015 to 2017. Most of the increase is driven by ***. *** also reported increases in its PRWs, while *** fillers / compounders reported declines in PRWs. U.S. fillers'/processors' hours worked by PRWs increased by *** hours (*** percent) from 2015 to 2017. ***. U.S. fillers'/processors' wages paid increased by $*** (*** percent) from 2015 to 2017. ***. U.S. fillers'/processors' productivity increased by *** percentage points from 2015 to 2017. U.S. fillers'/processors' unit labor costs decreased by $*** per pound (*** percent) from 2015 to 2017.

Table III-16
PTFE resin: U.S. fillers'/processors' average number of production and related workers, hours worked, wages paid to such employees, hourly wages, productivity, and unit labor costs, 2015-17

* * * * * * *

Table III-17 shows consolidated U.S. producers' and U.S. fillers'/processors' employment-related data.

Table III-17
PTFE resin: U.S. producers' and U.S. fillers'/processors' average number of production and related workers, hours worked, wages paid to such employees, hourly wages, 2015-17

* * * * * * *

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

U.S. IMPORTERS

The Commission issued importer questionnaires to 125 firms identified as possible importers of subject PTFE resin, as well as to all U.S. producers of PTFE resin.[1] Usable questionnaire responses were received from 16 companies, representing *** percent of U.S. imports from China, *** percent of U.S. imports from India, and *** percent of U.S. imports from nonsubject countries in 2017 under HTS statistical reporting numbers 3904.61.0010 and 3904.61.0090, as adjusted.[2] Table IV-1 lists all responding U.S. importers of PTFE resin from China and India and other sources, their locations, and their shares of U.S. imports of PTFE resin in 2017.

Table IV-1
PTFE resin: U.S. importers by source, 2017

Firm	Headquarters	Share of imports by source (percent)				
		China	India	Subject sources	Nonsubject sources	All import sources
3M Company	Saint Paul, MN	***	***	***	***	***
AGC Chemicals	Exton, PA	***	***	***	***	***
Baillie	Newark, DE	***	***	***	***	***
Chemours	Wilmington, DE	***	***	***	***	***
Daikin America	Orangeburg, NY	***	***	***	***	***
DL Trading	Katy, TX	***	***	***	***	***
Ethylene	Kentwood, MI	***	***	***	***	***
Flontech	Pittston, PA	***	***	***	***	***
Freudenberg-NOK	Plymouth, MI	***	***	***	***	***
GFL Americas	Rockdale, TX	***	***	***	***	***
Poly-Smith	Keyport, NJ	***	***	***	***	***
Pureflex	Kentwood, MI	***	***	***	***	***
Shamrock	Newark, NJ	***	***	***	***	***
Solvay	Alpharetta, GA	***	***	***	***	***
Textiles Coated	Manchester, NH	***	***	***	***	***
Trelleborg	Fort Wayne, IN	***	***	***	***	***
Total		***	***	***	***	***

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

[1] The Commission issued questionnaires to those firms identified in the petitions, along with firms that, based on a review of data provided by U.S. Customs and Border Protection ("Customs"), may have accounted for more than one percent of total imports under HTS statistical reporting numbers 3904.61.0010 and 3904.61.0090 in 2017.

[2] The coverage figures were calculated from official import statistics, as adjusted to remove out-of-scope product data provided in questionnaire responses.

U.S. IMPORTS

Table IV-2 and figure IV-1 present data for U.S. imports of PTFE resin from China, India, and all other sources combined.[3] Import data presented were compiled from official U.S. import statistics using HTS statistical reporting numbers 3904.61.0010 and 3904.61.0090, as adjusted to remove out-of-scope PTFE (such as micropowder PTFE) reported in importer questionnaires as entering the United States under these statistical reporting numbers.[4]

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

* * * * * * *

Figure IV-1
PTFE resin: U.S. import volumes and average unit values, 2015-17

* * * * * * *

Subject imports from China accounted for *** percent of all imports (by volume) during 2017, which was higher than that reported in 2016 (*** percent) but lower than reported in 2015 (*** percent). The share of total imports held by imports from India increased overall from *** percent in 2015 to *** percent in 2017. Subject imports from both subject sources combined accounted for *** percent of all imports (by volume) during 2017. U.S. imports from subject countries China and India combined, by volume, decreased by *** percent from *** pounds in 2015 to *** pounds in 2016, but increased by *** percent from 2016 to *** pounds in 2017.[5] Average unit values of subject imports from China (ranging from $*** per pound) and India (ranging from $*** per pound) were consistently lower than the average unit values of PTFE resin imported from other sources (ranging from $*** per pound). The average unit values of subject imports combined decreased from $*** per pound in 2015 to $*** per pound

[3] Data concerning U.S. shipments of U.S.-produced and imported PTFE resin by forms (granular, fine powder, and dispersion), grades (commodity and specialty), and types (modified, reactor bead, fine cut, free flow, presintered) are presented separately in appendix E. Data on U.S. shipments of imported PTFE resin by grades (commodity and specialty) and types (modified, reactor bead, fine cut, free flow, presintered) are also presented in the "Fungibility" section of this part of the report.

[4] Unless specifically indicated otherwise, references to quantity data in this report are on a dry weight basis.

[5] The petitioners argued that increased plant inspections in China due to environmental concerns may have temporarily "slowed down" U.S. imports of PTFE resin from China, but that there is no indication that the trend will continue. They added that "the Chinese are continuing to add capacity, even while they're inspecting plants and looking for environmental violation." Hearing transcript, p. 81 (Cannon).

in 2017. As a share of U.S. production, U.S. imports from subject countries declined from *** percent in 2015 to *** percent in 2016, but increased to *** percent in 2017.

NEGLIGIBILITY

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

Table IV-3 presents data on U.S. imports of PTFE resin during the 12-month period preceding the filing of the petitions for which data are available. These data are compiled from official import statistics, as adjusted to remove out-of-scope products reported in importer questionnaire responses. These data show that reported imports from China and India individually accounted for more than 3 percent of the total volume of the imported subject merchandise during the most recent 12-month period for which data are available that precedes the filing of the petitions. Imports from China accounted for *** percent of the total volume of subject imports in 2017 and imports from India accounted for *** percent of the total.

Table IV-3
PTFE resin: U.S. imports in the twelve months preceding the filing of the petitions

* * * * * * *

CUMULATION CONSIDERATIONS

In assessing whether imports should be cumulated, the Commission determines whether U.S. imports from the subject countries compete with each other and with the domestic like product and has generally considered four factors: (1) fungibility, (2) presence of sales or offers to sell in the same geographical markets, (3) common or similar channels of

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

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

distribution, and (4) simultaneous presence in the market. Information regarding channels of distribution, market areas, and interchangeability appear in Part II. Additional information concerning fungibility, geographical markets, and simultaneous presence in the market is presented below.

Fungibility

Forms of PTFE resin

Data concerning the U.S. producer's and U.S. importers' U.S. shipments of PTFE resin, by form (i.e., granular, fine powder, and dispersion), are presented in table IV-4 and figure IV-2.

Table IV-4
PTFE resin: U.S. producers and U.S. importers' U.S. shipments by product form, 2017

* * * * * * *

Figure IV-2
PTFE resin: U.S. producers and U.S. importers' U.S. shipments by product form, 2015-17

* * * * * * *

These data show that, in 2017, a majority (*** percent) of the U.S. producer's U.S. shipments of PTFE resin was in fine powder form, whereas about *** of Chinese PTFE resin, almost *** of Indian PTFE resin, and more than *** of PTFE resin from nonsubject countries was in fine powder form. The remaining share of U.S. producer's U.S. shipments were distributed between PTFE resin in granular form (*** percent) and dispersion form (*** percent). Most (*** percent) of PTFE resin imports from China was in granular form, whereas a minor share (*** percent) was in dispersion form.[8] Fine powder and dispersion forms each accounted for *** and *** percent of Indian PTFE resin, respectively, whereas a relatively larger share (*** percent) of Indian PTFE resin was in granular form. Fine powder, granular, and dispersion forms each accounted for ***, ***, and *** percent of nonsubject country PTFE resin.

[8] Respondents testified that "very little dispersion from Chinese producers is sold in the U.S. because of customer concerns over cross contamination of PFOA, which has been used as a process aid for the production of dispersion PTFE. The dispersion from Chinese manufacturers simply does not compete with those products which are produced by Chemours or Daikin. Chinese fine powder product sales in the U.S. are also small because the Chinese only make the most basic product which is used in only the most basic applications, such as thread sealant tape. Because the Chinese products are so lacking in sophistication and have the potential for contamination, they are even shipped unrefrigerated, which the U.S. producers would never do because it would degrade the quality of their product to the point where it could only be used for the most basic applications, such as producing thread sealant tape or as a raw material feedstock for PTFE micro powder." Hearing transcript, pp. 106-107 (Baillie).

Grades of PTFE resin

Data concerning the U.S. producer's and U.S. importers' U.S. shipments of PTFE resin, by grade (i.e., commodity and specialty), are presented in table IV-5 and figure IV-3. The Commission's questionnaire defined commodity grade PTFE resin as PTFE resin that does not require any qualifications for the processor or downstream customer and it defined specialty grade PTFE resin as PTFE resin that necessarily requires qualification for the processor or downstream product. These data show that, in 2017, a majority (*** percent) of the U.S. producer's U.S. shipments of PTFE resin was specialty grade. They also show that a majority of Chinese PTFE resin (*** percent) and nonsubject countries' PTFE resin (*** percent) was specialty grade but that *** of Indian PTFE resin (*** percent) was commodity grade.

Table IV-5
PTFE resin: U.S. producers and U.S. importers' U.S. shipments by grade, 2017

* * * * * * *

Figure IV-3
PTFE resin: U.S. producers and U.S. importers' U.S. shipments by grade, 2017

* * * * * * *

The Commission's questionnaire asked firms that classified their U.S. shipments as specialty grade to describe those items. Two U.S. producers (*** and ***), which are ***, reported U.S. shipments of specialty grade PTFE resin. *** described its *** specialty grade PTFE resin as follows: "***."[9] *** described its specialty grade PTFE resin as follows: "***."

Six U.S. importers (***) reported U.S. shipments of imported specialty grade PTFE resin. *** described its specialty grade granular PTFE resin imported from *** as follows: "***." *** described its specialty grade PTFE resin as follows: "***." *** described its specialty grade PTFE resin as follows: "***."

Geographical markets

Table IV-6 presents U.S. import data concerning the source and border of entry. In 2017, the official U.S. import statistics show that a majority of subject imports from China and India entered through U.S. ports located along the eastern coast, with smaller amounts entering the United States through ports located along the northern and southern borders. A relatively small share of total imports enter the United States through ports located on the western coast.

[9] *** also indicated elsewhere in its questionnaire response that "***." *** Producer Questionnaire at IV-20a.

Table IV-6
PTFE resin: U.S. imports, by sources and by border of entry, 2017

Item	Border of entry				
	East	North	South	West	Total
	Quantity (1,000 pounds dry weight)				
U.S. imports from.--					
China	6,211	335	739	17	7,302
India	4,860	537	1,479	0	6,875
Subject sources	11,071	872	2,218	17	14,178
Germany	3,398	37	88	---	3,523
Italy	3,845	338	22	---	4,205
All other sources	8,247	405	1,204	168	10,025
Nonsubject sources	15,490	779	1,314	168	17,752
All import sources	26,561	1,651	3,532	186	31,930
	Share down (percent)				
U.S. imports from.--					
China	23.4	20.3	20.9	9.2	22.9
India	18.3	32.5	41.9	0.1	21.5
Subject sources	41.7	52.8	62.8	9.3	44.4
Germany	12.8	2.2	2.5	---	11.0
Italy	14.5	20.5	0.6	---	13.2
All other sources	31.0	24.5	34.1	90.7	31.4
Nonsubject sources	58.3	47.2	37.2	90.7	55.6
All import sources	100.0	100.0	100.0	100.0	100.0
	Share across (percent)				
U.S. imports from.--					
China	85.1	4.6	10.1	0.2	100.0
India	70.7	7.8	21.5	0.0	100.0
Subject sources	78.1	6.1	15.6	0.1	100.0
Germany	96.4	1.0	2.5	---	100.0
Italy	91.5	8.0	0.5	---	100.0
All other sources	82.3	4.0	12.0	1.7	100.0
Nonsubject sources	87.3	4.4	7.4	0.9	100.0
All import sources	83.2	5.2	11.1	0.6	100.0

Note.--Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. These data have not been adjusted to remove micropowder and other out-of-scope products.

Source: Compiled from official U.S. import statistics using HTS statistical reporting numbers 3904.61.0010 and 3904.61.0090.

Presence in the market

Table IV-7 and figures IV-4 and IV-5 present monthly official U.S. import statistics. These data indicate that U.S. imports of PTFE resin from China and India were present in each month during January 2015-December 2017.

Table IV-7
PTFE resin: Monthly U.S. imports, by source, January 2015 through December 2017

Item	U.S. imports							
	China	India	Subject sources	Germany	Italy	All other sources	Nonsubject sources	All import sources
	Quantity (1,000 pounds dry weight)							
2015.--								
January	467	323	790	296	894	963	2,153	2,943
February	369	486	855	327	273	425	1,025	1,881
March	625	419	1,044	604	627	1,032	2,263	3,307
April	880	363	1,244	438	628	1,170	2,236	3,479
May	846	394	1,240	597	582	1,131	2,310	3,550
June	416	223	639	310	471	913	1,694	2,333
July	668	267	935	120	743	939	1,802	2,737
August	558	206	764	296	614	689	1,600	2,364
September	503	339	841	368	435	842	1,645	2,486
October	513	407	920	309	689	660	1,658	2,578
November	720	178	898	564	245	922	1,731	2,629
December	295	311	606	355	405	611	1,371	1,977
2016.--								
January	657	193	850	220	376	1,050	1,646	2,496
February	425	129	555	390	463	744	1,597	2,151
March	426	210	636	449	411	1,459	2,319	2,955
April	502	217	718	519	668	789	1,976	2,694
May	611	253	864	385	465	1,413	2,263	3,127
June	570	464	1,035	100	524	867	1,491	2,526
July	583	339	922	654	353	1,167	2,174	3,096
August	632	487	1,118	328	467	1,358	2,153	3,271
September	606	330	935	298	503	954	1,755	2,691
October	447	307	755	282	485	1,084	1,852	2,607
November	655	416	1,072	176	438	574	1,189	2,261
December	625	438	1,063	168	436	502	1,107	2,170

Table continued on next page.

