Pentafluoroethane (R-125) from China

Investigation Nos. 701-TA-662 and 731-TA-1554 (Final)

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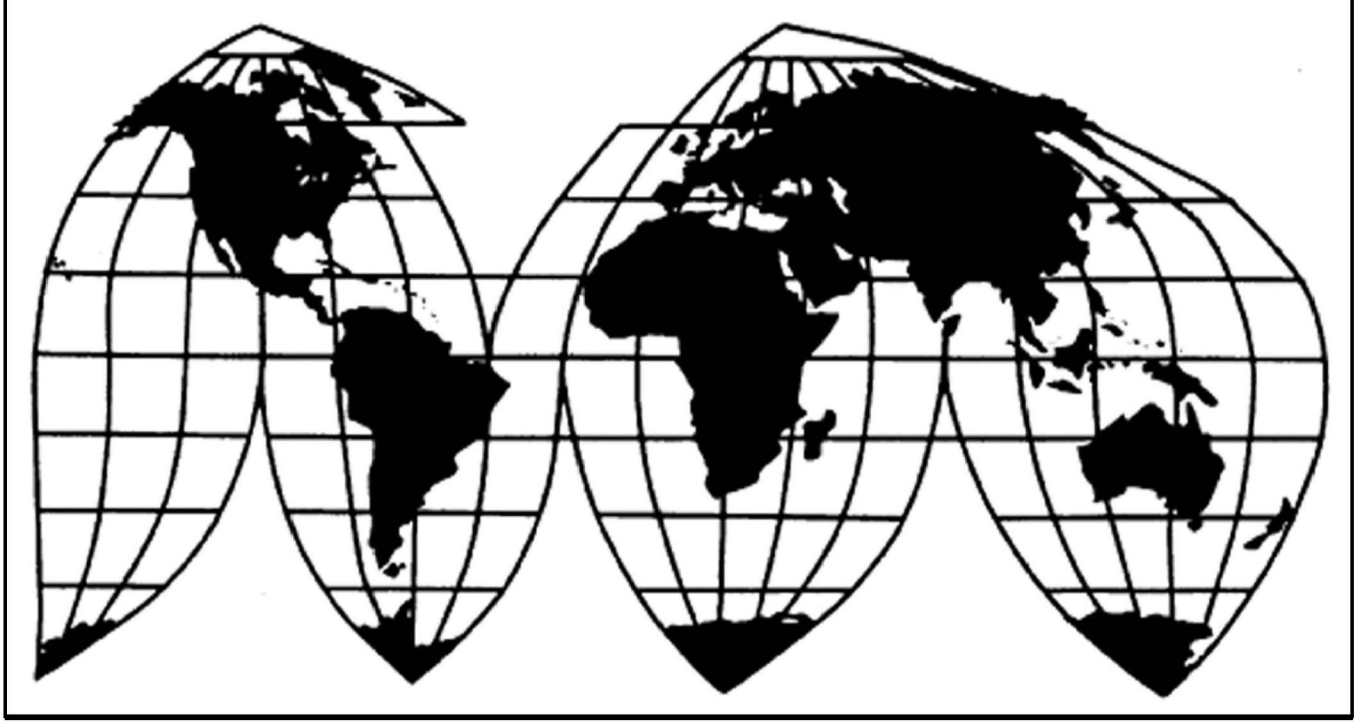
U.S. International Trade Commission



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U.S. International Trade Commission

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UNITED STATES INTERNATIONAL TRADE COMMISSION

Investigation Nos. 701-TA-662 and 731-TA-1554 (Final)

Pentafluoroethane (R-125) from China

DETERMINATIONS

On the basis of the record[1] developed in the subject investigations, the United States International Trade Commission ("Commission") determines, pursuant to the Tariff Act of 1930 ("the Act"), that an industry in the United States is materially injured by reason of imports of pentafluoroethane ("R-125") from China, provided for in subheading 2903.44.10 of the Harmonized Tariff Schedule of the United States, that have been found by the U.S. Department of Commerce ("Commerce") to be sold in the United States at less than fair value ("LTFV"), and to be subsidized by the government of China.[2] [3] [4]

BACKGROUND

The Commission instituted these investigations effective January 12, 2021, following receipt of petitions filed with the Commission and Commerce by Honeywell International, Inc., Charlotte, North Carolina. The final phase of the investigations was scheduled by the Commission following notification of preliminary determinations by Commerce that imports of R-125 from China were subsidized within the meaning of section 703(b) of the Act (19 U.S.C. 1671b(b)) and sold at LTFV within the meaning of 733(b) of the Act (19 U.S.C. 1673b(b)). Notice of the scheduling of the final phase of the Commission's investigations and of a public hearing to be held in connection therewith was given by posting copies of the notice in the Office of the Secretary, U.S. International Trade Commission, Washington, DC, and by publishing the notice

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

[2] 87 FR 1110 and 87 FR 1117 (January 10, 2022).

[3] Commissioner David S. Johanson dissenting.

[4] The Commission also finds that imports subject to Commerce's affirmative critical circumstances determination are not likely to undermine seriously the remedial effect of the countervailing and antidumping duty orders on R-125 from China.

in the *Federal Register* on September 7, 2021 (86 FR 50171).[5] The Commission conducted its hearing on December 14, 2021. All persons who requested the opportunity were permitted to participate.

[5] As revised by 86 FR 72619 (December 22, 2021).

Views of the Commission

Based on the record in the final phase of these investigations, we determine that an industry in the United States is materially injured by reason of imports of pentafluoroethane ("R-125") from China found by the U.S. Department of Commerce ("Commerce") to be subsidized by the government of China and sold in the United States at less than fair value ("LTFV").[1] We also find that critical circumstances do not exist with respect to imports from China that are subject to Commerce's affirmative critical circumstances determinations.

I. Background

Honeywell International, Inc. ("Honeywell" or "Petitioner"), a U.S. producer of R-125, filed the petitions in these investigations on January 12, 2021. Representatives for Petitioner submitted testimony and appeared at the hearing[2] accompanied by counsel and submitted prehearing[3] and posthearing briefs,[4] as well as final comments.[5] Two respondent groups participated actively in the final phase of these investigations. Counsel for Zhejiang Quzhou Juxin Fluorine Chemical Co., Ltd. ("Juxin"), Zhejiang Sanmei Chemical Ind. Co., Ltd. ("Sanmei"), and Sinochem Environmental Protection Chemicals (Taicang) Co., Ltd. (collectively, "Chinese Respondents"), Chinese producers and exporters of R-125, submitted testimony and appeared

[1] Commissioner David S. Johanson determines that an industry in the United States is not materially injured or threatened with material injury by reason of subject imports from China. *See* Dissenting Views of Commissioner David S. Johanson. He joins Sections I–IV(B) of the Views of the Commission.

[2] In light of the restrictions on access to the Commission building due to the COVID-19 pandemic, the Commission conducted the hearing through video teleconference and written testimony, as set forth in procedures provided to the parties and announced on its website.

[3] *See* Letter from Daniel Cannistra, Crowell & Moring LLP, to Lisa R. Barton, Secretary, *Re: R-125 (Pentafluoroethane) from the People's Republic of China: Honeywell International, Inc.'s Pre-Hearing Brief* (Dec. 7, 2021) ("Petitioner's Prehearing Brief").

[4] *See* Letter from Daniel Cannistra, Crowell & Moring LLP, to Lisa R. Barton, Secretary, *Re: R-125 (Pentafluoroethane) from the People's Republic of China: Honeywell International, Inc.'s Post-Hearing Brief* (Dec. 30, 2021) ("Petitioner's Posthearing Brief").

[5] *See* Letter from Daniel Cannistra, Crowell & Moring LLP, to Lisa R. Barton, Secretary, *Re: R-125 (Pentafluoroethane) from the People's Republic of China: Final Comments* (Jan. 28, 2022) ("Petitioner's Final Comments").

at the hearing and submitted prehearing[6] and posthearing briefs,[7] as well as final comments.[8] A representative for National Refrigerants, Inc. ("National"), a U.S. importer of R-125 from China, submitted testimony and appeared at the hearing accompanied by counsel and submitted prehearing[9] and posthearing briefs,[10] as well as final comments.[11]

U.S. industry data for the January 1, 2018 through June 30, 2021 period of investigation ("POI") are based on the questionnaire response of one firm – Honeywell – accounting for all known U.S. production of R-125 in 2020.[12] U.S. import data are based on questionnaire responses from 18 U.S. importers, accounting for approximately 48.5 percent of U.S. imports of R-125 from China in 2020 under the primary statistical reporting number 2903.39.2035 of the Harmonized Tariff Schedule of the United States ("HTS").[13] Data concerning the subject

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[6] *See* Letter from Ned H. Marshak, GDLSK LLP, to Lisa R. Barton, Secretary, *Re: Prehearing Brief of Chinese Respondents, Pentafluoroethane (R-125) from China* (Dec. 7, 2021) ("Chinese Respondents' Prehearing Brief").

[7] *See* Letter from Ned H. Marshak, GDLSK LLP, to Lisa R. Barton, Secretary, *Re: Post-hearing Brief of Chinese Respondents, Pentafluoroethane (R-125) from China* (Dec. 30, 2021) ("Chinese Respondents' Posthearing Brief").

[8] *See* Letter from Ned H. Marshak, GDLSK LLP, to Lisa R. Barton, Secretary, *Re: Final Comments of Chinese Respondents, Pentafluoroethane (R-125) from China* (Jan. 28, 2022) ("Chinese Respondents' Final Comments"). Chinese Respondents also submitted supplemental comments addressing the U.S. Department of Commerce's ("Commerce's") final countervailing and antidumping duty determinations. *See* Letter from Ned H. Marshak, GDLSK LLP, to Lisa R. Barton, Secretary, *Re: Supplemental Comments of Chinese Respondents, Pentafluoroethane (R-125) from China* (Jan. 7, 2022) ("Chinese Respondents' Supplemental Comments").

[9] *See* Letter from Jarrod M. Goldfeder, Trade Pacific PLLC, to Lisa R. Barton, Secretary, *Re: R-125 (Pentafluoroethane) from the People's Republic of China: Prehearing Brief* (Dec. 7, 2021) ("National's Prehearing Brief").

[10] *See* Letter from Jarrod M. Goldfeder, Trade Pacific PLLC, to Lisa R. Barton, Secretary, *Re: R-125 (Pentafluoroethane) from the People's Republic of China: Post-Hearing Brief* (Dec. 30, 2021) ("National's Posthearing Brief").

[11] *See* Letter from Jarrod M. Goldfeder, Trade Pacific PLLC, to Lisa R. Barton, Secretary, *Re: R-125 (Pentafluoroethane) from the People's Republic of China: Final Comments* (Jan. 28, 2022) ("National's Final Comments"). In addition, iGas USA, Inc. ("iGas") and counsel for A-Gas USA, Inc. ("A-Gas"), U.S. importers of R-125 from China, submitted prehearing briefs, but did not submit testimony, appear at the hearing, or submit posthearing briefs. iGas joined, incorporating by reference, the arguments with respect to critical circumstances in Chinese Respondents' prehearing brief. *See* Letter from Ben Meng, iGas USA, Inc., to Lisa R. Barton, Secretary, *Re: Pentafluoroethane (R-125) from China: Pre-hearing Brief* (Dec. 7, 2021). Counsel for A-Gas submitted their own arguments with respect to critical circumstances. *See* Letter from Irene Chen, VCL Law LLP, to Lisa R. Barton, Secretary, *Re: R-125 (Pentafluoroethane) from China: Prehearing Brief of A-Gas Americas* (Dec. 7, 2021) ("A-Gas's Prehearing Brief").

[12] Confidential Report ("CR"), INV-UU-005 (Jan. 20, 2022), and Public Report ("PR") at III-1.

[13] CR/PR at IV-1. HTS statistical reporting number 2903.39.2035 is a "basket" category that may contain out-of-scope merchandise; thus, the Commission does not rely on official import statistics to measure imports of R-125. *Id.* at n.2.

industry in China are based on questionnaire responses from three foreign producers of R-125; their exports to the United States accounted for approximately *** percent of reported U.S. imports of R-125 from China in 2020, and their production accounted for approximately 50 percent of overall production of R-125 in China.[14]

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."[15] Section 771(4)(A) of the Tariff Act of 1930, as amended ("the Tariff Act"), defines the relevant domestic industry as the "producers as a whole of a domestic like product, or those producers whose collective output of a domestic like product constitutes a major proportion of the total domestic production of the product."[16] In turn, the Tariff Act defines "domestic like product" as "a product which is like, or in the absence of like, most similar in characteristics and uses with, the article subject to an investigation."[17]

By statute, the Commission's "domestic like product" analysis begins with the "article subject to an investigation," *i.e.*, the subject merchandise as determined by Commerce.[18] Therefore, Commerce's determination as to the scope of the imported merchandise that is subsidized and/or sold at less than fair value is "necessarily the starting point of the Commission's like product analysis."[19] The Commission then defines the domestic like product in light of the imported articles Commerce has identified.[20] The decision regarding the

[14] CR/PR at VII-3.

[15] 19 U.S.C. § 1677(4)(A).

[16] 19 U.S.C. § 1677(4)(A).

[17] 19 U.S.C. § 1677(10).

[18] 19 U.S.C. § 1677(10). The Commission must accept Commerce's determination as to the scope of the imported merchandise that is subsidized and/or sold at less than fair value. *See*, *e.g.*, *USEC, Inc. v. United States*, 34 Fed. App'x 725, 730 (Fed. Cir. 2002) ("The ITC may not modify the class or kind of imported merchandise examined by Commerce."); *Algoma Steel Corp. v. United States,* 688 F. Supp. 639, 644 (Ct. Int'l Trade 1988), *aff'd*, 865 F.3d 240 (Fed. Cir.), *cert. denied*, 492 U.S. 919 (1989).

[19] *Cleo Inc. v. United States*, 501 F.3d 1291, 1298 (Fed. Cir. 2007); *see also Hitachi Metals, Ltd. v. United States*, 949 F.3d 710, 717 (Fed. Cir. 2020) (the statute requires the Commission to start with Commerce's subject merchandise in reaching its own like product determination).

[20] *Cleo*, 501 F.3d at 1298 n.1 ("Commerce's {scope} finding does not control the Commission's {like product} determination."); *Hosiden Corp. v. Advanced Display Mfrs.,* 85 F.3d 1561, 1568 (Fed. Cir. (Continued...)

appropriate domestic like product(s) in an investigation is a factual determination, and the Commission has applied the statutory standard of "like" or "most similar in characteristics and uses" on a case-by-case basis.[21] No single factor is dispositive, and the Commission may consider other factors it deems relevant based on the facts of a particular investigation.[22] The Commission looks for clear dividing lines among possible like products and disregards minor variations.[23]

B. Product Description

Commerce defined the imported merchandise within the scope of these investigations as:

> … pentafluoroethane (R-125), or its chemical equivalent, regardless of form, type or purity level. R-125 has the Chemical Abstracts Service (CAS) registry number of 354-33-6 and the chemical formula C_2HF_5. R-125 is also referred to as Pentafluoroethane, Genetron HFC 125, Khladon 125, Suva 125, Freon 125, and Fc-125.
>
> R-125 contained in blends that do not conform to ANSI/ASHRAE Standard 34 is included in the scope of these investigations when R-125 constitutes the largest relative component by volume, on an actual percentage basis, of the

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1996) (the Commission may find a single like product corresponding to several different classes or kinds defined by Commerce); *Torrington Co. v. United States*, 747 F. Supp. 744, 748–52 (Ct. Int'l Trade 1990), *aff'd*, 938 F.2d 1278 (Fed. Cir. 1991) (affirming the Commission's determination defining six like products in investigations where Commerce found five classes or kinds).

[21] *See*, *e.g.*, *Cleo*, 501 F.3d at 1299; *NEC Corp. v. Dep't of Commerce*, 36 F. Supp. 2d 380, 383 (Ct. Int'l Trade 1998); *Nippon Steel Corp. v. United States*, 19 CIT 450, 455 (1995); *Torrington*, 747 F. Supp. at 749 n.3 ("every like product determination 'must be made on the particular record at issue' and the 'unique facts of each case'"). The Commission generally considers a number of factors, including the following: (1) physical characteristics and uses; (2) interchangeability; (3) channels of distribution; (4) customer and producer perceptions of the products; (5) common manufacturing facilities, production processes, and production employees; and, where appropriate, (6) price. *See Nippon*, 19 CIT at 455 n.4; *Timken Co. v. United States*, 913 F. Supp. 580, 584 (Ct. Int'l Trade 1996).

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

[23] *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.").

blend.[24] However, R-125 incorporated into a blend that conforms to ANSI/ ASHRAE Standard 34 is excluded from the scope of these investigations. When R-125 is blended with other products and otherwise falls under the scope of these investigations, only the R-125 component of the mixture is covered by the scope of these investigations.

Subject merchandise also includes purified and unpurified R-125 that is processed in a third country or otherwise outside the customs territory of the United States, including, but not limited to, purifying, blending, or any other processing that would not otherwise remove the merchandise from the scope of these investigations if performed in the country of manufacture of the in-scope R-125. The scope also includes R-125 that is commingled with R-125 from sources not subject to these investigations. Only the subject component of such commingled products is covered by the scope of these investigations.

Excluded from the scope is merchandise covered by the scope of the antidumping order on *Hydrofluorocarbon Blends from the People's Republic of China*, including merchandise subject to the affirmative anti-circumvention determination in *Hydrofluorocarbon Blends from the People's Republic of China: Affirmative Final Determination of Circumvention of the Antidumping Duty Order; Unfinished R-32/R-125 Blends*, 85 FR 15428 (March 18, 2020). *See Hydrofluorocarbon Blends from the People's Republic of China: Antidumping Duty Order*, 81 FR 55436 (August 19, 2016) (the Blends Order).