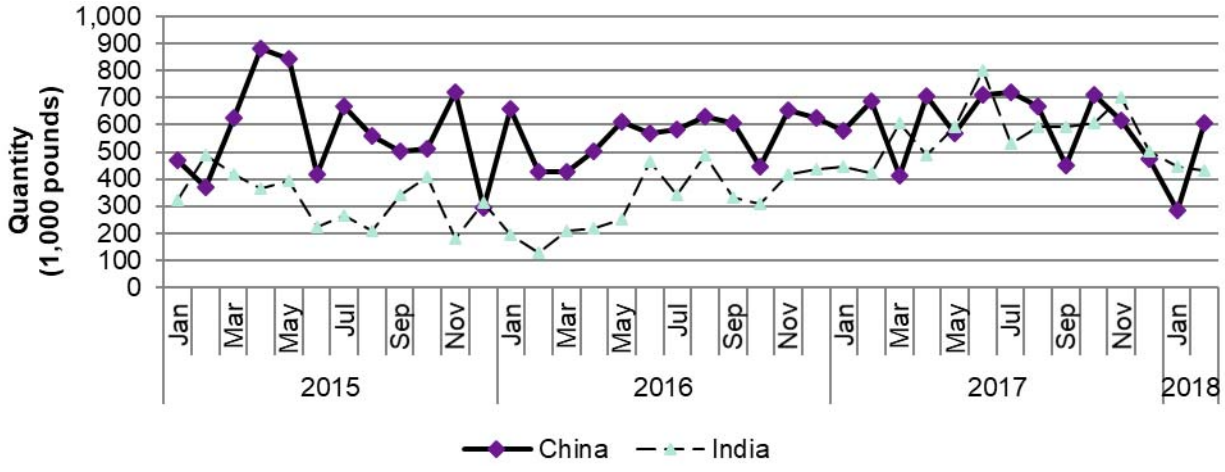
Table IV-7--Continued
PTFE resin: Monthly U.S. imports, by source, January 2015 through December 2017

Item	U.S. imports							
	China	India	Subject sources	Germany	Italy	All other sources	Nonsubject sources	All import sources
	Quantity (1,000 pounds dry weight)							
2017.--								
January	580	447	1,026	223	177	530	930	1,956
February	687	421	1,109	227	340	843	1,410	2,519
March	413	605	1,018	340	242	581	1,163	2,181
April	708	486	1,194	311	351	832	1,495	2,688
May	567	593	1,161	437	276	941	1,654	2,814
June	710	803	1,513	247	311	1,083	1,640	3,154
July	723	529	1,252	331	465	852	1,648	2,899
August	669	593	1,262	447	359	783	1,590	2,851
September	448	591	1,039	322	336	939	1,598	2,637
October	709	607	1,316	269	597	700	1,567	2,884
November	614	700	1,314	169	227	1,106	1,503	2,817
December	474	501	975	199	523	833	1,555	2,530

Note.—These data have not been adjusted to remove micropowder and other out-of-scope products.

Source: Official U.S. import statistics using HTS statistical reporting numbers 3904.61.0010 and 3904.61.0090.

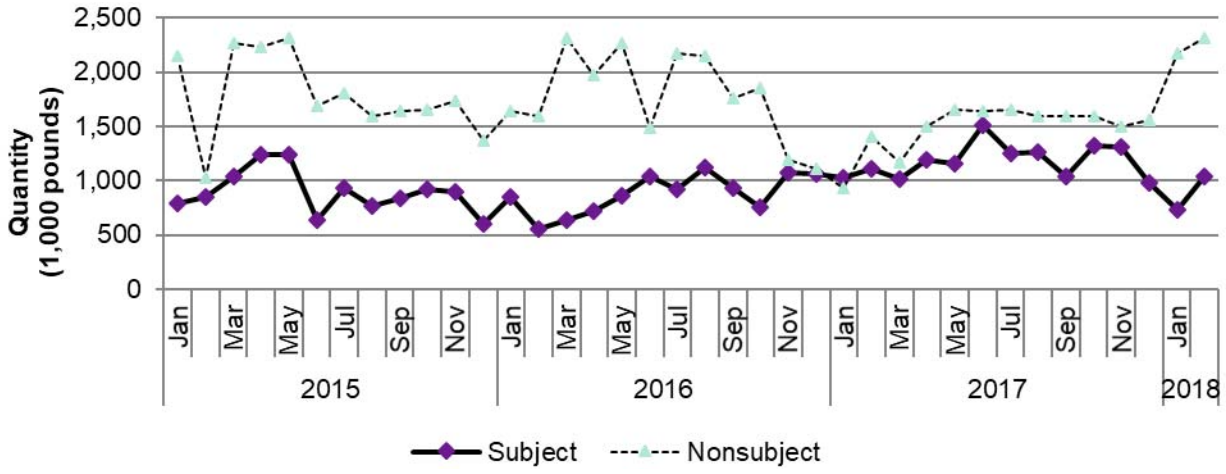
Figure IV-4
PTFE resin: U.S. imports from individual subject sources, by source and by month, January 2015 through February 2018



Note.--These data have not been adjusted to remove micropowder and other out-of-scope products.

Source: Official U.S. import statistics using HTS statistical reporting numbers 3904.61.0010 and 3904.61.0090.

Figure IV-5
PTFE resin: U.S. imports, by source and by month, January 2015 through February 2018



Note.—The data presented have not been adjusted to remove micropowder and other out-of-scope items.

Source: Official U.S. import statistics using HTS statistical reporting numbers 3904.61.0010 and 3904.61.0090.

APPARENT U.S. CONSUMPTION AND U.S. MARKET SHARES

The trend in apparent U.S. consumption largely follows the demand trends in the industrial sectors in which PTFE resin is used, such as in the oil and gas, automotive, aerospace, chemical, medical, and electronics (telecommunications and semiconductor) industries.[10] In particular, many applications for PTFE resin are directly related to oil and gas extraction, which declined from 2015 to 2016, but recovered in 2017.[11] The largest current applications for PTFE resin include electrical insulation, fluid handling, seals and gaskets infiltration.[12]

Table IV-8, table IV-9, and figure IV-6 present data on apparent U.S. consumption and U.S. market shares for PTFE resin, not including data provided by U.S. fillers/processors.[13] These data show that apparent U.S. consumption of PTFE resin, by quantity, declined by *** percent from *** pounds in 2015 to *** pounds in 2016, but increased by *** percent from 2016 to *** pounds in 2017 for an overall increase of *** percent from 2015 to 2017.[14] U.S. producers'

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[10] Hearing transcript, pp. 33-34 (Hayes); conference transcript, pp. 14, 16 (Nolan), 30, 67 (Genna), 70-71 (Dignam), 175-177 (Nolan, Neville, Arlati, McTague), 211 (Nolan).

[11] AGC's posthearing brief, pp. 10-11 and exhibits 19-20.

[12] Hearing transcript, p. 17 (Hoeck).

[13] Data concerning apparent U.S. consumption of PTFE resin by forms are presented separately in appendix C.

[14] Parties testified that the oil and gas industry affects a wide range of industries that drive PTFE resin consumption. As such, the PTFE resin industry is "fairly dependent on oil and gas, and {2016} was a

(*continued*...)

share of the domestic market, by quantity, increased by *** percentage points from 2015 to 2017. China's share of the U.S. market declined overall by *** percentage points from 2015 to 2017 and India's share increased overall by *** percentage points.

Table IV-8
PTFE resin: Apparent U.S. consumption (including U.S. producers but not fillers/processors), 2015-17

* * * * * * *

Table IV-9
PTFE resin: Market shares (including U.S. producers but not U.S. fillers/processors), 2015-17

* * * * * * *

Figure IV-6
PTFE resin: Apparent U.S. consumption (including U.S. producers but not fillers/processors), 2015-17

* * * * * * *

Table IV-10 and table IV-11 present data on apparent U.S. consumption and U.S. market shares for PTFE resin that are inclusive of data provided by U.S. producers and U.S. fillers/processors. These data show that apparent U.S. consumption of PTFE resin, by quantity, declined by *** percent from *** pounds in 2015 to *** pounds in 2016, but increased by *** percent from 2016 to *** pounds in 2017, for an overall increase of *** percent from 2015 to 2017. U.S. producers' share of the domestic market, by quantity, increased by *** percentage points from 2015 to 2017. China's share of the U.S. market declined overall by *** percentage points from 2015 to 2017 and India's share increased overall by *** percentage points.

Table IV-10
PTFE resin: Consolidated apparent U.S. consumption (including U.S. producers and fillers/processors), 2015-17

* * * * * * *

Table IV-11
PTFE resin: Consolidated market shares (including U.S. producers and U.S. fillers/processors), 2015-17

* * * * * * *

(…*continued*)
down year and we all suffered from that particular market heading south." Hearing transcript, p. 169 (Haley and Schutzman) and p. 172 (Schutzman and Lewis).

PART V: PRICING DATA

FACTORS AFFECTING PRICES

Raw material costs

The immediate upstream input in the production of PTFE resin is the monomer TFE, or tetrafluoroethylene, that is produced from the polymerization of HCFC-22 (chlorodifluoromethane). U.S. consumption of HCFC-22 for the use in PTFE resins increased by 10 percent between 2015 and 2017 (four thousand metric tons), with the price of HCFC-22 increasing by 4 percent between 2016 and 2017.[1] The production of TFE involves the reaction of fluorspar, chloroform, and sulfuric acid.[2] TFE is a highly volatile substance, so almost all TFE is produced in house by PTFE producers.[3]

As shown in figure V-1, the costs of these raw materials fluctuated between January 2015 and June 2018. Chemours reported that ***. U.S. producers' total raw material costs as a share of the cost of goods sold ("COGS") increased slightly from *** percent in 2015 to *** percent in 2017. A majority of purchasers (12 of 23) reported that raw material costs for the production of PTFE resin have a "substantial effect" on the prices each firm pays for PTFE resin.

Figure V-1
Raw material costs: Chemours' reported chloroform, fluorspar, and sulfur costs, January 2015-June 2018

* * * * * * *

Five importers reported that raw material prices have increased since January 2015. Eight firms (***) reported that prices have fluctuated and *** reported no changes in the price of raw materials. *** stated that raw material costs increased from 2014 to 2015 and decreased from 2016 to 2017.

Five importers and five purchasers reported changes in the availability of raw materials used in PTFE resin since January 2015.[4] ***, an importer, reported a decline in the supply of raw materials used to make PTFE resin in China due to environmental constraints. ***, a purchaser, identified increased demand of other fluoropolymers that use TFE as their main raw

[1] IHS Market, *Chemical Economics Handbook: Fluorocarbons*, September 18, 2017.

[2] Chemours reported that fluorspar and chloroform make up a comparatively larger share of the cost of producing TFE, and that making the TFE monomer accounts for approximately *** percent of the cost of making the polymer. Conference transcript, pp. 74 (Hoeck), 86-87 (Dignam); Chemours postconference transcript, p. 13.

[3] Conference transcript, p. 76 (Hoeck).

[4] *** reported no change in the availability of raw materials.

material (e.g., FEP[5]) as a reason for shortages in raw materials for use in the production of PTFE resin.

U.S. inland transportation costs

All responding U.S. producers and importers reported that they typically arrange transportation to their customers. Most U.S. producers reported that their U.S. inland transportation costs ranged from *** to ***, while most importers reported costs of 1 to 5 percent.

Importers that imported Chinese or Indian PTFE resin for their own use were asked to report their U.S. inland transportation costs (from the port of importation to the point of use). Seven importers responded that U.S. inland transportation costs for direct imports of Chinese PTFE resin were between 1 and 5 percent of total cost, while three importers responded that such costs for direct imports of Indian PTFE resin were between 2 and 5 percent.

PRICING PRACTICES

Pricing methods

U.S. producers and importers reported using transaction-by-transaction negotiations, contracts, and price lists. As presented in table V-1, U.S. producers sell primarily based on transaction-by-transaction negotiations and contracts. Importers sell primarily based on transaction-by-transaction negotiations.

Table V-1
PTFE resin: U.S. producers' and importers' reported price setting methods, by number of responding firms[1]

Method	U.S. producers	Importers
Transaction-by-transaction	2	8
Contract	2	4
Set price list	1	2
Other	---	---
Responding firms	2	8

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

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

U.S. producers and importers reported selling most of their PTFE resin under annual or short-term contracts during 2017 (table V-2). Though U.S. producers used annual contracts for almost half of sales whereas importers used short-term contracts for just over half of their sales. U.S. producers and importers did not report substantially different methods for sales of granular, fine powder, and dispersion PTFE resin.

[5] Fluorinated ethylene propylene.

Table V-2
PTFE resin: U.S. producers' and importers' shares of U.S. commercial shipments by type of sale, 2017

* * * * * * *

One U.S. producer's short-term contracts averaged ***. Two producers reported annual contracts but terms differed; ***. One producer reported that its long-term contracts averaged ***. Two importers reported using short-term contracts, lasting 3 and 6 months. Both reported that prices could not be renegotiated during the contract and that there was no meet-or-release provision. Two importers reported using annual contracts. Both reported that they fixed price and quantity, and one each reported that prices could be and could not be renegotiated.

Seventeen of 34 purchasers reported purchasing PTFE resin under brand names, which included Teflon, Polyflon, Inoflon, Dyneon, and Fluon. When asked whether they were required to enter into licensing agreements when purchasing PTFE resin, the vast majority of responding purchasers (21 of 23) reported that they did not have to enter into such agreements.

Three purchasers reported that they purchase product daily, 11 purchase weekly, 19 purchase monthly, and 2 quarterly. Thirty-three of 36 responding purchasers reported that their purchasing frequency had not changed since 2015. Most (16 of 23) purchasers contact 1 to 3 suppliers before making a purchase. Thirty of 34 responding purchasers reported PTFE resin transactions involving supplier negotiations. Purchasers reported generally negotiating on the following factors: price, delivery and lead times, volume, payment terms, product availability, and quality.

Sales terms and discounts

U.S. producers reported quoting prices on both an f.o.b. and delivered basis but most importers (4 of 7) typically quote prices on a delivered basis. One of two responding producers and 5 of 8 responding importers reported no discount policy. Both producers and most importers (5 of 7) reported sales terms of net 30 days.

Price leadership

Purchasers reported a number of price leaders. Daikin (reported by 9 purchasers), Chemours (8), 3M (2), GFL (2), AGC (1), Dongye (1), and Solvay (1) were identified as price leaders. These price leaders offered low prices, increased prices, controlled specialty resins, and had both low prices and high quality. A number of firms reported that Chemours typically was first to announce price increases.