R-125 is classified under Harmonized Tariff Schedule of the United States (HTSUS) subheading 2903.39.2035 and 2903.39.2038. Merchandise subject to the scope may also be entered under HTSUS subheadings 2903.39.2045, 3824.78.0020, and 3824.78.0050. The HTSUS subheadings and CAS registry number are provided for convenience and customs purposes. The written description of the scope of these investigations is dispositive.[25]

[24] "Largest relative component by volume, on an actual percentage basis" means that the percentage of R-125 contained in a blend is larger than the individual percentages of all the other components. For example, R-125 contained in a blend that does not conform to ANSI/ASHRAE Standard 34 and which contains 35 percent R-125 by volume is covered by the scope of the investigations if no other component part of the blend equals or exceeds 35 percent of the volume of the blend.

[25] *Pentafluoroethane (R-125) From the People's Republic of China: Final Affirmative Countervailing Duty Determination*, 87 Fed. Reg. 1110, 1112 (Jan. 10, 2022); *Pentafluoroethane (R-125) From the People's Republic of China: Final Affirmative Determination of Sales at Less Than Fair Value and Final Affirmative Determination of Critical Circumstances, in Part*, 87 Fed. Reg. 1117, 1119 (Jan. 10, 2022).

R-125 is a hydrofluorocarbon ("HFC"), a class of chemicals that contain fluorine, carbon, and hydrogen atoms.[26] It is a colorless, odorless gas that is used primarily as a component in HFC blends, which are used in refrigerant applications, including air conditioners.[27] R-125 is also used as a fire extinguishing agent.[28] Primarily because it is nonflammable, it is included in numerous refrigerant blends.[29] It does not have sufficient heat transfer capacity or other thermal properties to be used as a standalone refrigerant.[30]

When R-125 is blended with other products, only the R-125 component of the blend is covered by the scope. Excluded from the scope is R-125 incorporated into a blend that conforms to American National Standards Institute ("ANSI")/American Society of Heating, Refrigeration, and Air-Conditioning Engineers ("ASHRAE") Standard 34.[31] Also excluded from the scope is merchandise already covered by the scope of the antidumping duty order on *Hydrofluorocarbon Blends from the People's Republic of China* ("Blends Order").[32]

C. Domestic Like Product Analysis

In its preliminary determinations, the Commission found that standalone R-125 and R-125 as a component in a blend have mostly overlapping end uses, production processes, and customer and producer perceptions.[33] It acknowledged that there are some limited end uses for standalone R-125 other than being incorporated into a blend, that standalone R-125 is typically internally consumed or sold to third-party blenders rather than sold to Original Equipment Manufacturers ("OEMs") and end users, and that R-125 that has been incorporated into a blend cannot be easily, or economically, separated from the blend and returned to being standalone R-125.[34] Nevertheless, the Commission found that all R-125 is interchangeable in the sense that it has the same physical characteristics regardless of whether it is standalone or

[26] CR/PR at I-11.

[27] CR/PR at I-12.

[28] CR/PR at I-12.

[29] CR/PR at I-12.

[30] CR/PR at I-12.

[31] ANSI/ASHRAE Standard 34 is an industry publication that lists all the registered refrigerant blends and the proportions of the various components in the blends. CR/PR at I-12.

[32] The merchandise covered by the scope of the Blends Order include five HFC blends from China – R-404A, R-407A, R-407C, R-410A, and R-507. *See Hydrofluorocarbon Blends from the People's Republic of China: Antidumping Duty Order,* 81 Fed. Reg. 55436 (Aug. 19, 2016).

[33] *Pentafluoroethane (R-125) from China*, Inv. Nos. 701-TA-662 and 731-TA-1554 (Preliminary), USITC Pub. 5170 at 13-14 (Mar. 2021) ("Preliminary Determinations").

[34] Preliminary Determinations, USITC Pub. 5170 at 13-14.

mixed into a blend, and must meet the same industry standard. It concluded that there is not a clear dividing line between standalone R-125 and R-125 that is a component in a blend. The Commission consequently defined a single domestic like product coextensive with the scope of the investigations, including standalone R-125 and R-125 that is a component in a blend.[35]

Since the Commission's preliminary determinations, Commerce has amended the scope of these investigations to exclude R-125 contained in blends that conform to ANSI/ASHRAE Standard 34, among other amendments.[36] As a result, no party in the final phase of these investigations has argued that the Commission should adopt a definition of the domestic like product that is different from that in the preliminary determinations.[37] The change in scope does not alter our analysis in the preliminary determinations of whether R-125 already in blends should be included in the same domestic like product as standalone R-125, nor does the record in the final phase of these investigations contain any new information concerning the domestic like product factors warranting a different definition of the domestic like product.[38] Therefore, for the same reasons set forth in the preliminary determinations, we define a single domestic like product consisting of standalone R-125 and R-125 that is a component in a blend, coextensive with the scope.[39]

[35] Preliminary Determinations, USITC Pub. 5170 at 14.

[36] *See Antidumping and Countervailing Duty Investigations of Pentafluoroethane (R-125) from the People's Republic of China: Final Scope Decision Memorandum*, A-570-137, C-570-138 (Dec. 30, 2021). *See also* CR/PR at I-19.

[37] *See* Chinese Respondents' Prehearing Brief at 9; National's Prehearing Brief at 5.

[38] *See generally* CR/PR at I-9 to I-20.

[39] Chair Kearns notes that these investigations follow several investigations conducted by the Commission and Commerce regarding HFC components. In particular, in 2015-2016, the Commission conducted an investigation concerning HFC blends and components from China, in which the Commission divided the scope into two separate domestic like products – HFC blends and HFC components – and reached an affirmative injury finding with respect to blends but a negative injury finding on components. *See* CR/PR at I-5. Subsequently, Commerce initiated anti-circumvention inquiries, including whether imports of HFC components were circumventing the HFC Blends Order. It made a final negative circumvention determination following notification from the Commission that an affirmative circumvention determination on HFC components would raise a significant injury issue. *See* CR/PR at I-5-6. Chair Kearns questions whether he would have reached the same conclusion as the Commission in the prior investigation (*i.e.*, that the scope contained two separate like products, HFC blends and HFC components). Chair Kearns nevertheless recognizes that an order is in place on HFC blends and that the scope here covers R-125. He therefore concurs to define a single domestic like product coextensive with the scope.

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

We must determine whether any producer of the domestic like product should be excluded from the domestic industry pursuant to section 771(4)(B) of the Tariff Act. This provision allows the Commission, if appropriate circumstances exist, to exclude from the domestic industry producers that are related to an exporter or importer of subject merchandise or which are themselves importers.[41] Exclusion of such a producer is within the Commission's discretion based upon the facts presented in each investigation.[42]

Domestic producer Honeywell is subject to possible exclusion under the related parties provision because it imported subject merchandise during the POI.[43] Honeywell imported *** short tons of R-125 from *** in 2019 (the equivalent of *** percent of its domestic production in 2019) and *** short tons of R-125 from *** in interim 2020 (the equivalent of *** percent of its domestic production in 2020 and *** percent of its domestic production in interim 2020). Honeywell ***.[44] A representative for Honeywell testified that the firm imported R-125 to

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[40] 19 U.S.C. § 1677(4)(A).

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

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

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

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

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

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

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

[43] CR/PR at III-8. Honeywell also reported that ***. *Id.* In addition, Chinese Respondents claim that ***. *See* Chinese Respondents Posthearing Brief at Responses to Commissioner Questions at 52-54.

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

support an OEM customer in Mexico, claiming that Honeywell imported R-125 to mix into a blend in the United States, which it then exported to Mexico.[45]

Honeywell is the petitioner and accounts for all known domestic production of R-125.[46] Consequently, exclusion of Honeywell's data would provide an unrepresentative depiction of the domestic industry. Additionally, Honeywell's imports were sporadic and represented only *** shares of its full year domestic production in 2019 and 2020, indicating that its primary interest is in domestic production rather than importation. Accordingly, we find that appropriate circumstances do not exist to exclude Honeywell from the domestic industry.

We consequently define the domestic industry to include all domestic producers of the domestic like product, namely Honeywell.

IV. Material Injury by Reason of Subject Imports

Based on the record in the final phase of these investigations, we find that an industry in the United States is materially injured by reason of imports of R-125 from China that Commerce has found to be subsidized by the government of China and sold in the United States at less than fair value.[47]

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.[48] In making this determination, the Commission must consider the volume of subject imports, their effect on prices for the domestic like product, and their impact on domestic producers of the domestic like product, but only in the context of U.S. production operations.[49] The statute defines "material injury" as "harm which is not inconsequential, immaterial, or unimportant."[50] In assessing whether the domestic industry is materially injured by reason of subject imports, we

[45] *See* CR/PR at III-8 n. 8; Hr. Tr. at 116 (Wood).

[46] *See* CR/PR at III-1, Table III-1.

[47] Commissioner Johanson determines that an industry in the United States is not materially injured or threatened with material injury by reason of subject imports from China.

[48] 19 U.S.C. §§ 1671d(b), 1673d(b).

[49] 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).

[50] 19 U.S.C. § 1677(7)(A).

consider all relevant economic factors that bear on the state of the industry in the United States.[51] 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."[52]

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,[53] 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.[54] In identifying a causal link, if any, between subject imports and material injury to the domestic industry, the Commission examines the facts of the 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.[55]

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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[51] 19 U.S.C. § 1677(7)(C)(iii).

[52] 19 U.S.C. § 1677(7)(C)(iii).

[53] 19 U.S.C. §§ 1671d(b), 1673d(b).

[54] *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).

[55] 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. U.S. Int'l Trade Comm'n*, 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. U.S. Int'l Trade Comm'n*, 266 F.3d 1339, 1345 (Fed. Cir. 2001).

injury threshold.[56] In performing its examination, however, the Commission need not isolate the injury caused by other factors from injury caused by unfairly traded imports.[57] 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.[58] It is clear that the existence of injury caused by other factors does not compel a negative determination.[59]

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

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[56] Uruguay Round Agreements Act Statement of Administrative Action ("SAA"), H.R. Rep. 103-316, vol. I. 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.

[57] 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.").

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

[59] *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.").

imports."[60] The Commission ensures that it has "evidence in the record" to "show that the harm occurred 'by reason of' the LTFV imports," and that it is "not attributing injury from other sources to the subject imports."[61] The Federal Circuit has examined and affirmed various Commission methodologies and has disavowed "rigid adherence to a specific formula."[62]

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.[63] Congress has delegated this factual finding to the Commission because of the agency's institutional expertise in resolving injury issues.[64]

B. Conditions of Competition and the Business Cycle[65]

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

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[60] *Mittal Steel*, 542 F.3d at 878; *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*.

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

[62] *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.").

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

[64] *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.").

[65] 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). Negligibility is not an issue in these investigations. Based on data submitted in response to the Commission's U.S. importer questionnaire, subject imports from China accounted for *** percent of total U.S. imports of R-125 in the 12-month period (January to December 2020) preceding the filing of the petitions. CR/PR at Table IV-3.

1. Captive Production

We first consider the applicability of the statutory captive production provision.[66] Petitioner argues that the Commission should find that the captive production provision does not apply because R-125 is not the predominant material input in the production of various HFC blends.[67] Chinese Respondents and National argue that the Commission should apply the captive production provision. They contend that the threshold and first statutory criteria are satisfied in this case and an analysis of the data confirms that R-125 is the predominant material input in blends produced by Honeywell.[68]

Threshold Criterion. The captive production provision can be applied only if, as a threshold matter, significant production of the domestic like product is internally transferred and significant production is sold in the merchant market. In these investigations, internal transfers (internal consumption and transfers to related firms for production of downstream blends) accounted for between *** percent and *** percent of the domestic industry's total U.S. shipments of R-125 during the POI.[69] Merchant market shipments (commercial U.S. shipments and swaps) accounted for between *** percent and *** percent of the domestic industry's total U.S. shipments during the POI.[70] We find both the internal transfer (including

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[66] The captive production provision, 19 U.S.C. § 1677(7)(C)(iv), as amended by the Trade Preferences Extension Act ("TPEA") of 2015, provides:

(iv) CAPTIVE PRODUCTION – If domestic producers internally transfer significant production of the domestic like product for the production of a downstream article and sell significant production of the domestic like product in the merchant market, and the Commission finds that-

> (I) the domestic like product produced that is internally transferred for processing into that downstream article does not enter the merchant market for the domestic like product, and
>
> (II) the domestic like product is the predominant material input in the production of that downstream article,

then the Commission, in determining market share and the factors affecting financial performance set forth in clause (iii), shall focus primarily on the merchant market for the domestic like product.

[67] *See* Petitioner's Posthearing Brief at 11.

[68] *See* Chinese Respondents' Prehearing Brief at 39-43; Chinese Respondents' Final Comments at 5 n.14; National's Prehearing Brief at 5-8; National's Posthearing Brief at 5; National's Final Comments at 3.

[69] *See* CR/PR at Table III-5.

[70] *See* CR/PR at Table III-5. Honeywell reported ***. CR/PR at III-4. As explained further below, some of Honeywell's shipments of R-125 consist of swaps with other domestic HFC component producers, in which ***. *See* CR/PR at VI-10 n.8. The record indicates that swaps meet the criteria for (Continued...)

internal consumption and transfers to related firms) and merchant market (including commercial shipments and swaps) segments constitute significant portions of the market, and that the threshold criterion is therefore satisfied.

First Statutory Criterion. The first criterion tests whether the domestic like product produced that is internally transferred for processing into downstream articles does not enter the merchant market for the domestic like product.[71] Honeywell reported internal transfers of R-125 for the production of downstream blends.[72] It reported that it *** divert R-125 intended for internal transfers to the merchant market.[73] Therefore, this criterion is satisfied.

Second Statutory Criterion. In applying the second statutory criterion, the Commission generally considers whether the domestic like product is the predominant material input into a downstream product by referring to its share of the raw material cost of the downstream product.[74] In these investigations, R-125 reportedly comprised between *** percent and *** percent of the total value or cost of material inputs used for the downstream HFC products that Honeywell produced with internally transferred R-125.[75] Honeywell reported that *** percent of the volume of R-125 that it internally transferred in 2020 was used to produce the downstream HFC blend R-410A, with *** lower shares of the volume transferred to produce other downstream HFC blends.[76] While the material composition of R-410A is comprised of 50

"sales." *See* CR/PR at VI-10 n.8; *Bethlehem Steel Corp. v. United States*, 294 F.Supp.2d 1359, 1365 (Ct. Int'l Trade 2003) (to be considered a "sale" in the merchant market, "title … must be transferred, consideration must be paid … , and the transfer of title must be to an unrelated party").

[71] *See*, *e.g.*, *Hot-Rolled Steel Products from Argentina and South Africa*, Inv. Nos. 701-TA-404, 731-TA-898, 905 (Final), USITC Pub. 3446 at 15-16 (Aug. 2001); *Certain Cold-Rolled Steel Products from Argentina, Brazil*, *China*, *Indonesia*, *Japan*, *Russia*, *Slovakia*, *South Africa*, *Taiwan*, *Turkey and Venezuela*, Inv. Nos. 701-TA-393 and 731-TA-829-40 (Final) (Remand), USITC Pub. 3691 at 2 & n.19 (May 2004).

[72] CR/PR at III-11. From 2018 to 2020, Honeywell used R-125 to make blends including R-410A, R-407C, R-422D, R-404A, R-507A, R-438A, R-407A, R-407F, R-407H, R-448A, and R-449A. Honeywell also reported that during the same period it transferred R-125 to produce ***. *Id.* at III-11 n.15.

[73] CR/PR at III-11.

[74] We have construed "predominant" to mean the main or strongest element, and not necessarily a majority, of the inputs by value. *See Polyvinyl Alcohol from Germany and Japan*, Inv. Nos. 731-TA-1015-16 (Final) (June 2003), USITC Pub. 3604 at 15 n.69 (June 2003).

[75] CR/PR at Table III-10. Importers and purchasers reported that R-125 accounted for varying ranges of cost shares for the HFC blends in which it is used but individually reported the highest maximum range for the blend R-410A. Importers reported that R-125 accounted for *** percent of the cost of R-410A and purchasers reported that it accounted for *** percent of the cost of R-410A. *See* CR/PR at Table II-5.

[76] Honeywell reported *** percent of the volume of R-125 that it internally transferred in 2020 was for the downstream production of R-404A, *** percent was for the downstream production of R-407C, and *** percent was for the downstream production of other products. CR/PR at Table III-9.

percent R-125 and 50 percent R-32,[77] Honeywell reported that R-125 comprised *** percent of the total value or cost of material inputs used for the production of R-410A.[78] Thus, on a value or cost basis, R-125 was the predominant material input for the downstream product that Honeywell primarily produced using internally transferred R-125.

Conclusion. Based on the above analysis, we conclude that the first and second criteria for application of the captive production provision are satisfied. Accordingly, we will focus on the merchant market in analyzing the market share and financial performance of the domestic industry. However, since we find Honeywell's internal transfers of R-125 to be significant, we also consider the total market as a relevant condition of competition in our analysis.

2. Other HFC Components Proceedings, Including Alleged Circumvention of the Antidumping Duty Order on HFC Blends from China

In a prior investigation regarding imports of HFC blends and components from China, the Commission found two domestic like products, one consisting of HFC blends and the other consisting of HFC components. It determined in the final phase of the investigation that an industry in the United States was materially injured by reason of dumped imports of HFC blends from China. The Commission also determined that an industry in the United States was not materially injured or threatened with material injury by reason of dumped imports of HFC components (specifically, R-32, R-125, and R-143a) from China.[79] Commerce subsequently issued an antidumping duty order (the "Blends Order") on imports of HFC blends from China on August 15, 2016, but not an order on HFC components.[80]

[77] *See* CR/PR at II-1 to II-2.

[78] *See* CR/PR at Table III-10.

[79] *Hydrofluorocarbon Blends and Components From China; Determination*, 81 Fed. Reg. 53157 (Aug. 11, 2016); *Hydrofluorocarbon Blends and Components From China*, Inv. No. 731-TA-1279, USITC Pub. 4629 (Aug. 2016). Petitioners challenged the Commission's determination that HFC components constituted a separate domestic like product in the U.S. Court of International Trade ("CIT"). *See Arkema, Inc. v. United States*, Ct. No. 16-00179. The CIT subsequently affirmed on second remand the Commission's determination that there were two domestic like products, one consisting of HFC blends and one of HFC components, and the Commission's negative injury determination with respect to HFC components. *See Arkema, Inc. v. United States*, 393 F.Supp.3d 1177 (Ct. Int'l Trade 2019).