PRICE DATA

The Commission requested U.S. producers and importers to provide quarterly data for the total quantity and f.o.b. value or import purchase costs of the following PTFE resin products shipped to unrelated U.S. customers during January 2015 through December 2017.

Product 1.-- Granular PTFE resin, fine cut, bulk density 400-500g/L, 25-40um average particle size, not modified, not filled, in packages of 25kg or greater.

Product 2.-- Granular PTFE resin, free flowing, bulk density 500-850g/L, 290-700um average particle size, not modified, not filled, in packages of 25kg or greater.

Product 3.-- PTFE fine powder resin, not modified, in packages of 25kg or greater.

Product 4.-- PTFE fine powder resin, modified, in packages of 25kg or greater.

Product 5.-- PTFE dispersion, general purpose, 50-65% solid content, packaged in drums or totes of 50 gallons or greater.

Two U.S. producers and six importers provided usable pricing data for sales of the requested products, although not all firms reported pricing for all products for all quarters.[6] Pricing data reported by these firms accounted for approximately *** percent of U.S. producers' shipments of PTFE resin, *** percent of U.S. shipments of subject imports from China in 2017, and *** percent of U.S. shipments of subject imports from India in 2017.

Price data for products 1-5 are presented in tables V-3 to V-7 and figures V-2 to V-6. Nonsubject country prices are presented in appendix F.

Table V-3
PTFE resin: Weighted-average f.o.b. prices and quantities of domestic and imported product 1 and margins of underselling/(overselling), by quarters, January 2015 through December 2017

* * * * * * *

Table V-4
PTFE resin: Weighted-average f.o.b. prices and quantities of domestic and imported product 2 and margins of underselling/(overselling), by quarters, January 2015 through December 2017

* * * * * * *

Table V-5
PTFE resin: Weighted-average f.o.b. prices and quantities of domestic and imported product 3 and margins of underselling/(overselling), by quarters, January 2015 through December 2017

* * * * * * *

Table V-6
PTFE resin: Weighted-average f.o.b. prices and quantities of domestic and imported product 4 and margins of underselling/(overselling), by quarters, January 2015 through December 2017

* * * * * * *

[6] 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.

Table V-7
PTFE resin: Weighted-average f.o.b. prices and quantities of domestic and imported product 5 and margins of underselling/(overselling), by quarters, January 2015 through December 2017

* * * * * * *

Figure V-2
PTFE resin: Weighted-average prices and quantities of domestic and imported product 1, by quarters, January 2015 through December 2017

* * * * * * *

Figure V-3
PTFE resin: Weighted-average prices and quantities of domestic and imported product 2, by quarters, January 2015 through December 2017

* * * * * * *

Figure V-4
PTFE resin: Weighted-average prices and quantities of domestic and imported product 3, by quarters, January 2015 through December 2017

* * * * * * *

Figure V-5
PTFE resin: Weighted-average prices and quantities of domestic and imported product 4, by quarters, January 2015 through December 2017

* * * * * * *

Figure V-6
PTFE resin: Weighted-average prices and quantities of domestic and imported product 5, by quarters, January 2015 through December 2017

* * * * * * *

Import purchase cost data

The Commission also requested that importers provide landed duty-paid values and quantities for internally consumed PTFE resin. Seven importers provided usable import purchase cost data for their internal use of products 1, 2, 3, and 5 imported from China, and two importers (***) provided usable import purchase cost data for imports of products 1, 2, 3, and 5 from India.[7] Internally consumed PTFE resin, as a share of total imports, represented

[7] *** direct importers of PTFE resin from China and *** direct importer of PTFE resin from India reported that 100 percent of product was considered commodity grade PTFE resin. *** direct importers (*continued*...)

approximately *** percent of imports from China and *** percent of imports from India in 2017. Import purchase cost data for specific pricing products reported by these firms accounted for approximately *** percent of imports used for internal consumption from China and *** percent of imports used for internal consumption from India in 2017. Import purchase cost data is presented along with U.S. producers' price data for products 1, 2, 3, and 5 in tables V-8 to V-11 and figures V-7 to V-10.

Table V-8
PTFE resin: Weighted-average f.o.b. prices and quantities of domestic and landed duty paid costs of imported product 1, by quarter, January 2015 through December 2017

* * * * * * *

Table V-9
PTFE resin: Weighted-average f.o.b. prices and quantities of domestic and landed duty paid costs of imported product 2, by quarter, January 2015 through December 2017

* * * * * * *

Table V-10
PTFE resin: Weighted-average f.o.b. prices and quantities of domestic and landed duty paid costs of imported product 3, by quarter, January 2015 through December 2017

* * * * * * *

Table V-11
PTFE resin: Weighted-average f.o.b. prices and quantities of domestic and landed duty paid costs of imported product 5, by quarter, January 2015 through December 2017

* * * * * * *

Figure V-7
PTFE resin: Weighted-average prices and quantities of domestic and landed duty paid costs of imported product 1, by quarter, January 2015 through December 2017

* * * * * * *

Figure V-8
PTFE resin: Weighted-average prices and quantities of domestic and landed duty paid costs of imported product 2, by quarter, January 2015 through December 2017

* * * * * * *

(…*continued*)
of PTFE resin from China reported that 100 percent of product was considered specialty grade PTFE resin. No import purchase cost data was reported data for product 4 from China or India.

Figure V-9
PTFE resin: Weighted-average prices and quantities of domestic and landed duty paid costs of imported product 3, by quarter, January 2015 through December 2017

* * * * * * *

Figure V-10
PTFE resin: Weighted-average prices and quantities of domestic and landed duty paid costs of imported product 5, by quarter, January 2015 through December 2017

* * * * * * *

In addition to the import purchase cost data, firms that imported PTFE resin for their internal use estimated that logistical and supply chain costs accounted for 1 to 12 percent of the landed duty-paid value;[8] estimated insurance costs were 1 percent ***, and warehousing costs were estimated to be 1 percent by two responding importers. Two importers reported comparing costs to U.S. producers' prices, and four reported comparing costs to both U.S. producers' and other importers' prices. Five firms reported that they did not compare costs to either U.S. producers' or other importers' prices when deciding whether to directly import. Seven firms reported purchasing PTFE resin from a U.S. producer as well as directly importing for their own internal use. When asked to provide estimates of the margin saved by directly importing instead of purchasing subject product from another importer, five firms provided estimates ranging from 24 percent to 45 percent.[9]

In describing the benefits of directly importing subject country PTFE resin for their own use, two firms reported that Chinese- and Indian-produced product have lower raw material costs. *** reported that it directly imported because of no domestic availability of certain grades of PTFE resin. *** reported that having full control of its supply chain allowed it to minimize freight expenses.

Price trends

In general, prices increased from January 2015 to December 2017. Table V-12 summarizes the price trends, by country and by product. As shown in the table, domestic price increases ranged from *** percent during 2015-17, while import price increases ranged from *** percent. Domestic price decreases ranged from *** percent for (products 4 and 5) during 2015-17, while import price decreases ranged from *** percent.

[8] *** reported 100 percent supply chain costs, but this response is likely the result of a misunderstanding of the question.

[9] *** reported a savings of 81 percent.

Table V-12
PTFE resin: Summary of weighted-average f.o.b. prices for products 1-5 from the United States and each subject source

* * * * * * *

Price comparisons

As shown in table V-13, prices for PTFE resin imported from China and India were below those for U.S.-produced PTFE resin in 92 of 104 instances (*** dry pounds); margins of underselling ranged from *** percent. In the remaining 12 instances (*** dry pounds), prices for product from China were between *** percent above prices for the domestic product.

Table V-13
PTFE resin: Instances of underselling/overselling and the range and average of margins, by country, January 2015 through December 2017

Source	Underselling				
	Number of quarters	Quantity[1] (dry pound)	Average margin (percent)	Margin range (percent)	
				Min	Max
China	***	***	***	***	***
India	***	***	***	***	***
Total	92	***	29.4	***	***
Source	**Overselling**				
	Number of quarters	Quantity[1] (dry pound)	Average margin (percent)	Margin range (percent)	
				Min	Max
China	***	***	***	***	***
India	***	***		***	***
Total	12	***	(17.1)	***	***

[1] These data include only quarters in which there is a comparison between the U.S. and subject product.
Note.-- India had zero instances of overselling between January 2015 to December 2017, and China had no overselling for Product 1 during the same period.

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

LOST SALES AND LOST REVENUE

In the preliminary phase of the investigations, the Commission requested that U.S. producers of PTFE resin report purchasers where they experienced instances of lost sales or revenue due to competition from imports of PTFE resin from China and/or India during January 2014-June 2017. *** submitted lost sales and lost revenue allegations. *** identified 34 firms where they lost sales or revenue (10 consisting of lost revenue allegations and 24 consisting of both lost sales and lost revenue allegations).

In the final phase of the investigations, two responding U.S. producers reported that they had to reduce prices for all granular, fine powder, and dispersion PTFE resin. One producer reported that it had to roll back announced price increases (for all three types of PTFE resin),

and two firms reported that they had lost sales for granular, fine powder, and dispersion PTFE resin.

Staff contacted 44 purchasers and received responses from 36 purchasers. Responding purchasers reported purchasing over 54 million dry pounds of PTFE resin during 2015-17 (tables V-14 to V-15).

Table V-14
PTFE resin: Purchasers' responses to purchasing patterns

* * * * * * *

Table V-15
PTFE resin: U.S. purchasers aggregated U.S. purchases by product type and sources

Item	Calendar year		
	2015	2016	2017
Granular	**Quantity (1,000 dry pounds)**		
U.S. purchasers' purchases and imports.-- United States	4,691	5,295	5,336
China	1,546	1,691	2,170
India	414	258	668
Subject sources	1,960	1,950	2,838
Nonsubject sources	2,933	2,223	2,424
All known import sources	4,893	4,173	5,262
Unknown sources	8	3	---
All sources	9,592	9,471	10,598
Fine Powder	**Quantity (1,000 dry pounds)**		
U.S. purchasers' purchases and imports.-- United States	8,345	8,334	8,863
China	449	178	212
India	955	1,164	1,738
Subject sources	1,404	1,343	1,950
Nonsubject sources	6,115	5,384	4,822
All known import sources	7,519	6,727	6,771
Unknown sources	---	---	---
All sources	15,865	15,061	15,634
Dispersion	**Quantity (1,000 dry pounds)**		
U.S. purchasers' purchases and imports.-- United States	5,003	4,189	4,708
China	156	0	1
India	82	223	706
Subject sources	237	223	707
Nonsubject sources	1,326	2,154	1,383
All known import sources	1,564	2,377	2,090
Unknown sources	---	---	---
All sources	6,566	6,566	6,798

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

Of the 31 responding purchasers,[10] 10 reported that, since 2015, they had purchased imported granular PTFE resin from China and India instead of U.S.-produced product, 12 reported purchasing imported fine powder PTFE resin, and 4 reported purchasing imported dispersion PTFE resin. Of the purchasers that reported purchasing subject imports instead of U.S.-produced product, 10 reported that subject import prices were lower than U.S.-produced granular PTFE resin, 8 reported lower prices for fine powder PTFE resin, and 2 reported lower prices for dispersion PTFE resin. Five purchasers of granular PTFE resin, five purchasers of fine powder PTFE resin, and three purchasers of dispersion PTFE resin reported that price was a primary reason for the decision to purchase imported product rather than U.S.-produced product. Eleven purchasers estimated the quantity of all PTFE resin (i.e., granular, fine powder, and dispersion) from China and India purchased instead of domestic product; quantities ranged from 4,000 dry pounds to over 1,125,000 dry pounds (tables V-16 to V-18). Purchasers identified lack of supply and product range from U.S. producers, dependability, and higher prices from previous suppliers as non-price reasons for purchasing imported rather than U.S.-produced product.

Table V-16
Granular PTFE resin: Purchasers' responses to purchasing subject imports instead of domestic product, by responding firms

* * * * * * *

Table V-17
Fine powder PTFE resin: Purchasers' responses to purchasing subject imports instead of domestic product, by responding firms

* * * * * * *

Table V-18
Dispersion PTFE resin: Purchasers' responses to purchasing subject imports instead of domestic product, by responding firms

* * * * * * *

[10] Nineteen purchasers did not respond to these questions.

Of the total 27 responding purchasers, across all PTFE resin types, two reported that U.S. producers had reduced prices in order to compete with lower-priced imports from China and five reported that U.S. producers had reduced prices to compete with lower priced imports from India (tables V-19 to V-22; 9 reported that they did not know). The reported estimated price reduction ranged from *** percent for China and *** percent for India. In describing the price reductions, *** stated that Daikin reduced pricing to compete in specific product categories against GFL. *** reported that all suppliers reduced prices until 2017.

Table V-19
PTFE resin: Purchasers' responses to U.S. producer price reductions, by country

Source	Count of purchasers reporting U.S. producers reduced prices	Simple average of estimated U.S. price reduction (percent)	Range of estimated U.S. price reductions (percent)
China	2	42.5	***
India	5	32.5	***
All subject sources	5	31.0	***

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

Table V-20
Granular PTFE resin: Purchasers' responses to U.S. producer price reductions, by firm

* * * * * * *

Table V-21
Fine powder PTFE resin: Purchasers' responses to U.S. producer price reductions, by firm

* * * * * * *

Table V-22
Dispersion PTFE resin: Purchasers' responses to U.S. producer price reductions, by firm

* * * * * * *

PART VI: FINANCIAL EXPERIENCE OF U.S. PRODUCERS

BACKGROUND

Two U.S. producers, Chemours and Daikin, reported financial results on primary/integrated U.S. PTFE resin operations and six U.S. fillers, 3M, AGC Chemicals, Flontech, Freudenberg, GFL, and Whitford, reported financial results on U.S. PTFE resin filling operations.[1]

*** accounted for the largest share of consolidated PTFE resin sales revenue from 2015-2017 (*** percent) followed by ***, which accounted for *** percent. U.S. fillers collectively accounted for *** of consolidated PTFE resin sales revenue, ranging from a low of *** percent (***) to a high of *** percent (***).[2] [3]

With regard to changes in the U.S. industry during the period, DuPont's Performance Chemicals segment, which included PTFE resin operations, was spun-off and became a separate company (Chemours) in July 2015.[4] As described by Chemours, the impact of the spin-off on PTFE resin operations was ***.[5]

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[1] Chemours and Daikin are large, publicly traded multinational businesses. Chemours' PTFE resin operations take place within the Fluoropolymers business unit of its Fluoroproducts segment, which also includes its Fluorochemicals business unit. Daikin's PTFE resin operations take place within its Chemicals segment. Chemours 2016 10-K, pp. 3-4, pp. 7-8. Daikin 2017 Annual Report, p. 3. Chemours and Daikin reported their annual financial results to the Commission for calendar-year periods and on the basis of generally accepted accounting principles (GAAP).