[80] *Hydrofluorocarbon Blends From the People's Republic of China: Antidumping Duty Order*, 81 Fed. Reg. 55436 (Aug. 19, 2016). On July 1, 2021, the Commission instituted a five-year review of the Blends Order. *See Hydrofluorocarbon Blends from China; Institution of a Five-Year Review*, 86 Fed. Reg. 35131 (July 1, 2021). The Commission conducted an expedited review of that order. *See Scheduling of Expedited Five-Year Review; Hydrofluorocarbon Blends from China*, 87 Fed. Reg. 118 (Jan. 3, 2022).

On June 18, 2019, Commerce initiated an anticircumvention inquiry to determine whether imports of certain HFC components (*i.e.,* R-32, R-125, and R-143a) from China that are further processed into finished HFC blends in the United States were circumventing the antidumping duty order on HFC blends from China within the meaning of section 781(a) of the Act.[81] On April 3, 2020, Commerce preliminarily determined that HFC components from China were circumventing the antidumping duty order on HFC blends from China.[82] As a result of its preliminary determination, Commerce directed U.S. Customs and Border Protection ("Customs") to suspend liquidation and to require a cash deposit of estimated duties at the rate applicable for an exporter of the subject imports from China, on all unliquidated entries of HFC components from China that were entered, or withdrawn from warehouse, for consumption on or after June 18, 2019, the date of initiation of Commerce's anticircumvention inquiry.[83]

On August 19, 2020, following notification from the Commission that an affirmative circumvention determination on HFC components would raise a significant injury issue, Commerce determined in a final negative determination that imports of HFC components (R-32, R-125, and R-143a) from China were not circumventing the antidumping duty order on HFC blends from China.[84] Given its negative circumvention finding that the scope of the antidumping duty order on HFC blends should not include HFC components (including R-125), Commerce directed Customs to refund any cash deposits made for these entries and to discontinue the suspension of liquidation of HFC components.[85]

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[81] *Hydrofluorocarbon Blends from the People's Republic of China: Initiation of Anti-Circumvention Inquiry on Antidumping Duty Order; Components*, 84 Fed. Reg. 28273 (June 18, 2019).

[82] *Hydrofluorocarbon Blends from the People's Republic of China: Affirmative Preliminary Determination of Circumvention of the Antidumping Duty Order for HFC Components; and Extension of Time Limit for Final Determination*, 85 Fed. Reg. 20248 (Apr. 10, 2020) and accompanying *Decision Memorandum* (Apr. 3, 2020). Commerce's affirmative preliminary determination in its anticircumvention inquiry did not consider as part of its analysis the Commission's 2016 negative final injury determination on HFC components from China. *See id*. *and Hydrofluorocarbon Blends and Components From China*, Inv. No. 731-TA-1279, USITC Pub. 4629 (Aug. 2016).

[83] 85 Fed. Reg. at 20248-49.

[84] *See Anti-Circumvention Inquiry of Antidumping Duty Order on Hydrofluorocarbon Blends From the People's Republic of China—HFC Components: Final Determination Not To Include Within the Scope of the Order*, 85 Fed. Reg. 51018, 51019 (Aug. 19, 2020), and accompanying *Decision Memorandum*. In its negative anticircumvention determination on imports of HFC components (including R-125) from China, Commerce considered the Commission's negative injury determination on HFC components from China as part of its analysis in reaching a negative circumvention decision. *Id*.

[85] 85 Fed. Reg. at 51019. Since Commerce's negative circumvention determination, the Commission conducted an investigation on imports of HFC component R-32 from China and made an affirmative material injury determination. *See Difluoromethane (R-32) from China*, Inv. No. 731-TA-1472 (Final), USITC Pub. 5165 (Mar. 2021). Commerce subsequently issued an antidumping duty order on (Continued...)

When asked if the 2016 Blends Order had an impact on the R-125 market in the United States, most market participants reported that the Blends Order did have an impact. While most importers and purchasers reported that the Blends Order had not changed the U.S. supply of R-125, most market participants reported that the Blends Order had increased the supply of R-125 from China.[86]

3. Demand Considerations

U.S. demand for R-125 is driven primarily by demand for U.S.-produced downstream HFC blends, which in turn depends on the demand for refrigeration and air conditioning.[87] Most market participants reported that U.S. demand for R-125 had increased since January 1,

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imports of R-32 from China on March 11, 2021. *See Difluoromethane (R-32) from the People's Republic of China: Antidumping Duty Order*, 86 Fed. Reg. 13,886 (Mar. 11, 2021). The Commission had earlier conducted an investigation on imports of HFC component R-134a from China and made an affirmative material injury determination. *See 1,1,1,2 – Tetrafluoroethane (R-134a) from China*, Inv. No. 731-TA-1313 (Final), USITC Pub. 4679 (Apr. 2017). Commerce issued an antidumping duty order on imports of R-134a from China on April 2017. *See 1,1,1,2 Tetrafluoroethane (R-134a) from the People's Republic of China: Antidumping Duty Order*, 82 Fed. Reg. 18,422 (Apr. 19, 2017). In another investigation, the Commission determined that an industry in the United States was materially injured by reason of dumped and subsidized imports of non-refillable steel cylinders from China, which are used to transport HFC components. *See Non-Refillable Steel Cylinders from China*, Inv. Nos. 701-TA-644 and 731-TA-1494 (Final), USITC Pub. 5188 (May 2021); CR/PR at II-2. Commerce issued antidumping and countervailing duty orders on imports of non-refillable steel cylinders from China on May 11, 2021. *See Certain Non-Refillable Steel Cylinders From the People's Republic of China: Amended Final Antidumping Duty Determination and Antidumping Duty and Countervailing Duty Orders*, 86 Fed. Reg. 25,839 (May 11, 2021).

[86] *See* CR/PR at Table II-3. Importers and purchasers Arkema Inc. ("Arkema") and The Chemours Company FC, LLC ("Chemours") reported that the *** and that the ***. *See* Arkema and Chemours' U.S. Importer Questionnaire Responses at III-15b, Purchaser Questionnaire Responses at III-7b. The record indicates that ***. *See* CR/PR at IV-2 n.3. Furthermore, according to importer and purchaser National's own records, National's purchases of R-125 from China increased by *** percent from 2017 to 2018, from *** pounds in 2017 to *** pounds in 2018. National's Posthearing Brief at Exhibit 10.

[87] *See* CR/PR at II-12. Honeywell reported that it follows several indicators to track demand for R-125, including gross domestic product ("GDP") and residential and nonresidential housing construction. *See* CR/PR at II-9. Seasonally adjusted new residential construction increased overall from January 2018 to December 2020; however, it decreased from January 2020 to April 2020, but then recovered and reached its peak in March 2021. *See* CR/PR at II-12, Fig. II-1. The Dodge Momentum Index (monthly measure of nonresidential building projects in planning) showed an increase in overall nonresidential building projects from January 2018 to December 2020, with a higher number of planned projects in October 2021 than in October 2020. *See* CR/PR at II-12, Fig. II-2. Seasonally adjusted real GDP as a percent change from the preceding quarter was generally positive from January 2018 to December 2020, except in the first and second quarters of 2020 before recovering in the third quarter of 2020. *See* CR/PR at II-13, Fig. II-3. Additionally, U.S. manufacturers' shipments of central air conditioners increased between January 2018 to December 2020. Shipments increased overall between January 2021 and September 2021. *See* CR/PR at II-13, Fig. II-4.

2018, and most purchasers reported that demand for end-use products, such as air conditioners, also increased.[88]

Apparent U.S. consumption of R-125 in the merchant market fluctuated between years but increased overall during 2018 to 2020, increasing from *** short tons in 2018 to *** short tons in 2019, before decreasing to *** short tons in 2020, for an overall increase of *** percent; it was lower by *** percent in interim 2021, at *** short tons, than in interim 2020, at *** short tons.[89]

4. Supply Considerations

Honeywell was the second largest source of supply in the U.S. merchant market throughout the POI. Honeywell's share of the merchant market fluctuated between years but decreased overall from 2018 to 2020. It decreased from *** percent in 2018 to *** percent in 2019, before increasing to *** percent in 2020; it was lower in interim 2021, at *** percent, than in interim 2020, at *** percent.[90] Honeywell's capacity was constant throughout the POI. Its capacity utilization fluctuated between years but increased slightly overall from *** percent in 2018 to *** percent in 2020; it was higher in interim 2021, at *** percent, than in interim 2020, at *** percent.[91]

Subject imports were the largest source of supply in the U.S. merchant market throughout the POI. Their share of the merchant market fluctuated between years. It

[88] *See* CR/PR at II-12, Table II-6. Demand for refrigerants, including blends containing R-125, is seasonal. Market participants generally reported that the majority of production and sales of R-125 occurs in the first through third quarters of the year. *See* CR/PR at II-11.