Staff conducted a verification of Chemours' U.S. producer questionnaire on May 7-8, 2018. Data changes pursuant to verification are reflected in this and other relevant sections of the staff report. Verification report, p. 2.

[2] The term "consolidated" refers to combined U.S. producers' PTFE resin operations and filler-only operations. To the extent that there is some double counting of sales quantity at the consolidated level, reporting company-specific shares of sales on a value basis appears more appropriate.

[3] ***. USITC auditor notes (final phase).

[4] In the third quarter of 2013, DuPont decided to spin off its performance chemicals business, of which PTFE resin is a part. *Shift in Agricultural Sales Timing, Lower Chemical Prices Weigh On DuPont's Earnings Growth*, https://www.forbes.com/sites/greatspeculations/2014/04/24/shift-in-agricultural-sales-timing-lower-chemical-prices-weigh-on-duponts-earnings-growth, retrieved on October 17, 2017. Chemours became a separate publicly traded company in July 2015. Chemours 2016 10-K, p. 3.

[5] ***. October 20, 2017 e-mail with attachment from *** to USITC auditor.

OPERATIONS ON PTFE RESIN

Table VI-1 presents income-and-loss data for U.S. producers' overall PTFE resin operations. Corresponding changes in average unit values are presented in table VI-2.[6] Table VI-3 presents income-and-loss data for U.S. fillers' PTFE resin operations. Corresponding changes in average unit values are presented in table VI-4. Table VI-5 presents U.S. producers' and U.S. fillers' income-and-loss data for consolidated PTFE resin operations. Corresponding changes in average unit values are presented in table VI-6. Table VI-7 presents selected company-specific financial information for the PTFE resin operations of U.S. producers and U.S. fillers.[7]

Table VI-1
PTFE resin: Results of overall operations of U.S. producers, 2015-17

* * * * * * *

Table VI-2
PTFE resin: Changes in average per pound values (U.S. producers' overall operations), 2015-17

* * * * * * *

Table VI-3
PTFE resin: Results of operations of U.S. fillers, 2015-17

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Table VI-4
PTFE resin: Changes in average per pound values (U.S. fillers), 2015-17

* * * * * * *

[6] Appendix G presents U.S. producers' financial results for granular PTFE resin, fine powder PTFE resin, and dispersion PTFE resin. As presented in this section of the report, table VI-1 and table VI-2 reflect the summation of these tables.

[7] Because variations in the share of PTFE resin product categories impact effective product mix and calculated average values, a variance analysis is not presented.

Table VI-5
PTFE resin: Results of consolidated operations of U.S. producers and U.S. fillers, 2015-17

Item	Fiscal year		
	2015	2016	2017
	Quantity (1,000 pounds dry weight)		
Total net sales	29,694	28,963	33,499
	Value (1,000 dollars)		
Total net sales	238,249	212,974	249,488
Cost of goods sold.--			
Raw materials	105,866	98,411	109,365
Conversions costs	95,423	89,962	91,980
Total COGS	201,289	188,373	201,345
Gross profit	36,960	24,601	48,143
SG&A expense	37,323	33,825	40,302
Operating income or (loss)	(363)	(9,224)	7,841
Interest expense	2,763	4,025	4,526
All other expenses	112	138	189
All other income	5	6	5
Net income or (loss)	(3,233)	(13,381)	3,131
Depreciation/amortization	10,809	9,932	8,443
Cash flow	7,576	(3,449)	11,574
	Ratio to net sales (percent)		
Cost of goods sold.--			
Raw materials	44.4	46.2	43.8
Conversions costs	40.1	42.2	36.9
Average COGS	84.5	88.4	80.7
Gross profit	15.5	11.6	19.3
SG&A expense	15.7	15.9	16.2
Operating income or (loss)	(0.2)	(4.3)	3.1
Net income or (loss)	(1.4)	(6.3)	1.3

Table continued on following page.

Table VI-5--Continued
PTFE resin: Results of consolidated operations of U.S. producers and U.S. fillers, 2015-17

Item	Fiscal year		
	2015	2016	2017
	Ratio to total COGS (percent)		
Cost of goods sold.--			
Raw materials	52.6	52.2	54.3
Conversion costs	47.4	47.8	45.7
Average COGS	100.0	100.0	100.0
	Unit value (dollars per pound dry weight)		
Total net sales	8.02	7.35	7.45
Cost of goods sold.--			
Raw materials	3.57	3.40	3.26
Conversion costs	3.21	3.11	2.75
Average COGS	6.78	6.50	6.01
Gross profit	1.24	0.85	1.44
SG&A expense	1.26	1.17	1.20
Operating income or (loss)	(0.01)	(0.32)	0.23
Net income or (loss)	(0.11)	(0.46)	0.09
	Number of firms reporting		
Operating losses	4	5	2
Net losses	4	5	2
Data	7	8	8

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

Table VI-6
PTFE resin: Changes in average per pound values (consolidated operations of U.S. producers and U.S. fillers), 2015-17

Item	Between fiscal years		
	2015-17	2015-16	2016-17
	Change in AUVs (dollars per pound dry weight)		
Total net sales	(0.58)	(0.67)	0.09
Cost of goods sold.--			
Raw materials	(0.30)	(0.17)	(0.13)
Conversion costs	(0.47)	(0.11)	(0.36)
Average COGS	(0.77)	(0.27)	(0.49)
Gross profit	0.19	(0.40)	0.59
SG&A expense	(0.05)	(0.09)	0.04
Operating income or (loss)	0.25	(0.31)	0.55
Net income or (loss)	0.20	(0.35)	0.56

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

Table VI-7
PTFE resin: Results of operations of U.S. producers and U.S. fillers, by firm, 2015-17

* * * * * * *

Revenue

On a volume basis, the majority of U.S. producers' PTFE resin revenue from 2015 to 2017 was classified as commercial sales (*** percent) followed by transfers (*** percent) and a relatively small amount of internal consumption (*** percent).[8]

Sales quantity

U.S. producers

Chemours and Daikin reported revenue for all three primary categories of PTFE resin (granular, fine powder, and dispersion) with *** accounting for the largest product-specific share for both U.S. producers on a quantity basis (***). With respect to sales of granular and dispersion PTFE resin, Chemours and Daikin *** in terms of the relative importance of each product category: *** was *** second largest product category (*** percent) followed by dispersion (*** percent), while *** was *** second largest product category (*** percent) followed by granular (*** percent).

U.S. producers overall PTFE resin sales quantity declined in 2016 and then increased in 2017. Table VI-7 shows that the decline in overall sales quantity in 2016 reflects a *** in ***,[9] which was only partially offset by ***.[10] In 2017, the overall increase in U.S. producers' total sales quantity reflects *** in all three product categories, which *** in all three product categories.

U.S. fillers

The majority of U.S. fillers reported lower sales quantity in 2016 followed by increases in sales quantity in 2017 of varying magnitudes. Several fillers characterized sales quantity levels at the beginning of the period as weak due to reduced demand in the oil and gas sector, as well as heavy equipment production, and mining. In 2017, the increase in sales quantity was attributed to improved demand in these sectors, as well as the industrial segment in general.[11]

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[8] ***. Verification report, p. 4. ***. October 20, 2017 e-mail with attachment from *** to USITC auditor.

[9] ***. *** U.S. producer questionnaire, response to II-2. ***. April 25, 2018 e-mail with attachment from *** to USITC auditor.

[10] ***. May 1, 2018 e-mail with attachment from *** to USITC auditor.

[11] April 24, 2018 e-mail with attachment from *** to USITC auditor. April 24, 2018 e-mail with attachment from *** to USITC auditor. April 24, 2018 e-mail with attachment from *** to USITC auditor.

Sales value

U.S. producers

To the extent that *** product-specific shares of *** changed somewhat during the period (***), the company's overall average sales value reflects changes in effective product mix. While *** effective product mix also changed, the variation was *** than ***. Table VI-7 shows that *** had the highest average sales value for ***, followed by ***, and then ***.

Chemours and Daikin *** reported *** in overall average sales value in 2016 with Chemours reporting a *** in average sales value in 2017 while Daikin reported ***. Daikin's *** in overall average sales value in 2016, as compared to Chemours, reflects *** in average sales value in all product categories, most notably ***. Chemours' continued *** in overall average sales value in 2017 reflects ***, the company's largest product category, which was only partially offset by corresponding *** in *** average sales values.

U.S. fillers

U.S. fillers reported company-specific average sales value that covered a relatively wide range with *** and *** reporting the highest and lowest average sale values, respectively, throughout the period (see table VI-7). U.S. fillers also reported a mixed directional pattern of change in average sales value in 2016 and 2017. According to several U.S. fillers, the same reduced demand that reportedly affected sales quantities, as noted above, also negatively affected average sales value.[12]

Cost of goods sold and gross profit

Chemours and Daikin, each produce TFE, the precursor of PTFE resin, at plants located in Washington Works, West Virginia (Chemours) and Decatur, Alabama (Daikin). While Chemours purchases chloroform, it is backwards integrated with respect to some of the inputs ultimately used to produce TFE; e.g., Chemours manufactures HF and subsequent R-22 at separate plants in Texas and Kentucky, respectively.[13] Daikin ***.[14]

As described previously in this report, Chemours and Daikin periodically shut down their PTFE resin and related facilities for extended maintenance as a routine part of their operations.[15]

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[12] ***. April 24, 2018 e-mail with attachment from *** to USITC auditor.

[13] Conference transcript, pp. 86-87 (Dignam). The underlying fluorspar used by Chemours to produce HF is purchased from an unrelated supplier. Ibid.

[14] ***. October 26, 2017 e-mail from *** to USITC auditor.

***. May 1, 2018 e-mail with attachment from *** to USITC auditor.

[15] ***. October 26, 2017 e-mail with attachments from *** to USITC auditor. As noted at the Commission's staff conference, Chemours maintains PTFE resin safety stock in order to meet demand during expected and unexpected downtime. Conference transcript, p. 86 (Hayes).

Raw material

U.S. producers

Total raw material cost was the largest single component of U.S producers' total PTFE resin COGS, ranging from a low of *** percent of total COGS in 2015 to a high of *** percent in 2017 (see table VI-1). Raw material cost includes conversion of more primary inputs into TFE and therefore reflects the presence of both variable costs and fixed costs.[16]

While magnitudes differed, Chemours and Daikin *** reported *** average raw material costs in 2016 with ***.[17] [18] On a product-specific basis and with only one exception (***) throughout the period, ***.[19] On an overall basis, *** average raw material cost *** somewhat in 2016 and was *** in 2017; i.e., Chemours and Daikin reported *** overall average raw material cost in 2017 (see table VI-7).

U.S. fillers

U.S. fillers' raw material cost represents PTFE resin and various fillers, such as fiberglass, bronze powder, and carbon powder.[20] *** appears to be the only U.S. filler that purchases PTFE resin from a related supplier, identified as ***.[21]

On an overall basis, U.S. fillers' total raw material costs ranged from a low of *** percent of total COGS in 2016 to a high of *** percent in 2017 (see table VI-3). On a company-specific basis, most U.S. fillers reported declines in average raw material cost in 2016 and a mixed pattern of increases and decreases in 2017. U.S. fillers generally attributed the

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With regard to shutdown costs, ***. April 25, 2018 e-mail with attachment from *** to USITC auditor. As indicated in footnote 24, amortization of *** is included in other factory costs.

[16] ***. April 25, 2018 e-mail with attachment from *** to USITC auditor. ***. October 26, 2017 e-mail with attachments from *** to USITC auditor.

***. May 1, 2018 e-mail with attachment from *** to USITC auditor.

[17] Table VI-7 indicates that Chemours' average raw material cost for each product category *** in 2016. The small apparent *** in Chemours' overall average raw material cost in 2016 reflects ***. With regard to the 2017 *** in average raw material costs in general, Chemours stated that this ***. April 25, 2018 e-mail with attachment from *** to USITC auditor.

[18] ***. October 26, 2017 e-mail from *** to USITC auditor.

[19] Each company reported *** average raw material costs by product category. With regard to the *** in Chemours' dispersion average raw material cost in 2017, and in addition to factors which impacted all product categories (see footnote 17), Chemours stated that it ***. April 25, 2018 e-mail with attachment from *** to USITC auditor.

[20] April 24, 2018 e-mail with attachment from *** to USITC auditor.

[21] ***. April 24, 2018 e-mail with attachment from *** to USITC auditor.

decline in 2016 average raw material cost to weak demand in sectors such as oil and gas, which reportedly put downward price pressure on PTFE resin suppliers.[22] Increases in average raw material cost in 2017, to the extent reported, were generally attributed to improved demand for PTFE resin.[23]

Conversion costs

U.S. producers

U.S. producers' conversion costs (direct labor and other factory costs) declined from *** percent of total COGS in 2015 to *** percent in 2017 (see table VI-1). For *** Chemours and Daikin, other factory costs represent the *** of conversion costs (ranging from a low of *** percent in 2016 to a high of *** percent in 2015 for *** and *** percent in 2015 to *** percent in 2017 for ***.[24] While corresponding overall average conversion costs declined throughout the period (see table VI-1), table VI-7 shows that the company-specific pattern was mixed with Chemours reporting *** in overall average conversion cost of varying magnitude and Daikin reporting modest ***.

On a product-specific basis, the directional pattern of average conversion costs by company was also mixed. Chemours' average conversion cost for *** in 2016 (see footnote 9 regarding pattern of ***), while its 2016 *** average conversion costs ***, respectively. In 2017, Chemours' reported relatively large *** in the average conversion costs of *** product categories, which the company generally attributed to ***.[25] While Chemours' overall average conversion cost in 2017 was ***.

***, Daikin also reported a *** of product-specific average conversion costs in 2016.[26] ***, Daikin reported *** in average conversion costs of varying magnitude for *** product categories relative to 2016.[27]

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[22] ***. April 24, 2018 e-mail with attachment from *** to USITC auditor.

[23] ***. April 24, 2018 e-mail with attachment from *** to USITC auditor.

[24] USITC auditor notes (final phase). Conversion cost as a share of total COGS also represents the Commission's primary measure of value added. Conversion costs and value added, as calculated, would not reflect costs associated with producing TFE or other upstream inputs, which are included in raw material costs.

***. USITC Auditor notes (final phase). *** (see also footnote 15). April 25, 2018 e-mail with attachment from *** to USITC auditor.

***. *** U.S. producer questionnaire, response to III-9b, III-9d, III-9f. ***. USITC auditor notes (final phase). ***.

[25] ***. April 25, 2018 e-mail with attachment from *** to USITC auditor. In 2015 and 2016, as a result of capacity utilization declining below a predetermined level, Chemours recognized idle mill expenses; i.e., the company expensed fixed costs immediately, as opposed to capitalizing them into PTFE resin inventory. Conference transcript, p. 85 (Dignam). Idle mill expenses increased Chemours' conversion costs by ***. October 20, 2017 e-mail with attachment from *** to USITC auditor.

[26] ***. May 1, 2018 e-mail with attachment from *** to USITC auditor.

[27] ***.

U.S. fillers

U.S. fillers' conversion costs ranged from a low of *** percent of total COGS in 2017 to a high of *** percent in 2016 (see table VI-3). Similar to the U.S. producers, U.S. fillers' other factory costs account for the majority of total conversion costs: ranging from a low of *** percent in 2017 to a high of *** percent in 2015.[28] On a company-specific basis, most U.S. fillers reported increases in average conversion cost in 2016 followed by declines in 2017. In general, U.S. fillers indicated that increases and decreases in average conversion costs during the period reflect corresponding changes in production volume, which in turn affected manufacturing efficiencies and fixed cost absorption.[29]

Gross profit

U.S. producers

Table VI-1 shows that in 2016 U.S. producers reported a decline in total PTFE resin gross profit and gross profit ratio (total gross profit divided by total revenue) to the lowest level of the period followed by a subsequent increase in 2017 to the highest level of the period.[30] While reporting similar directional trends of decline in 2016 gross profit and increase in 2017, ***.

On a product-specific basis, Chemours and Daikin *** reported *** on their *** sales for either all (***) or most (***) of the period. (Note: despite this similarity in product-specific performance, an important distinction is that *** represents a *** total PTFE resin sales, *** (see *Revenue* section above)). While Chemours and Daikin reported *** on *** throughout the period, *** were *** in all years, with the *** somewhat in 2017. With respect to ***, *** throughout the period *** reported *** in 2015 and 2016 (see footnote 9) and a modest *** in 2017.

In general, differences in company-specific gross profit ratios do not appear to be a function of *** higher average sales value and/or *** lower average raw material costs.[31] Instead, differences in company-specific gross profit ratios appear to largely reflect ***, which in turn reflects, at least in part, the level of fixed cost absorption that *** achieved during the

[28] USITC auditor notes (final phase). As indicated above, conversion cost as a share of total COGS represents the Commission's primary measure of value added.

[29] ***. April 24, 2018 e-mail with attachment from *** to USITC auditor.

[30] Table VI-2 shows that the 2016 contraction in U.S. producers' overall gross profit ratio reflects a decline in average sales value, which was only partially offset by lower average raw material cost and lower conversion costs. In 2017, the subsequent expansion in gross profit ratio reflects the combination of an increase in average sales value and a larger corresponding decline in average raw material cost and average conversion costs.

[31] ***. USITC auditor notes (final phase).

period (see footnotes 17 and 25). While Chemours' average PTFE conversion cost *** Daikin's average conversion cost, the *** throughout the period.[32]

U.S. fillers

On an overall basis, U.S. fillers reported a modest decline in total gross profit in 2016 followed by a modest increase in 2017. During the period, gross profit ratios remained within a relatively narrow range, increasing somewhat in 2016 and 2017. Table VI-7 shows that most U.S. fillers reported positive gross profit of varying magnitudes throughout the period with *** reporting a notably high gross profit ratio.[33] In terms of gross losses, the exceptions were ***, which reported a gross loss in 2016, and ***. (***).

SG&A expenses and operating income or loss

U.S. producers

U.S. producers' SG&A expenses declined somewhat in 2016 and increased to their highest level in 2017. Corresponding SG&A expense ratios (total SG&A expenses divided by total revenue) were the same in 2015 and 2016 and then were somewhat higher in 2017. Table VI-7 shows that, while Chemours' and Daikin's SG&A expense ratios were *** range in 2015, they subsequently ***: Chemours' SG&A expense ratio *** in 2016 and 2017 and Daikin's SG&A expense ratio *** in 2016 and *** in 2017.[34] [35]

In terms of the pattern of product-specific operating results during the period, table VI-7 indicates that Chemours and Daikin ***.[36] The most pronounced is that Chemours and Daikin, consistent with *** sales, reported *** throughout the period. Additionally, the *** product category *** throughout the period (***) was *** (on an absolute basis). In contrast, Chemours and Daikin *** with respect to ***, with Chemours reporting *** throughout the period (see footnote 9) and Daikin reporting *** throughout the period.

U.S. fillers

U.S. fillers reported a moderate decline in overall SG&A expenses in 2016 followed by a further decline in 2017. The corresponding SG&A expense ratio increased somewhat in 2016

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[32] Ibid.

[33] *** high gross profit ratios should be considered in conjunction with its high selling, general and administrative (SG&A) expense ratios. As noted in the *Capital Expenditures and Research and Development Expenses* section below, *** accounted for a large share of total reported R&D expenses. In the Commission's income statement format, R&D expenses would normally be included as a part of (SG&A) expenses.

[34] ***. April 25, 2018 e-mail with attachment from *** to USITC auditor.
***. Ibid. ***. Verification report, p. 5.

[35] ***. May 1, 2018 e-mail with attachment from *** to USITC auditor.

[36] ***. Ibid.

and then declined to its lowest level in 2017. Table VI-7 shows that U.S. fillers reported a relatively wide range of SG&A expense ratios, which were also mixed in terms of directional trend during the period.[37]

On an overall basis, U.S. fillers generated marginal operating income in 2015, an operating loss in 2016, and modest operating income in 2017. On a company-specific basis, U.S. fillers, for the most part, reported relatively low operating income or operating losses in 2015 and 2016 followed by improved operating results in 2017.[38]

Interest expense, other expenses, and net income or loss

U.S. producers

The difference and increasing divergence between U.S. producers' total operating results compared to net results (see table VI-1) reflects increases in interest expense reported by ***. As indicated in footnote 5, ***. *** reported *** income or expenses below operating results.

U.S. fillers

For U.S. fillers, operating results and net results diverged somewhat due to the presence of other expenses (see table VI-3). Interest expense and other income items, while present, had a minimal impact.

Capital expenditures and research and development expenses

Table VI-8 presents U.S. producers' and U.S. fillers' capital expenditures and research and development (R&D) expenses by firm.

[37] ***. April 24, 2018 e-mail with attachment from *** to USITC auditor.
***. April 24, 2018 e-mail with attachment from *** to USITC auditor.
[38] ***. April 24, 2018 e-mail with attachment from *** to USITC auditor.

Table VI-8
PTFE resin: Capital expenditures and research and development (R&D) expenses of U.S. producers and U.S. fillers, by firm, 2015-17

Item	Fiscal year		
	2015	2016	2017
	Capital expenditures (1,000 dollars)		
Chemours: Granular	***	***	***
Chemours: Fine powder	***	***	***
Chemours: Dispersion	***	***	***
Chemours: All forms[1]	***	***	***
Daikin: Granular	***	***	***
Daikin: Fine powder	***	***	***
Daikin: Dispersion	***	***	***
Daikin: All forms	***	***	***
Total capital expenditures: US producers	***	***	***
3M	***	***	***
AGC Chemicals	***	***	***
Flontech	***	***	***
Freudenberg	***	***	***
GFL	***	***	***
Whitford	***	***	***
Total capital expenditures: US fillers	***	***	***
Total capital expenditures: US producers and fillers	6,840	8,642	7,184
	Research and development expenses (1,000 dollars)		
Chemours: Granular	***	***	***
Chemours: Fine powder	***	***	***
Chemours: Dispersion	***	***	***
Chemours: All forms	***	***	***
Daikin: Granular	***	***	***
Daikin: Fine powder	***	***	***
Daikin: Dispersion	***	***	***
Daikin: All forms	***	***	***
Total R&D expenses: US producers	***	***	***
3M	***	***	***
AGC Chemicals	***	***	***
Flontech	***	***	***
Freudenberg	***	***	***
GFL	***	***	***
Whitford	***	***	***
Total R&D expenses: US fillers	***	***	***
Total R&D expenses: US producers and fillers	6,755	7,407	7,706

[1] ***.

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

Capital Expenditures

U.S. producers

For each year and the investigation period as a whole, capital expenditures assigned to ** operations represented the *** share (*** percent) of Chemours' total capital expenditures.[39] ***, Daikin's capital expenditures related to *** operations represented the *** share (*** percent) of its total capital expenditures.[40] On an overall basis, Chemours and Daikin accounted for *** percent and *** percent, respectively, of U.S. producers' total capital expenditures.

U.S. fillers

U.S. fillers' total capital expenditures declined in 2016 and then increased to their highest level in 2017. *** (*** percent of U.S. fillers' total capital expenditures)[41] and *** (*** percent) accounted for the majority of U.S. fillers' reported capital expenditures.[42] The remaining U.S. fillers accounted for capital expenditure shares ranging from a low of *** percent (***) to a high of *** percent (***).

R&D expenses

U.S. producers

Chemours, accounting for *** percent of U.S. producers' total R&D expenses, reported a *** in R&D expenses in 2016 followed by an *** in 2017. Similar to the pattern of capital expenditures noted above, Chemours' *** operations were assigned the *** share (*** percent) of its R&D expenses.[43] Daikin's R&D expenses, accounting for *** percent of the total, *** in absolute terms throughout the period, but *** somewhat in 2016 and 2017.[44]

U.S. fillers

While all U.S. fillers reported at least some R&D expenses during the period, *** accounts for the majority (*** percent of U.S. fillers' total R&D expenses).[45] The remaining U.S. fillers accounted for shares ranging from *** percent (***) to *** percent (***).

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[39] ***. *** U.S. producer questionnaire response to III-13b (note 1).
[40] ***. *** U.S. producer questionnaire response to III-13b (note 1).
[41] ***. *** U.S. producer questionnaire response, V-6 (note 1).
[42] ***. *** U.S. producer questionnaire response, V-6 (note 1).
[43] ***. *** U.S. producer questionnaire response to III-13b (note 2). ***.
[44] ***. October 26, 2017 e-mail from *** to USITC auditor.
[45] ***. *** U.S. producer questionnaire response, V-6 (note 2).

ASSETS AND RETURN ON ASSETS

Table VI-9 presents data on U.S. producers' and U.S. fillers' total assets and operating return on net assets related to PTFE resin operations.[46]

Table VI-9
PTFE resin: Total net assets and operating return on net assets of U.S. producers and U.S. fillers, by firm, 2015-17

* * * * * * *

CAPITAL AND INVESTMENT

The Commission requested U.S. producers of PTFE resin to describe any actual or potential negative effects on their return on investment or their growth, investment, ability to raise capital, existing development and production efforts (including efforts to develop a derivative or more advanced version of the product), or the scale of capital investments as a result of imports of PTFE resin from China and India. Table VI-10 tabulates U.S. producers' responses regarding actual negative effects on investment, growth and development, as well as anticipated negative effects. Table VI-11 presents the narrative responses of U.S. producers regarding actual and anticipated negative effects on investment, growth and development.[47]

Table VI-10
PTFE resin: Negative effects of imports from subject sources on investment, growth, and development since January 1, 2015

* * * * * * *

Table VI-11
PTFE resin: Narrative responses of U.S. producers regarding actual and anticipated negative effects of imports from subject sources on investment, growth, and development since January 1, 2015

* * * * * * *

[46] With respect to a company's overall operations, staff notes that a total asset value (i.e., the bottom line value on the asset side of a company's balance sheet) reflects an aggregation of a number of assets, which, in many instances, are not product specific. For producers manufacturing other products in addition to PTFE resin, high-level allocation factors were presumably necessary to report total asset values specific to U.S. PTFE resin operations. The ability of U.S. producers to assign total asset values to discrete products, such as PTFE resin, affects the meaningfulness of calculated return on assets.

[47] ***.

PART VII: THREAT CONSIDERATIONS AND INFORMATION ON NONSUBJECT COUNTRIES

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

> *In determining whether an industry in the United States is threatened with material injury by reason of imports (or sales for importation) of the subject merchandise, the Commission shall consider, among other relevant economic 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 IV* and *V*; and information on the effects of imports of the subject merchandise on U.S. producers' existing development and production efforts is presented in *Part VI*. Information on inventories of the subject merchandise; foreign producers' operations, including the potential for "product-shifting;" any other threat indicators, if applicable; and any dumping in third-country markets, follows.[3] 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."

[3] Unless specifically indicated otherwise, references to quantity data in this report are on a dry weight basis.

THE INDUSTRY IN CHINA

According to published sources, the capacity to produce PTFE resin in China during 2015 was ***, production in China was ***, and consumption in China was ***.[4]

The Commission issued foreign producers' or exporters' questionnaires to 56 firms identified as possible producers and/or exporters of PTFE resin from China.[5] Usable responses to the Commission's questionnaire were received from 10 firms.[6] These firms' exports to the United States accounted for *** percent of U.S. imports of PTFE resin from China in 2017[7] and *** percent of total Chinese capacity to produce PTFE resin in 2015.[8] Estimates provided in questionnaire responses indicate that during 2017 together these firms accounted for approximately 82 percent of production of PTFE resin in China and approximately 61 percent of exports of PTFE resin from China to the United States.[9]

Table VII-1 presents information on the PTFE resin operations of the responding producers in China. Both The Chemours China Holding Company Ltd. ("Chemours (China)") and Daikin Fluorochemicals (China) Co., Ltd. ("Daikin (China)") are related to U.S. producers of PTFE resin. Chemours China and Daikin China also reported ***.

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[4] *Chemical Economics Handbook*: Fluoropolymers, IHS, August 2016, pp. 6-7.

[5] These firms were identified through a review of information submitted in the petitions and contained in *** records.

[6] One of the 10 firms that provided a response was not a producer of PTFE resin in China but provided only data on its exports to the United States of PTFE resin that was produced in China by another firm.

[7] The coverage estimate was calculated based on official import statistics for HTS 3904.61.0010 and 3904.61.0090, as adjusted to remove out-of-scope PTFE resin imports (such as micropowder PTFE resin) reported in questionnaire responses.

[8] The most recently available capacity data for PTFE resin in China is for calendar year 2015. *Chemical Economics Handbook*: Fluoropolymers, IHS, August 2016, p. 7.