[89] CR/PR at Tables IV-8, C-2. Apparent U.S. consumption in the total market followed a similar trend. It increased from *** short tons in 2018 to *** short tons in 2019, before decreasing to *** short tons in 2020, for an overall increase of *** percent; it was lower by *** percent in interim 2021, at *** short tons, than in interim 2020, at *** short tons. CR/PR at Tables IV-6, C-1.

[90] CR/PR at Table IV-9. Honeywell's share of the total market also fluctuated between years and decreased overall from 2018 to 2020. It decreased from *** percent in 2018 to *** percent in 2019, before increasing to *** percent in 2020; it was higher in interim 2021, at *** percent, than in interim 2020, at *** percent. CR/PR at Table IV-7.

[91] CR/PR at Table III-3. While ***, 13 of 14 responding importers, and six of 11 responding purchasers reported that they had not experienced supply constraints during the POI, as discussed further below, a number of firms and the respondents cited supply constraints elsewhere in their questionnaire responses and briefs. *See* CR/PR at II-8 to II-9.

increased from *** percent in 2018 to *** percent in 2019, before decreasing to *** percent in 2020; it was *** percent in interim 2020 and *** percent in interim 2021.[92]

Nonsubject imports were virtually nonexistent as a source of supply in the U.S. merchant market until the end of the POI. Their share of the merchant market was *** percent in 2018, *** percent in 2019, and *** percent to 2020; it was *** percent in interim 2020 and *** percent in interim 2021.[93] India was the only source of nonsubject imports during the POI.[94]

5. Substitutability and Other Conditions

Based on the record, we find that domestically produced R-125 and subject imports are highly substitutable.[95] Chinese-produced and U.S.-produced R-125 have the same chemical formula and Air-Conditioning, Heating, and Refrigeration Institute ("AHRI") standards, which establish maximum levels of contaminants for R-125.[96] Moreover, all responding market participants reported that the domestic like product and subject imports can always be used in the same applications, regardless of source.[97] Finally, most responding purchasers reported that U.S.-produced R-125 and R-125 imported from China were comparable on most of the 15 factors that they consider in their purchasing decisions.[98]

The record also indicates that price, along with availability of supply and quality, are important factors in purchasing decisions for R-125.[99] The most frequently cited factor of the top three factors that responding purchasers consider in their purchasing decisions was

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[92] CR/PR at Table IV-9. Subject imports' share of the total market fluctuated between years but increased overall from 2018 to 2020. It increased from *** percent in 2018 to *** percent in 2019, before decreasing to *** percent in 2020; it was *** percent in interim 2020 and *** percent in interim 2021. CR/PR at Table IV-7.

[93] CR/PR at Table IV-9. Nonsubject imports' share of the total market was *** percent in 2018, *** percent in 2019, and *** percent to 2020; it was *** percent interim 2020 and *** percent in interim 2021. CR/PR at Table IV-7.

[94] *See* CR/PR at II-8 n.41.

[95] *See* CR/PR at II-17.

[96] *See* CR/PR at II-1. Ten of 12 responding purchasers reported that domestically produced and Chinese-produced R-125 always met minimum quality specifications. *See* CR/PR at Table II-10.

[97] *See* CR/PR at Table II-5.

[98] *See* CR/PR at Table II-12. The exceptions were availability (with seven of 13 responding purchasers reporting that U.S.-produced R-125 is superior or comparable to R-125 imported from China), delivery terms (with most responding purchasers reporting that U.S.-produced R-125 is superior), price (with most responding purchasers reporting that U.S.-produced R-125 is inferior, *i.e.*, higher priced), and transportation costs (with most responding purchasers reporting that U.S.-produced R-125 is superior). *See id.*

[99] *See* CR/PR at II-14.

availability/supply (cited 12 times), followed by price/cost (eight times), and quality (six times).[100] When asked to rate the importance of 15 factors in their purchasing decisions, most responding purchasers rated as "very important" supply (cited 12 times), availability, and quality meets industry standards (11 times each), product consistency (10 times), delivery time (nine times), price (eight times), and delivery terms and payment terms (six times).[101] Finally, while Honeywell reported that factors other than price are *** significant, most importers and purchasers reported that non-price differences between the domestic like product and subject imports are always important.[102]

R-125 is produced through a chemical reaction of perchloroethylene and hydrofluoric acid.[103] Raw materials accounted for an increasing share of Honeywell's cost of goods sold ("COGS") over the POI, increasing from *** percent in 2018 to *** percent in 2020; the share was higher, at *** percent, in interim 2021 than in interim 2020, at *** percent.[104] Honeywell reported that the share of hydrofluoric acid in COGS increased from *** percent in 2018 to *** percent in 2020; the share was higher, at *** percent, in interim 2021 than in interim 2020, at *** percent. The share of perchloroethylene in COGS fluctuated between years but increased from *** percent in 2018 to *** percent in 2020; the share was higher, at *** percent, in interim 2021 than in interim 2020, at *** percent.[105]

Honeywell reported selling the majority of its R-125 ***, with the remainder of its sales made via ***. Responding importers reported selling the vast majority of their subject imports in the spot market.[106]

Downstream HFC blends are produced domestically by two types of domestic refrigerant producers – integrated producers and independent refrigerant blenders. Integrated producers, such as Honeywell, Chemours, and Arkema, produce HFC blends using HFC components that were obtained via internal consumption or transfers, from other domestic component producers, and by importation. Independent refrigerant blenders, such as National,

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[100] *See* CR/PR at Table II-8. Availability/supply was the most frequently cited first most-important factor (cited eight times), followed by quality (three times), and price (once). *Id.* Price/cost and quality were the most frequently cited second-most important factor and price/cost was the most frequently cited third-most important factor. *Id.*

[101] *See* CR/PR at Table II-9.

[102] *See* CR/PR at Table II-13. Importer and purchaser *** reported product availability at needed volumes as a significant factor and importer *** reported the availability of multiple refrigerant components from Chinese and Indian suppliers as a key factor other than price. CR/PR at II-26.

[103] CR/PR at V-1.

[104] CR/PR at Table VI-3.

[105] CR/PR at Table VI-3.

[106] *See* CR/PR at Table V-2.

which produce no HFC components, produce HFC blends using HFC components purchased on the merchant market, which can be domestically produced or imported (primarily from China). As previously discussed, Honeywell internally consumed a portion of its R-125 production during the POI. It also exchanged R-125 through "swaps" with other domestic HFC component producers and sold R-125 to non-swap purchasers. In its swap transactions, Honeywell supplied R-125 to unrelated HFC component producers ***.[107]

An additional 15 percent *ad valorem* duty on imports of R-125 produced in China was scheduled to go into effect on December 15, 2019, under Section 301 of the Trade Act of 1974. However, negotiations led to a suspension of the implementation of these additional duties; thus, there are no Section 301 duties in effect for subheading 2903.39.20.[108] HFC refrigerant blends containing R-125 produced in China and entering under subheading 3824.78.20 are subject to an additional 25 percent ad valorem duty under Section 301.[109] Several importers reported that threats of Section 301 tariffs caused R-125 prices from Chinese manufactures to decrease and one purchaser reported that demand for R-125 increased due to the Section 301 tariffs on blends ***.[110]

In an effort to curb global warming, countries, including the United States, committed in 2016 under the Kigali Amendment to the Montreal Protocol to reduce by more than 80 percent their production and use of HFCs, including R-125, over the next 30 years. On December 27, 2020, the President signed the American Innovation and Manufacturing ("AIM") Act, which will result in reduced production and importation of regulated HFCs in alignment with the Kigali Amendment.[111] Under the AIM Act, each regulated HFC, including R-125, has a specific global warming potential ("GWP")[112] and, beginning in 2022, the annual allowable sum of GWPs for all HFCs produced and imported each year is set to decrease in phases from a baseline.[113] The

[107] *See* CR/PR at VI-10 n.8. For reporting net sales revenue, Honeywell ***. *See* CR/PR at VI-10 n.9. Honeywell's swap agreement with *** includes *** of R-125 with a swap ratio of *** and its swap agreement with *** includes *** of R-125 with swap ratios of ***. Both agreements allow for the negotiation and supply of additional quantities of HFC components outside of the swap agreements. *See* Honeywell's Swap Agreements with ***, EDIS Doc.# 758655; Petitioner's Posthearing Brief at Exhibit 4; CR/PR at VI-10 n.8.

[108] CR/PR at I-10 to I-11.

[109] CR/PR at I-10 to I-11.

[110] *See* CR/PR at II-5, V-9.

[111] CR/PR at I-13.

[112] A regulated HFC's GWP is referred to as its "exchange value" under the AIM Act. CR/PR at I-15, n.62.