[9] Producing firms in China reported that sales of PTFE resin represented 10 to 100 percent of their firms' total sales in the most recent fiscal year.

Table VII-1
PTFE resin: Summary data for firms in China, 2017[1]

Firm	Production (1,000 pounds dry weight)	Share of reported production (percent)	Exports to the United States (1,000 pounds dry weight)	Share of reported exports to the United States (percent)	Total shipments (1,000 pounds dry weight)	Share of firm's total shipments exported to the United States (percent)
Changshu	***	***	***	***	***	***
Chemours (China)	***	***	***	***	***	***
Daikin (China)	***	***	***	***	***	***
Jiangsu	***	***	***	***	***	***
Jiangxi	***	***	***	***	***	***
Shandong Dongyue	***	***	***	***	***	***
Zhejiang Juhua	***	***	***	***	***	***
Zhejiang Jusheng	***	***	***	***	***	***
Zhonghao Chenguang	***	***	***	***	***	***
Total	196,003	100.0	3,628	100.0	197,882	1.8

[1] In addition to the nine producing firms listed in this table, Shanghai Huayi 3F New Materials Sales Co., Ltd. ("Shanghai Huayi") provided data concerning its exports of PTFE resin to the United States that were produced by Changshu 3F Fuyuan New Materials Ltd. ("Changshu") in China. Shanghai Huayi exported *** pounds of PTFE resin to the United States in 2017.

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

Changes in operations

The Commission requested producers of PTFE resin in China to indicate whether their firm had experienced any changes in relation to the production of PTFE resin since January 1, 2015. Five firms reported such changes (table VII-2).

Table VII-2
PTFE resin: Chinese producers' reported changes in operations, since January 1, 2015

* * * * * * *

Operations on PTFE resin

Table VII-3 presents information on the 10 responding firms' PTFE resin operations in China.[10] Chinese producers' production capacity increased by 3.8 percent from 218.9 million pounds in 2015 to 227.3 million pounds in 2017. Two firms (***) reported capacity increases, with *** accounting for most of the increase from 2015 to 2016 as it began production of PTFE resin in China during *** 2015. Capacity to produce PTFE resin in China is projected to decline by 1.0 percent from 227.3 million pounds in 2017 to 225.0 million pounds by 2019 as one producer (***) stopped production of *** PTFE resin in *** 2017.[11]

Production increased by 6.0 percent from 184.8 million pounds in 2015 to 196.0 million pounds in 2017, and is expected to increase by 6.6 percent to 208.9 million pounds in 2019. Eight of the nine responding producers in China individually reported increases in PTFE resin production from 2015 to 2017. However, one producer (***) reported production declines from 2015 to 2017. *** indicated that its decline in PTFE resin production was due to ***. The producer noted that it expects its PTFE resin production in 2018 and 2019 to be back to normal levels. Aggregate capacity utilization for the responding Chinese industry declined from 84.4 percent in 2015 to 81.8 percent in 2016, but increased to 86.2 percent in 2017 and is projected to increase to 92.9 percent in 2019.

Chinese producers' total shipments of PTFE resin, a majority (82.3 percent in 2017) of which were to the home market, increased by 7.9 percent from 183.4 million pounds in 2015 to 197.9 million pounds in 2017. Total shipments are expected to increase further by 4.9 percent to 207.7 million pounds in 2019. PTFE resin exports to the United States, which accounted for 1.8 percent of Chinese producers' total shipments in 2017, declined from 2015 to 2016, but increased overall by 2.1 percent from 2015 to 2017. Firms project that exports of PTFE resin to the United States will decline by 51.2 percent from 2017 to 2019. Chinese producers' exports to other countries, which accounted for 15.8 percent of total shipments in 2017, increased by 14.2 percent from 27.4 million pounds in 2015 to 31.3 million pounds in 2017. These exports to other countries are expected to continue to increase by 8.3 percent from 2017 to 33.9 million pounds in 2019. The Chinese producers identified their principal other export markets as follows: Brazil, Czech Republic, Denmark, France, Germany, India, Iran, Italy, Japan, Korea, Mexico, Netherlands, Russia, Singapore, Taiwan, and Thailand.

[10] Data concerning the PTFE resin operations in China by form (i.e., granular, fine powder, and dispersion) are presented separately in appendix I.

[11] The producers in China reported that the following constraints limit their capacity to produce PTFE resin: (1) environmental protection policy in China, (2) limited sales of by-products, (3) raw material supply (tight supply for fluorite and allocation of monomer TFE), (4) machinery maintenance and downtime, (5) limited equipment design capacity, (6) product mix, and (7) market price of PTFE resin in China (low in 2015-16 but recovered in 2017).

Table VII-3
PTFE resin: Data on industry in China, 2015-17 and projected calendar years 2018 and 2019

Item	Actual experience			Projections	
	Calendar year				
	2015	2016	2017	2018	2019
	Quantity (1,000 pounds dry weight)				
Capacity[1]	218,906	227,066	227,313	225,382	224,972
Production	184,842	185,642	196,003	207,022	208,945
End-of-period inventories	21,960	15,347	13,466	14,300	14,023
Shipments:					
Home market shipments:					
Internal consumption/ transfers	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***
Total home market shipments	152,449	160,651	162,955	170,410	171,997
Export shipments to:					
United States	3,554	3,055	3,628	2,280	1,770
All other markets[2]	27,399	28,548	31,299	33,441	33,899
Total exports	30,953	31,603	34,927	35,721	35,669
Total shipments	183,402	192,254	197,882	206,131	207,666
	Ratios and shares (percent)				
Capacity utilization	84.4	81.8	86.2	91.9	92.9
Inventories/production	11.9	8.3	6.9	6.9	6.7
Inventories/total shipments	12.0	8.0	6.8	6.9	6.8
Share of shipments:					
Home market shipments:					
Internal consumption/ transfers	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***
Total home market shipments	83.1	83.6	82.3	82.7	82.8
Export shipments to:					
United States	1.9	1.6	1.8	1.1	0.9
All other markets[2]	14.9	14.8	15.8	16.2	16.3
Total exports	16.9	16.4	17.7	17.3	17.2
Total shipments	100.0	100.0	100.0	100.0	100.0
	Quantity (1,000 pounds dry weight)				
Resales exported to the United States[3]	***	***	***	***	***
Total exports to the United States	***	***	***	***	***
	Ratios and shares (percent)				
Share of total exports to the United States.--					
Exported by producers	***	***	***	***	***
Exported by resellers[3]	***	***	***	***	***
Adjusted share of total shipments exported to U.S.	***	***	***	***	***

[1] The production capacity reported is based on operating *** hours per week, *** weeks per year.
[2] *** are the principal export markets other than the United States identified by the responding Chinese producers.
[3] Shanghai Huayi exported PTFE resin to the United States produced by Changshu in China.

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

Alternative products

None of the responding producers in China reported the production of any other products using the same equipment as used to produce PTFE resin. Also none of the responding producers in China reported the production of granular PTFE resin on the same equipment and machinery used to produce fine powder PTFE resin or dispersion PTFE resin. However, two producers in China (***) reported that they produce dispersion PTFE on the same equipment and machinery used to produce fine powder PTFE resin. *** reported the production of dispersion and fine powder PTFE share the reaction kettle and *** explained that "***."

Exports

Table VII-4 presents export data published by the Global Trade Atlas ("GTA") for PTFE from China under HTS subheading 3904.61. Because GTA only provides data to the six-digit HTS level that covers PTFE, the data presented may include certain out-of-scope merchandise, such as micropowder PTFE. According to GTA, the leading export markets for PTFE from China are Korea, Italy, and the United States. During 2017, Korea was the top export market for PTFE from China, accounting for 24.9 percent, followed by Italy (15.9 percent) and the United States (12.2 percent).

Table VII-4
PTFE resin: China exports by destination market, 2015-17

Destination market	Calendar year		
	2015	2016	2017
	Quantity (1,000 pounds dry weight)		
China exports to the United States	6,152	6,135	6,698
China exports to other major destination markets.--			
Korea	11,181	12,423	13,690
Italy	8,369	8,809	8,771
Belgium	4,090	4,599	5,169
Japan	2,332	2,780	3,914
Thailand	814	923	1,911
Iran	764	1,887	1,874
Vietnam	875	1,396	1,785
India	1,468	1,573	1,754
All other destination markets	9,295	10,334	9,512
Total China exports	45,340	50,860	55,078
	Value (1,000 dollars)		
China exports to the United States	22,923	21,128	25,041
China exports to other major destination markets.--			
Korea	29,912	31,535	43,424
Italy	18,493	16,922	25,333
Belgium	15,052	15,995	19,701
Japan	10,119	11,915	17,099
Thailand	3,286	3,974	7,658
Iran	2,278	5,445	6,734
Vietnam	4,402	6,814	9,432
India	4,423	3,820	5,714
All other destination markets	32,778	37,129	36,371
Total China exports	143,665	154,677	196,507

Table continued on next page.

Table VII-4--Continued
PTFE resin: China exports by destination market, 2015-17

Destination market	Calendar year		
	2015	2016	2017
	Unit value (dollars per pound dry weight)		
China exports to the United States	3.73	3.44	3.74
China exports to other major destination markets.--			
Korea	2.68	2.54	3.17
Italy	2.21	1.92	2.89
Belgium	3.68	3.48	3.81
Japan	4.34	4.29	4.37
Thailand	4.04	4.30	4.01
Iran	2.98	2.89	3.59
Vietnam	5.03	4.88	5.28
India	3.01	2.43	3.26
All other destination markets	3.53	3.59	3.82
Total China exports	3.17	3.04	3.57
	Share of quantity (percent)		
China exports to the United States	13.6	12.1	12.2
China exports to other major destination markets.--			
Korea	24.7	24.4	24.9
Italy	18.5	17.3	15.9
Belgium	9.0	9.0	9.4
Japan	5.1	5.5	7.1
Thailand	1.8	1.8	3.5
Iran	1.7	3.7	3.4
Vietnam	1.9	2.7	3.2
India	3.2	3.1	3.2
All other destination markets	20.5	20.3	17.3
Total China exports	100.0	100.0	100.0

Source: Official exports statistics under HS subheading 3904.61 as reported by China Customs in the IHS/GTA database, accessed April 15, 2018.

THE INDUSTRY IN INDIA

The Commission issued foreign producers' or exporters' questionnaires to eight firms identified as possible producers and/or exporters of PTFE resin from India.[12] Usable responses to the Commission's questionnaire were received from one firm: Gujarat Fluorochemicals Limited ("Gujarat"). This firm's exports to the United States accounted for approximately *** percent of U.S. imports of PTFE resin from India in 2017.[13] Gujarat estimated that during 2017 it accounted for approximately *** percent of production of PTFE resin in India and *** percent of exports of PTFE resin from India to the United States.[14] Table VII-5 presents information on the PTFE resin operations of the responding producer in India.

Table VII-5
PTFE resin: Summary data on firm in India, 2017

Firm	Production (1,000 pounds dry weight)	Share of reported production (percent)	Exports to the United States (1,000 pounds dry weight)	Share of reported exports to the United States (percent)	Total shipments (1,000 pounds dry weight)	Share of firm's total shipments exported to the United States (percent)
Gujarat	***	***	***	***	***	***

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

Changes in operations

The Commission requested producers of PTFE resin in subject countries to indicate whether their firm had experienced any changes in relation to the production of PTFE resin since January 1, 2015. *** reported that "***."

Operations on PTFE resin

Table VII-6 presents information on the PTFE resin operations of the responding producer in India.[15] Gujarat's production capacity remained constant at *** pounds throughout 2015-17 and no change in capacity is projected by the firm for 2018 and 2019.[16] Production

[12] These firms were identified through a review of information submitted in the petitions and contained in *** records.

[13] The coverage estimate was calculated based on official import statistics for HTS 3904.61.0010 and 3904.61.0090, as adjusted to remove out-of-scope PTFE resin imports (such as micropowder PTFE resin) reported in questionnaire responses.

[14] ***.

[15] Data concerning Gujarat's PTFE resin operations in India by form (i.e., granular, fine powder, and dispersion) are presented separately in appendix I.

[16] Gujarat reported that the following constraints limit its capacity to produce PTFE resin: "***."

increased by *** percent from *** pounds in 2015 to *** pounds in 2017 and is expected to increase by *** percent from 2017 to *** pounds in 2019. Capacity utilization likewise increased from *** percent in 2015 to *** percent in 2017 and is projected to increase further to *** percent in 2019.

Table VII-6
PTFE resin: Data on industry in India, 2015-17 and projected calendar years 2018 and 2019

* * * * * * *

A majority (*** percent in 2017) of Gujarat's total shipments of PTFE resin were to export markets other than the United States (principally to ***), with home market shipments accounting for *** percent of the total in 2017. Exports to the United States as a share of total shipments declined slightly from *** percent in 2015 to *** percent in 2016 before climbing to *** percent in 2017. Company projections indicate that exports to the United States as a share of total shipments are expected to decline to *** percent in 2019. Gujarat reported that it is related to GFL Americas LLC ("GFL Americas")(based in Texas) which imports PTFE resin from Gujarat and further processes it into filled PTFE resin for sale to U.S. customers. GFL Americas also sells unprocessed PTFE resin imported from Gujarat to U.S. customers. During 2017, approximately *** percent of Gujarat's exports of PTFE resin to the United States was imported by GFL Americas.

Alternative products

Gujarat reported that ***. It noted that it is able to switch production (capacity) between PTFE resin and the following other products using the same equipment and/or labor: ***. Gujarat reported that it "***." It noted that the following factors affect the company's capability to shift production capacity between products: "***."

Gujarat reported production of all three forms of PTFE resin (i.e., granular, fine powder, and dispersion) but indicated that it did not produce granular PTFE resin on the same equipment and machinery used to produce fine powder PTFE resin or dispersion PTFE resin. However, Gujarat did note that it produced dispersion PTFE on the same equipment and machinery used to produce fine powder PTFE resin. In particular, it indicated that it has common reactors for dispersion PTFE resin and fine powder PTFE resin.

Exports

Table VII-7 presents export data published by GTA for PTFE from India under HTS subheading 3904.61. Because GTA only provides data to the six-digit HTS level that covers PTFE, the data presented may include certain out-of-scope merchandise, such as micropowder PTFE. According to GTA, the leading export markets for PTFE from India are the United States, Germany, and Italy. During 2017, the United States was the top export market for PTFE from India, accounting for 29.5 percent, followed by Germany (26.8 percent) and Italy (17.6 percent).