[113] *See* CR/PR at I-13, I-15. The baseline was calculated using the average annual sums of all HFCs produced or imported in 2011 through 2013. CR/PR at I-13 to I-14.

annual allowable sum of GWPs for HFCs produced and imported in 2022 and 2023 was mandated to be at least 10 percent below the baseline level.[114]

In October 2021, the EPA released GWP allowances or "quotas," within the annual allowable sum of GWPs for calendar year 2022, for companies that had previously produced or imported HFCs. Hence, beginning on January 1, 2022, each company is allowed to produce or import HFCs in any combination, so long as the aggregate GWP of its imports or production that year fall within its allowance.[115] In an allowance system such as this, which is aimed at all regulated HFCs, there is no direct correlation between the mandated reductions from the baseline level and any specific HFC, such as R-125.[116]

C. Volume of Subject Imports[117]

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."[118]

The volume of subject imports decreased from 24,886 short tons in 2018 to 17,433 short tons in 2019, before increasing to 22,782 short tons in 2020; it was higher in interim 2021, at 14,100 short tons, than in interim 2020, at 13,451 short tons.[119] [120] The volume of U.S. importers' U.S. shipments fluctuated but increased overall from 2018 to 2020 and was lower in interim 2021 than in interim 2020. It increased from 18,008 short tons in 2018 to 25,411 short tons in 2019, before decreasing to 20,099 short tons in 2020; it was lower in interim 2021, at

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[114] CR/PR at I-14.

[115] *See* CR/PR at I-14. Each company's allowance was based on the average of its own three-highest, non-consecutive years of production and importation between 2011 and 2019. *See id.*

[116] *See* CR/PR at I-15. While R-125, with a GWP of 3,500, has one of the higher GWPs of the HFCs targeted for reduction under the AIM Act, most air conditioning or refrigeration units are designed around a selected HFC blend with a specific composition of HFC components. Thus, lowering aggregate GWP by changing blends cannot happen quickly. *See id*. at I-15 to I-16.

[117] Commissioner Johanson does not join the remaining sections of the Views of the Commission.

[118] 19 U.S.C. § 1677(7)(C)(i).

[119] CR/PR at Table IV-2. ***. *See* CR/PR at IV-2 n.7.

[120] Honeywell alleges that importers *** have amassed 20,000 tons of R-125 in a bonded warehouse in Tampa, Florida that were not reported as imports. *See* Petitioner's Prehearing Brief at 8, Petitioner's Posthearing Brief at 13 n.45. However, no responding importer reported using a bonded warehouse or temporary importation under bond ("TIB") during the POI, and only one importer (***) reported using a foreign trade zone ("FTZ") for arranged imports of *** short tons (July to September 2021) and *** short tons (October to December 2021). *See* *** U.S. Importer Questionnaire Response at I-8. According to counsel for ***, ***. CR/PR at IV-4 n.9.

11,141 short tons, than in interim 2020, at 13,427 short tons.[121] The difference between the volume of subject imports and the volume of U.S. importers' U.S. shipments of subject imports is due, at least in part, to the comparatively larger volumes of U.S. inventories of subject imports held by U.S. importers at the end of 2018 and at the end of the POI in interim 2021.[122]

We observe that there were a number of events that impacted the trends in the volume of subject imports during the POI. First, after the Blends Order was imposed on August 15, 2016, imports of R-125 surged into the U.S. market in 2017 and 2018, and subject import volume was therefore at a high level at the beginning of the POI.[123] Commerce's anticircumvention inquiry initiated on June 18, 2019, however, then resulted in uncertainty as to whether imports of R-125 from China that are further processed into finished HFC blends in the United States would be found by Commerce to be circumventing the Blends Order and was a basis for the decrease in subject imports from 2018 to 2019. Indeed, according to counsel for leading U.S. importer ***, which reported the largest decrease in subject imports between 2018 and 2019, ***.[124]

Subject imports' share of the U.S. merchant market fluctuated between years but consistently accounted for the largest share of the market. It increased from *** percent in 2018 to *** percent in 2019, before decreasing to *** percent in 2020; it was *** percent in interim 2020 and *** percent in interim 2020.[125]

The ratio of subject imports to U.S. production fluctuated between years. It decreased from *** percent in 2018 to *** percent in 2019, before increasing to *** percent in 2020; it was *** percent in interim 2020, and *** percent in interim 2021.[126]

In light of the foregoing, we find that the volume of subject imports is significant in absolute terms and relative to consumption in the merchant market and production in the United States.

[121] CR/PR at Tables IV-8, C-2.

[122] U.S. importers reported end-of-period U.S. inventories of subject imports totaling 10,303 short tons in 2018, 2,298 short tons in 2019, *** short tons in 2020, and *** short tons in interim 2021. CR/PR at Table VII-5.

[123] *See, supra,* section IV.B.2 n.86.

[124] *See* CR/PR at IV-4 n.10. *See also* Hr. Tr. at 187-188 (Freed) (Beatty).

[125] CR/PR at Tables IV-9, C-2. Subject imports' share of the total market increased from *** percent in 2018 to *** percent in 2019, before decreasing to *** percent in 2020; it was *** percent in interim 2020 and *** percent in interim 2021. CR/PR at Tables IV-7, C-1.

[126] CR/PR at Table IV-2.

D. Price Effects of the Subject Imports

Section 771(7)(C)(ii) of the Tariff Act provides that, in evaluating the price effects of 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.[127]

As discussed above, the record indicates that there is a high degree of substitutability and that price is an important purchasing decision for R-125, along with availability/supply and quality.[128]

We have examined several sources of data in our underselling analysis, including pricing data, import purchase cost data, data derived from lost sales/lost revenue survey responses, and other data on the record. The Commission collected quarterly pricing data for the total quantity and f.o.b. value of one R-125 product shipped by Honeywell and importers to unrelated customers between January 2018 and June 2021.[129] Honeywell and seven importers provided usable pricing data for the requested product, although not all firms reported pricing data for all quarters.[130] Pricing data reported by these firms accounted for *** of Honeywell's commercial U.S. shipments of R-125 (not including swap sales) and *** percent of reported commercial U.S. shipments of subject imports in 2020.[131] Notably, the pricing data show that there was consistent underselling by subject imports from the third quarter of 2018 until the

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[127] 19 U.S.C. § 1677(7)(C)(ii).

[128] Respondents argue that purchasing decisions for R-125 are not driven by price. *See* Chinese Respondents' Prehearing Brief at 37-39; Chinese Respondents' Posthearing Brief at 12; National's Prehearing Brief at 26-27; National's Posthearing Brief at APP-28-29. As previously discussed, however, the record indicates that price, while somewhat less important as compared to availability of supply, is still an important factor in purchasing decision, with responding purchasers citing price/cost eight times as a top three factor considered in their purchasing decisions and price rated eight times out of 12 as a "very important" purchasing factor. *See supra* Section IV.B.5.

[129] CR/PR at V-4. The pricing product was **Product 1.** – Pentafluoroethane, more commonly referred to as R-125, with a chemical composition of CF_3CHF_2, sold in bulk. *Id.*

[130] CR/PR at V-4.

[131] CR/PR at V-4. Importers' commercial U.S. shipments of subject imports accounted for *** percent of their total reported U.S. shipments of subject imports in 2020. *Derived from* CR/PR at Tables IV-8, U.S. Importers' Questionnaires at II-5a.

end of the POI (second quarter of 2021).[132] Subject imports undersold the domestic like product in 9 of 11 (or 81.8 percent of) quarterly comparisons, at margins ranging from 5.1 to 62.4 percent.[133] Subject imports oversold the domestic like product in the remaining two (or 18.2 percent of) quarterly comparisons, at margins ranging from 12.1 to 35.2 percent.[134] The quantity of subject imports in underselling comparisons was *** short tons, or *** percent of total quantity, while the quantity that oversold the domestic product totaled *** pounds, or *** percent of total quantity.[135]

The Commission also collected import purchase cost data for the same pricing product for firms that imported R-125 for use in the production of their own downstream products. Twelve importers reported usable import purchase cost data.[136] Purchase cost data reported by these firms accounted for *** percent of subject imports from China in 2020.[137] Landed duty-paid costs for subject imports were below the sales prices for U.S. produced R-125 in 12 of 14 (or 85.7 percent of) quarterly comparisons, with price-cost differences ranging from 14.5 percent to 51.7 percent, compared to subject imports in the remaining two quarters with higher costs than U.S. sales prices, with reported price-cost differences ranging from 28.1 percent to 34.6 percent.[138] The quantity of subject imports with lower costs than U.S. sales prices was *** short tons, or *** percent of total quantity, while the quantity with higher costs than U.S. sales prices totaled *** pounds, or *** percent of total quantity.[139] The average price-cost differential between import purchase costs and prices for the domestic like product was *** percent when import purchase cost data was lower than U.S. price and *** percent when import purchase cost data was higher than U.S. price.[140]

We recognize that the import purchase cost data may not reflect the total cost of importing. Therefore, we requested that importers provide additional information regarding the costs and benefits of directly importing R-125. Seven of 14 responding importers reported that they incurred additional costs beyond landed duty-paid costs associated with importing R-125 rather than purchasing R-125 from a U.S. producer or U.S. importer.[141] These costs ranged

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[132] *See* CR/PR at Table V-3. There is one exception – the first quarter of 2021 – when *** short tons of subject imports oversold the domestic like product. *See id.*

[133] *See* CR/PR at Table V-5.

[134] *See* CR/PR at Table V-5.

[135] CR/PR at Table V-5.

[136] CR/PR at V-5.

[137] CR/PR at V-5.

[138] *See* CR/PR at Table V-6.

[139] CR/PR at Table V-6.

[140] *See* CR/PR at Table V-6.