Table VII-7
PTFE resin: India exports by destination market, 2015-17

Destination market	Calendar year		
	2015	2016	2017
	Quantity (1,000 pounds dry weight)		
India exports to the United States	3,359	3,900	6,430
India exports to other major destination markets.--			
Germany	4,215	5,724	5,829
Italy	2,664	2,946	3,829
China	353	1,327	1,550
Turkey	137	334	748
United Kingdom	433	446	613
Korea	243	300	542
Brazil	346	374	468
Japan	210	140	298
All other destination markets	1,441	1,538	1,466
Total India exports	13,402	17,028	21,773
	Value (1,000 dollars)		
India exports to the United States	12,636	13,178	21,629
India exports to other major destination markets.--			
Germany	13,878	17,943	20,079
Italy	7,614	6,980	12,143
China	1,722	4,860	6,826
Turkey	430	1,057	3,243
United Kingdom	1,838	1,828	2,456
Korea	902	1,075	2,129
Brazil	1,797	1,951	2,380
Japan	763	463	1,116
All other destination markets	5,774	4,849	5,369
Total India exports	47,354	54,182	77,370

Table continued on next page.

Table VII-7--Continued
PTFE resin: India exports by destination market, 2015-17

Destination market	Calendar year		
	2015	2016	2017
	Unit value (dollars per pound dry weight)		
India exports to the United States	3.76	3.38	3.36
India exports to other major destination markets.--			
Germany	3.29	3.13	3.44
Italy	2.86	2.37	3.17
China	4.88	3.66	4.40
Turkey	3.13	3.17	4.34
United Kingdom	4.24	4.10	4.01
Korea	3.70	3.59	3.93
Brazil	5.20	5.22	5.08
Japan	3.63	3.30	3.75
All other destination markets	4.01	3.15	3.66
Total India exports	3.53	3.18	3.55
	Share of quantity (percent)		
India exports to the United States	25.1	22.9	29.5
India exports to other major destination markets.--			
Germany	31.4	33.6	26.8
Italy	19.9	17.3	17.6
China	2.6	7.8	7.1
Turkey	1.0	2.0	3.4
United Kingdom	3.2	2.6	2.8
Korea	1.8	1.8	2.5
Brazil	2.6	2.2	2.2
Japan	1.6	0.8	1.4
All other destination markets	10.8	9.0	6.7
Total India exports	100.0	100.0	100.0

Source: Official exports statistics under HS subheading 390461 as reported by the Ministry of Commerce in the IHS/GTA database, accessed April 15, 2018.

THE COMBINED INDUSTRIES IN THE SUBJECT COUNTRIES

Table VII-8 presents information on the PTFE resin operations of all responding producers in both China and India combined for 2015-17, as well as projections for 2018-19. Combined capacity in the subject countries increased by *** percent from *** pounds in 2015 to *** pounds in 2017; however, combined capacity is projected to decline by *** percent from 2017 to 2019. Production increased by *** percent from *** pounds in 2015 to *** pounds in 2017, and is expected to increase further by *** percent to *** pounds in 2019. Likewise, capacity utilization rates increased from *** percent in 2015-16 to *** percent in 2017 and are expected to climb to *** percent by 2019. The petitioners testified that "excess global capacity, particularly from China and India, puts constant pressures on price levels in the U.S. market. There is so much overcapacity in China and India, that there is. . . no supply and demand dynamic in the market anymore. Everyone is just rushing to gain share and try to fill their plants. To fill their capacity, producers in China, as well as GFO in India, have been offering PTFE prices at very, very low levels. These producers are simply buying market share to fill their capacity."[17]

Table VII-8
PTFE resin: Data on industry in subject countries, 2015-17, and projected calendar years 2018 and 2019

* * * * * * *

U.S. INVENTORIES OF IMPORTED MERCHANDISE

Table VII-9 presents data on U.S. importers' reported inventories of PTFE resin. U.S. importers' end-of-period inventories of imports from China and India decreased by *** and *** percent, respectively, from 2015 to 2017. The ratio of imports from China to total shipments of Chinese imports fell from *** percent in 2015 to *** percent in 2017, whereas the ratio for Indian imports fell from *** percent in 2015 to *** percent in 2017. U.S. importers' end-of-period inventories of imports from nonsubject countries showed similar trends, declining by *** percent from 2015 to 2017.

Table VII-9
PTFE resin: U.S. importers' end-of-period inventories of imports by source, 2015-17

* * * * * * *

[17] Hearing transcript, pp. 37-38 (Hayes).

U.S. IMPORTERS' OUTSTANDING ORDERS

The Commission requested importers to indicate whether they imported or arranged for the importation of PTFE resin from China and India after December 31, 2017. Table VII-10 presents this data. Responding importers of PTFE from China reported *** pounds of arranged imports from China from January 2018 to December 2018, ***, ***, and *** percent of which were in the form of granular, fine powder, and dispersion, respectively. Responding importers of PTFE from India reported *** pounds of arranged imports from India from January 2018 to December 2018, ***, ***, and *** percent of which were in the form of granular, fine powder, and dispersion, respectively. Responding importers of PTFE from nonsubject countries reported *** pounds of arranged imports from all nonsubject countries combined from January 2018 to December 2018, ***, ***, and *** percent of which were in the form of granular, fine powder, and dispersion, respectively.

Table VII-10
PTFE resin: Arranged imports, January 2018 through December 2018

* * * * * * *

ANTIDUMPING OR COUNTERVAILING DUTY ORDERS IN THIRD-COUNTRY MARKETS

India issued antidumping duty orders on imports of PTFE from Russia in October 1999,[18] and on imports of PTFE from China in July 2005.[19] In 2016 India completed its third review concerning PTFE from Russia and its second review of the orders of PTFE from China.[20] Both sets of orders were continued with some modifications.

INFORMATION ON NONSUBJECT COUNTRIES

According to published sources, global capacity in 2015 was ***, global production was ***, and global apparent consumption was ***, shown in table VII-11.[21] The average annual consumption growth rate from 2015-20 is forecast to be *** percent.[22] The capacity in 2015

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[18] "Polytetrafluoroethylene PTFE Russia," Case No. No.241/98-DGAD, Directorate General of Anti-Dumping and Allied Duties Final Findings (March 2017). http://www.dgtr.gov.in/anti-dumping-cases/polytetrafluoroethylene-ptfe-russia, retrieved October 26, 2017.

[19] "Polytetrafluoroethylene PTFE China PR," Case No. No.14/25/2003-DGAD,15/11/2016-DGAD, Directorate General of Anti-Dumping and Allied Duties Final Findings (June 2017). http://www.dgtr.gov.in/anti-dumping-cases/polytetrafluoroethylene-ptfe-china-pr, retrieved October 26, 2017.

[20] Gujarat was the petitioner in both proceedings.

[21] *Chemical Economics Handbook*: Fluoropolymers, IHS, August 2016, p. 7.

[22] *Chemical Economics Handbook*: Fluoropolymers, IHS, August 2016, p. 7.

was *** for the United States, *** for Western Europe, *** for Japan, *** for China, and *** for the rest of the world.[23] The consumption of PTFE in 2015 was *** for the United States, *** for Western Europe, *** for Japan, and *** for China, as shown in table VII-12.

Table VII-11
PTFE resin: World supply/demand for PTFE, 2015 (thousands of metric tons)

* * * * * * *

Table VII-12
PTFE resin: World consumption of PTFE, 2015

* * * * * * *

The major world producers of PTFE resin are located in Western Europe, Eastern Europe, and Japan (table VII-13). Detailed information on Western European producers of PTFE resin is shown in table VII-14. Table VII-15 and figure VII-1 show the Western European supply and demand for 2010-15 and 2020 (forecast). Western European consumption of PTFE by grade in 2012, 2015, and 2020 (forecast) is listed in table VII-16. Central and Eastern European producers are listed in table VII-17, supply and demand in table VII-18, and consumption by country is listed in table VII-19. Japanese supply and demand is listed in table VII-20, and consumption by form is listed in table VII-21. Global exports by exporting country for HTS subheading 3904.61 for 2015-17 as published by GTA are presented in table VII-22. Because GTA only provides data to the six-digit HTS level that covers PTFE, the data presented may include certain out-of-scope merchandise, such as micropowder PTFE resin.

Table VII-13
PTFE resin: Major world producers of PTFE

* * * * * * *

Table VII-14
PTFE resin: Western European producers of fluoropolymers

* * * * * * *

Table VII-15
PTFE resin: Western European supply/demand[1] (thousands of metric tons), 2010-15 and 2020 (forecast)

* * * * * * *

[23] *Chemical Economics Handbook*: Fluoropolymers, IHS, August 2016, p. 7.

Figure VII-1
PTFE resin: Western European supply and demand (thousands of metric tons), 2000-15 and forecast through 2020

* * * * * * *

Table VII-16
PTFE resin: Western European consumption of PTFE per grade and application (thousands of metric tons), 2012, 2015, and 2020 (forecast)

* * * * * * *

Table VII-17
PTFE resin: Central and Eastern European producers and capacity (thousands of metric tons) as of January 2016

* * * * * * *

Table VII-18
PTFE resin: Central and Eastern European supply/demand

* * * * * * *

Table VII-19
PTFE resin: Central and Eastern European consumption by country, 2012-15

* * * * * * *

Table VII-20
PTFE resin: Japanese supply/demand

* * * * * * *

Table VII-21
PTFE resin: Japanese consumption of PTFE by form

* * * * * * *

Table VII-22
PTFE resin: Global exports by exporter, 2015-17

Exporter	Calendar year		
	2015	2016	2017
	Quantity (1,000 pounds dry weight)		
United States	22,387	22,010	23,848
China	45,340	50,860	55,078
India	13,402	17,028	21,773
All other major reporting exporters.--			
Italy	20,718	20,979	23,222
Germany	20,198	19,997	22,565
Netherlands	17,252	19,243	17,306
Russia	10,502	10,635	15,500
Belgium	10,328	12,319	12,931
Japan	11,002	10,978	10,888
United Kingdom	5,473	4,947	6,128
Switzerland	1,328	1,330	1,642
Hong Kong	4,430	2,839	1,228
Korea	384	695	1,059
All other exporters	4,196	4,634	3,330
Total global exports	186,940	198,492	216,498
	Value (1,000 dollars)		
United States	129,866	118,604	135,424
China	143,665	154,677	196,507
India	47,354	54,182	77,370
All other major reporting exporters.--			
Italy	104,474	99,445	112,761
Germany	112,846	106,881	127,074
Netherlands	95,024	101,492	96,962
Russia	25,437	23,323	46,884
Belgium	44,450	50,319	55,129
Japan	77,366	76,735	76,898
United Kingdom	48,496	40,570	46,577
Switzerland	5,604	5,733	7,354
Hong Kong	27,205	17,522	6,403
Korea	2,147	3,219	5,678
All other exporters	24,286	26,648	22,483
Total global exports	888,221	879,350	1,013,505

Table continued on next page.

Table VII-22--Continued
PTFE resin: Global exports by exporter, 2015-17

Exporter	Calendar year		
	2015	2016	2017
	Unit value (dollars per pound dry weight)		
United States	5.80	5.39	5.68
China	3.17	3.04	3.57
India	3.53	3.18	3.55
All other major reporting exporters.--			
Italy	5.04	4.74	4.86
Germany	5.59	5.34	5.63
Netherlands	5.51	5.27	5.60
Russia	2.42	2.19	3.02
Belgium	4.30	4.08	4.26
Japan	7.03	6.99	7.06
United Kingdom	8.86	8.20	7.60
Switzerland	4.22	4.31	4.48
Hong Kong	6.14	6.17	5.21
Korea	5.59	4.63	5.36
All other exporters	5.79	5.75	6.75
Total global exports	4.75	4.43	4.68
	Share of quantity (percent)		
United States	12.0	11.1	11.0
China	24.3	25.6	25.4
India	7.2	8.6	10.1
All other major reporting exporters.--			
Italy	11.1	10.6	10.7
Germany	10.8	10.1	10.4
Netherlands	9.2	9.7	8.0
Russia	5.6	5.4	7.2
Belgium	5.5	6.2	6.0
Japan	5.9	5.5	5.0
United Kingdom	2.9	2.5	2.8
Switzerland	0.7	0.7	0.8
Hong Kong	2.4	1.4	0.6
Korea	0.2	0.4	0.5
All other exporters	2.2	2.3	1.5
Total global exports	100.0	100.0	100.0

Source: Official exports statistics under HS subheading 3904.61 as reported by various national statistical authorities in the IHS/GTA database, accessed April 15, 2018.

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
82 FR 46284 October 4, 2017	*Polytetrafluoroethylene (PTFE) Resin From China and Indi; Institution of Antidumping and Countervailing Duty Investigations and Scheduling of Preliminary Phase Investigations*	https://www.gpo.gov/fdsys/pkg/FR-2017-10-04/pdf/2017-21342.pdf
82 FR 49587 October 26, 2017	*Polytetrafluoroethylene Resin From India and the People's Republic of China: Initiation of Less-Than-Fair-Value Investigations*	https://www.gpo.gov/fdsys/pkg/FR-2017-10-26/pdf/2017-23307.pdf
82 FR 49592 October 26, 2017	*Polytetrafluoroethylene Resin From India: Initiation of Countervailing Duty Investigation*	https://www.gpo.gov/fdsys/pkg/FR-2017-10-26/pdf/2017-23308.pdf
82 FR 57727 December 7, 2017	*Polytetrafluoroethylene Resin From India: Postponement of Preliminary Determinations in the Countervailing Duty Investigation*	https://www.gpo.gov/fdsys/pkg/FR-2017-12-07/pdf/2017-26382.pdf
83 FR 8423 February 27, 2018	*Polytetrafluoroethylene Resin From India and the People's Republic of China: Postponement of Preliminary Determinations in the Less-Than-Fair-Value Investigations*	https://www.gpo.gov/fdsys/pkg/FR-2018-02-27/pdf/2018-03921.pdf
83 FR 12815 March 8, 2018	*Polytetrafluoroethylene (PTFE) Resin From China and India, Scheduling of the Final Phase of Countervailing Duty and Anti-Dumping Duty Investigations*	https://www.gpo.gov/fdsys/pkg/FR-2018-03-23/pdf/2018-05965.pdf
83 FR 9842 March 8, 2018	*Polytetrafluoroethylene Resin From India: Preliminary Affirmative Countervailing Duty Determination*	https://www.gpo.gov/fdsys/pkg/FR-2018-03-08/pdf/2018-04658.pdf
83 FR 20039 May 7, 2018	*Polytetrafluoroethylene Resin from the People's Republic of China: Preliminary Affirmative Determination of Sales of Less Than Fair Value, Postponement of Final Determination, and Extension of Provisional Measures*	https://www.gpo.gov/fdsys/pkg/FR-2018-05-07/pdf/2018-09632.pdf
83 FR 20035 May 7, 2018	*Polytetrafluoroethylene Resin from India: Preliminary Affirmative Determination of Sales of Less Than Fair Value, Postponement of Final Determination, and Extension of Provisional Measures*	https://www.gpo.gov/fdsys/pkg/FR-2018-05-07/pdf/2018-09633.pdf
83 FR 23422 May 21, 2018	*Polytetrafluoroethylene Resin From India: Final Affirmative Countervailing Duty Determination*	https://www.gpo.gov/fdsys/pkg/FR-2018-05-21/pdf/2018-10780.pdf

APPENDIX B

LIST OF HEARING WITNESSES

CALENDAR OF PUBLIC HEARING

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

Subject: Polytetrafluoroethylene ("PTFE") Resin from China and India

Inv. Nos.: 701-TA-588 and 731-TA-1392-1393 (Final)

Date and Time: May 17, 2018 - 9:30 a.m.

Sessions were held in connection with these investigations in the Main Hearing Room (Room 101), 500 E Street, SW., Washington, DC.

OPENING REMARKS:

Petitioners (**James R. Cannon, Jr.,** Cassidy Levy Kent (USA) LLP)
Respondents (**Max F. Schutzman**, Grunfeld, Desiderio, Lebowitz, Silverman, Klestadt LLP)

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

Cassidy Levy Kent (USA) LLP
Washington DC
on behalf of

The Chemours Company FC LLC

Denise Dignam, North American Fluoropolymers Business Director, The Chemours Company FC LLC

Douglas Hayes, North American Sales and Development Manager, The Chemours Company FC LLC

Simone M. Genna, North American Regional Business Manager, Teflon PTFE & Melts, The Chemours Company FC LLC

Richard Hoeck, Technical Services Senior Consultant, The Chemours Company FC LLC

Erin Simek, North American Price Coordinator, The Chemours Company FC LLC

In Support of the Imposition of
Antidumping and Countervailing Duty Orders (continued):

Steven Ackley, Finance Manager, Fluoropolymers, The Chemours Company FC LLC

Deirdre Maloney, Senior International Trade Advisor, Cassidy Levy Kent (USA) LLP

James R. Cannon, Jr.)
) – OF COUNSEL
Mary Jane Alves)

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

Grunfeld, Desiderio, Lebowitz, Silverman, Klestadt, LLP
Washington, DC
on behalf of

PTFE Processors Alliance ("PPA")
Zhejiang Jusheng Flurochemical Co., Ltd.
Shandong Dongyue Polymer Material Co., Ltd.
Shanghai Huayi 3F New Materials Sales CO., Ltd.
Zhonghao Chenguang Research Institute of Chemical Industry Co., Ltd.
Jiangxi Lee & Man Chemical Ltd.
Jiangsu Meilan Chemical Co., Ltd.
China Chamber of Commerce of Metals, Minerals & Chemical Importers

Richard Baillie, President, Baillee Advance Materials

Michael Haley, Manager, Industrial Release Coatings, Whitford Worldwide

Chris Lewis, President, Advance Flexible Composites

Sina Ebnesajjad, President, FluoroConsultants Group, LLC

James P. Dougan, Senior Vice President, Economic Consulting Services

Curtis Eward, Economist, Economic Consulting Services

Max F. Schutzman)
Jordan C. Kahn)
) – OF COUNSEL
Dharmendra N. Choudhary)
Eve Q. Wang)

In Opposition to the Imposition of
Antidumping and Countervailing Duty Orders (continued):

Trade Pacific
Washington, DC
on behalf of

AGC Chemicals America, Inc. ("AGCCA")

James Dougherty, Global Operations Manager, AGC Chemicals Americas, Inc.

Jonathan M. Freed) – OF COUNSEL

REBUTTAL/CLOSING REMARKS:

Petitioners (**James R. Cannon, Jr.,** Cassidy Levy Kent (USA) LLP)
Respondents (**Max F. Schutzman**, Grunfeld, Desiderio, Lebowitz, Silverman, Klestadt LLP, and **Jonathan M. Freed**, Trade Pacific)

-END-

APPENDIX C

SUMMARY DATA

Table C-1
PTFE: Summary data concerning the U.S. market, 2015-17

* * * * * * *

Table C-2
PTFE: Summary data concerning the U.S. market including data on U.S. fillers/processors operations, 2015-17

* * * * * * *

Table C-2--Continued
PTFE: Summary data concerning the U.S. market including data on U.S. fillers/processors operations, 2015-17
(Quantity=1,000 pounds dry weight; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per pound dry weight; Period changes=percent--exceptions noted)

	Reported data			Period changes		
	Calendar year			Calendar year		
	2015	2016	2017	2015-17	2015-16	2016-17
Consolidated U.S. producers' and fillers' / processors':						
Export shipments:						
Quantity	***	***	***	***	***	***
Value	***	***	***	***	***	***
Unit value	***	***	***	***	***	***
Ending inventory quantity	***	***	***	***	***	***
Inventories/total shipments (fn1)	***	***	***	***	***	***
Channels of distribution:						
Share US shipments sold to distributors	***	***	***	***	***	***
Share US shipments sold to fillers / processors	***	***	***	***	***	***
Share US shipments sold to other end users	***	***	***	***	***	***
Production workers	***	***	***	***	***	***
Hours worked (1,000s)	***	***	***	***	***	***
Wages paid ($1,000)	***	***	***	***	***	***
Hourly wages (dollars per hour)	***	***	***	***	***	***
Net sales:						
Quantity	29,694	28,963	33,499	12.8	(2.5)	15.7
Value	238,249	212,974	249,488	4.7	(10.6)	17.1
Unit value	$8.02	$7.35	$7.45	(7.2)	(8.4)	1.3
Cost of goods sold (COGS)	201,289	188,373	201,345	0.0	(6.4)	6.9
Gross profit or (loss)	36,960	24,601	48,143	30.3	(33.4)	95.7
SG&A expenses	37,323	33,825	40,302	8.0	(9.4)	19.1
Operating income or (loss)	(363)	(9,224)	7,841	fn2	2,441.0	fn2
Net income or (loss)	(3,233)	(13,381)	3,131	fn2	313.9	fn2
Capital expenditures	6,840	8,642	7,184	5.0	26.3	(16.9)
Unit COGS	$6.78	$6.50	$6.01	(11.3)	(4.1)	(7.6)
Unit SG&A expenses	$1.26	$1.17	$1.20	(4.3)	(7.1)	3.0
Unit operating income or (loss)	$(0.01)	$(0.32)	$0.23	fn2	2,505.2	fn2
Unit net income or (loss)	$(0.11)	$(0.46)	$0.09	fn2	324.3	fn2
COGS/sales (fn1)	84.5	88.4	80.7	(3.8)	4.0	(7.7)
Operating income or (loss)/sales (fn1)	(0.2)	(4.3)	3.1	3.3	(4.2)	7.5
Net income or (loss)/sales (fn1)	(1.4)	(6.3)	1.3	2.6	(4.9)	7.5

Notes:

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

fn1.--Reported data are in percent and period changes are in percentage points.
fn2.--Undefined.
fn3.--The quantity for U.S. producers' U.S. shipments reflects the quantity of PTFE chemically manufactured in the United States; The value for U.S. producers' U.S. shipments reflects the value of PTFE chemically manufactured in the United States plus the additional value added to imported PTFE by U.S. fillers / processors. The average unit values presented for U.S. producers' U.S. shipments excludes the value added to imported PTFE. In measuring consumption and market share this methodology avoids reclassifying and/or double counting merchandise already reported once as an import.

Source: Compiled from official U.S. import statistics using HTS statistical reporting numbers 3904.61.0010 and 3904.61.0090 and data submitted in response to Commission questionnaires.

Table C-3
Granular PTFE: Summary data concerning the U.S. market, 2015-17

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Table C-4
Fine powder PTFE: Summary data concerning the U.S. market, 2015-17

* * * * * * *

Table C-5
Dispersion PTFE: Summary data concerning the U.S. market, 2015-17

* * * * * * *

Table C-6
PTFE: Summary data concerning the U.S. market including data on U.S. fillers/processors operations but excluding *, 2015-17**

* * * * * * *

APPENDIX D

COMPARABILITY OF GRANULAR, FINE POWDER, AND DISPERSION PTFE RESIN

Table D-1
PTFE resin: U.S. producers' narrative responses regarding the comparability of granular, fine powder and dispersion PTFE, since January 1, 2015

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Table D-2
PTFE resin: U.S. importers' narrative responses regarding the comparability of granular, fine powder and dispersion PTFE, since January 1, 2015

* * * * * * *

Table D-3
PTFE resin: U.S. purchasers' narrative responses regarding the comparability of granular, fine powder and dispersion PTFE, since January 1, 2015

* * * * * * *

APPENDIX E

U.S. PRODUCERS' AND U.S. IMPORTERS' U.S. SHIPMENTS, BY FORM, BY GRADE, AND BY TYPE

Table E-1
PTFE resin: U.S. producers' and U.S. importers' U.S. shipments by product form, 2015-17

* * * * * * *

Table E-2
PTFE resin: U.S. producers' and U.S. importers' U.S. shipments by grade and form, 2015-17

* * * * * * *

Table E-3
Granular PTFE resin: U.S. producers' and U.S. importers' U.S. shipments by product type, 2017

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Table E-4
Fine powder PTFE resin: U.S. producers' and U.S. importers' U.S. shipments by product type, 2017

* * * * * * *

Table E-5
Dispersion PTFE resin: U.S. producers' and U.S. importers' U.S. shipments by product type, 2017

* * * * * * *

APPENDIX F

NONSUBJECT COUNTRY PRICE DATA

Three importers reported price data for Germany and two importers reported pricing data for Italy. Price data reported by these firms accounted for *** percent of U.S. commercial shipments from Germany of PTFE resin and *** percent of U.S. commercial shipments from Italy of PTFE resin in 2017. These price items and accompanying data are comparable to those presented in tables V-3 to V-7. Price and quantity data for Germany and Italy are shown in tables F-1 to F-5 and in figure F-1 to F-5 (with domestic and subject sources).

In comparing nonsubject country pricing data with U.S. producer pricing data, prices for product imported from Germany and Italy were lower than prices for U.S.-produced product in *** instances and higher in *** instances. In comparing nonsubject country pricing data with subject country pricing data, prices for product imported from Germany and Italy were lower than prices for product imported from subject countries in *** instances and higher in *** instances. A summary of price differentials is presented in table F-6.

Table F-1

PTFE resin: Weighted-average f.o.b. prices and quantities of imported product 1, by quarters, January 2015 through December 2017

* * * * * * *

Table F-2

PTFE resin: Weighted-average f.o.b. prices and quantities of imported product 2, by quarters, January 2015 through December 2017

* * * * * * *

Table F-3

PTFE resin: Weighted-average f.o.b. prices and quantities of imported product 3, by quarters, January 2015 through December 2017

* * * * * * *

Table F-4

PTFE resin: Weighted-average f.o.b. prices and quantities of imported product 4, by quarters, January 2015 through December 2017

* * * * * * *

Table F-5

PTFE resin: Weighted-average f.o.b. prices and quantities of imported product 5, by quarters, January 2015 through December 2017

* * * * * * *

Figure F-1

PTFE resin: Weighted-average f.o.b. prices and quantities of domestic and imported product 1, by quarters, January 2015 through December 2017

* * * * * * *

Figure F-2

PTFE resin: Weighted-average f.o.b. prices and quantities of domestic and imported product 2, by quarters, January 2015 through December 2017

* * * * * * *

Figure F-3

PTFE resin: Weighted-average f.o.b. prices and quantities of domestic and imported product 3, by quarters, January 2015 through December 2017

* * * * * * *

Figure F-4

PTFE resin: Weighted-average f.o.b. prices and quantities of domestic and imported product 4, by quarters, January 2015 through December 2017

* * * * * * *

Figure F-5

PTFE resin: Weighted-average f.o.b. prices and quantities of domestic and imported product 5, by quarters, January 2015 through December 2017

* * * * * * *

Table F-6

PTFE resin: Summary of underselling/(overselling), by country, January 2015 through December 2017

* * * * * * *

APPENDIX G

FINANCIAL RESULTS ON U.S. PRODUCERS' GRANULAR, FINE POWDER, AND DISPERSION PTFE RESIN OPERATIONS

Table G-1
Granular PTFE resin: Results of operations of U.S. producers, 2015-17

* * * * * * *

Table G-2
Granular PTFE resin: Changes average per pound values (U.S. producers), 2015-17

* * * * * * *

Table G-3
Fine Powder PTFE resin: Results of operations of U.S. producers, 2015-17

* * * * * * *

Table G-4
Fine Powder PTFE resin: Changes average per pound values (U.S. producers), 2015-17

* * * * * * *

Table G-5
Dispersion PTFE resin: Results of operations of U.S. producers, 2015-17

* * * * * * *

Table G-6
Dispersion PTFE resin: Changes average per pound values (U.S. producers), 2015-17

* * * * * * *

APPENDIX H

PTFE RESIN OPERATIONS IN CHINA AND INDIA, BY FORM

Table H-1
Granular PTFE resin: Data on industry in China, 2015-17 and projection calendar years 2018 and 2019

* * * * * * *

Table H-2
Fine powder PTFE resin: Data on industry in China, 2015-17 and projection calendar years 2018 and 2019

* * * * * * *

Table H-3
Dispersion PTFE resin: Data on industry in China, 2015-17 and projection calendar years 2018 and 2019

* * * * * * *

Table H-4
Granular PTFE resin: Data on industry in India, 2015-17 and projection calendar years 2018 and 2019

* * * * * * *

Table H-5
Fine powder PTFE resin: Data on industry in India, 2015-17 and projection calendar years 2018 and 2019

* * * * * * *

Table H-6
Dispersion PTFE resin: Data on industry in India, 2015-17 and projection calendar years 2018 and 2019

* * * * * * *

Table H-7
Granular PTFE resin: Data on industry in subject countires, 2015-17 and projection calendar years 2018 and 2019

* * * * * * *

Table H-8
Fine powder PTFE resin: Data on industry in subject countries, 2015-17 and projection calendar years 2018 and 2019

* * * * * * *

Table H-9
Dispersion PTFE resin: Data on industry in subject countries, 2015-17 and projection calendar years 2018 and 2019

* * * * * * *