[141] CR/PR at V-8.

from two to 10 percent of the landed duty-paid value.[142] These additional costs were significantly less than the average price-cost differential of *** percent between landed duty-paid costs for subject imports and prices for the domestic like product.[143] We also observe that subject import purchase costs were lower than domestic R-125 prices in all quarters from the third quarter of 2018 through the end of the POI (second quarter of 2021).[144]

U.S. importers were also asked whether the cost of R-125 that they imported was lower than the price of purchasing R-125 from a U.S. producer or importer. Three responding importers reported that imports were priced lower when not including additional costs of importing, and four importers reported that imports were priced lower when including additional costs.[145] Two importers reported estimated savings of *** and *** percent by importing directly, excluding additional costs of importing, and two importers reported estimated savings of *** and *** percent by importing directly, including additional costs of importing.[146]

We have also considered purchaser lost sales/lost revenue responses. Nine of 12 responding purchasers reported that, since 2018, they had purchased R-125 from China instead of U.S.-produced product. Three of these purchasers reported that subject import prices were lower than U.S.-produced product, and these three purchasers reported that price was a primary reason for the decision to purchase imported product rather than U.S.-produced product.[147] These purchasers estimated a total quantity of *** short tons of R-125 from China purchased instead of the domestic like product, which is *** percent of Honeywell's total U.S. shipments in the merchant market during the POI.[148]

One of these purchasers, ***, which accounted for majority of the confirmed lost sales volume, indicated that *** in its decision to purchase lower-priced subject imports instead of the domestic like product, while also indicating that ***.[149] *** increased imports of subject R-

[142] CR/PR at V-8. In determining whether to directly import R-125, seven of 18 responding importers reported that they compare costs of importing directly to the cost of purchasing from a U.S. producer, five importers compare costs to purchasing from a U.S. importer, and six do not compare costs. CR/PR at V-8 to V-9.

[143] Nine importers identified benefits from importing R-125 directly instead of purchasing from U.S. producers or importers, including lower delivered cost/pricing. *See* CR/PR at V-9.

[144] *See* CR/PR at Table V-3.

[145] CR/PR at V-9.

[146] *See* CR/PR at V-9.

[147] *See* CR/PR at Table V-8. We note that most (seven of 11) responding purchasers reported that U.S.-produced R-125 is inferior, *i.e.*, higher priced, to subject imports. *See* CR/PR at Table II-12.

[148] *Derived from* CR/PR at Tables V-8, III-5.

[149] CR/PR at Table V-8; *see also* Chinese Respondents' Posthearing Brief at Responses to Commissioner Questions at 23-25; National's Posthearing Brief at APP-65.

125 in interim 2021 compared to interim 2020 appear to have been at the expense of U.S.-produced product.[150] *** did not meet its purchase obligations for U.S.-produced R-125 during interim 2021,[151] while, at the same time, increasing its purchases of lower-priced subject imports.[152] We acknowledge that *** also indicated in its purchaser questionnaire that it experienced some availability delays with supply of U.S.-produced R-125 "due to severe weather events" that took place in interim 2021, but it also indicated that these were *** and ***.[153] In any event, even if we were to exclude the *** short tons of R-125 from China that *** reported as lost sales to Honeywell, we still observe that non-swap purchasers *** (*** short tons of R-125 from China) and *** (*** short tons of R-125 from China) reported lost sales to Honeywell, totaling *** percent of Honeywell's total U.S. shipments in the merchant

[150] *** imports of lower-priced subject imports were significantly higher in interim 2021 (at *** short tons) than its full year 2019 and 2020 imports (at *** short tons and *** short tons, respectively) and *** percent higher than its interim 2020 imports (at *** short tons). *See* *** Purchaser Questionnaire Response at II-a; *** U.S. Importer Questionnaire Response at II-5a. In contrast, Honeywell's net sales quantities to *** were *** percent lower in interim 2021, at *** short tons, than in interim 2020, at *** short tons. *See* Honeywell's U.S. Producer Questionnaire Response at III-9a. Moreover, on September 30, 2020, *** sent a letter to Honeywell notifying Honeywell that it would not advance order volume for U.S.-produced R-125 under its agreement with Honeywell from the third and fourth quarters of 2021 into the first and second quarters of 2021 (interim 2021). *** also appears to have placed orders in the third and fourth quarters of 2020 that were below the minimum quarterly quantities under its swap agreement with Honeywell of *** metric tons, although the record does not address whether *** advanced those minimum quarterly quantities in the first and second quarter of 2020. The letter expressly cited Commerce's final negative determination in its anticircumvention inquiry on August 19, 2020, and the absence of any active antidumping case on R-125, as a basis for its order volumes. *See* Petitioner's Posthearing Brief at Exhibit 4; Honeywell's Swap Agreement with ***, EDIS Doc.# 758655; *see also* Hr. Tr. at 25-26 (Wilson) ("One customer specifically highlighted the negative anticircumvention ruling regarding the HFC blends order in 2020 and the resumption of unfair imports as a direct reason for decreasing their agreed-upon quantities with us.").

[151] *** reported purchases of U.S.-produced R-125 from Honeywell in interim 2021 are lower than the *** metric tons per quarter that *** committed to ordering in its letter dated September 30, 2020, as well as the volume it is contractually obligated to order under its swap agreement with Honeywell. *See* Petitioner's Posthearing Brief at Exhibit 4; Honeywell's Swap Agreement with ***, EDIS Doc.# 758655; *** Purchaser Questionnaire Response at II-1a (indicating that *** purchased *** short tons of R-125 from Honeywell in interim 2021, which is equivalent to *** metric tons and is less than the *** metric tons that *** committed to order in interim 2021 (*** metric tons in each of the first two quarters of 2021)).

[152] In 2020 and interim 2021, average unit values ("AUVs") for Honeywell's swap sales to *** were above those of U.S. shipments of subject imports. *See* Honeywell's U.S. Producer Questionnaire Response at III-9a; CR/PR at Table IV-8.

[153] *See* *** Purchaser Questionnaire Response at III-12, III-13(b); *see also* National's Posthearing Brief at 7-8 & n.5; National's Posthearing Brief at APP-11. It also indicated experiencing some delays with respect to the supply of subject imports that were ***. *See* *** Purchaser Questionnaire Response at III-12.

market during the POI and *** percent of Honeywell's total commercial U.S. shipments (not including swap sales) during the POI.[154]

In light of the record indicating that a significant volume of subject imports' sales prices and landed duty-paid costs were consistently less than the price of the domestic like product since the second half of 2018, the high degree of substitutability between subject imports, and the importance of price in purchasing decisions, we find that the underselling by subject imports was significant. The underselling by subject imports caused Honeywell to lose sales to subject imports in the merchant market.[155]

We have also considered price trends for the domestic like product and subject imports. Prices for Honeywell's commercial U.S. shipments of R-125 (not including swap sales, which are valued pursuant to individual swap agreements) declined overall during the POI.[156] Domestic prices were at their highest levels in 2018, before declining in 2019. They recovered briefly in the second quarter of 2020, which corresponds to Commerce's preliminary affirmative determination on April 3, 2020, that HFC components from China, including R-125, were circumventing the antidumping duty order on HFC blends from China.[157] The price of U.S.-produced R-125 in the second quarter of 2020 was higher than every other quarter in 2019, 2020, and interim 2021.[158] After the second quarter of 2020, domestic prices dropped sharply to their lowest level in the fourth quarter of 2020. Prices for the domestic like product then increased during the first and second quarters of 2021, finishing *** percent lower than in the first quarter of 2018.[159] Pricing data for subject imports is not available for all quarters of the POI. Nevertheless, for the quarters where data are available, subject import prices were at their highest level in the second quarter of 2018; they generally decreased from the fourth quarter of 2018 until reaching their lowest level in the second quarter of 2020, before increasing in the third quarter of 2020 but still finishing *** percent lower than in the fourth quarter of 2018. Prices of subject imports increased between the first and second quarters of

[154] *Derived from* CR/PR at Tables V-8, III-5.

[155] As previously discussed, three purchasers estimated a total quantity of *** short tons of R-125 from China purchased instead of the domestic like product, which is *** percent of Honeywell's total U.S. shipments in the merchant market during the POI. *Derived from* CR/PR at Tables V-8, III-5.

[156] Prices for Honeywell's commercial U.S. shipments declined by *** percent from the first quarter of 2018 to the fourth quarter of 2020; they declined by *** percent overall from the first quarter of 2018 to the second quarter of 2021. *See* CR/PR at Tables V-3 and V-4, Fig. V-1.

[157] *See* 85 Fed. Reg. 20248 (Apr. 10, 2020); CR/PR at Table V-3.

[158] *See* CR/PR at Table V-3. During this same quarter, subject import prices were at their lowest level and landed duty-paid purchase costs for subject imports briefly increased. *See* CR/PR at Table V-3.

[159] *See* CR/PR at Tables V-3 and V-4, Fig. V-1.

2021 by *** percent.[160] The reported purchase costs of subject imports were at their highest levels in the first and second quarters of 2018, before declining steeply by the third quarter of 2018 and continuing to steadily decline until the first quarter of 2020; they increased briefly in the second quarter of 2020, before declining again to their lowest level in the fourth quarter of 2020. Purchase costs of subject imports increased during the first and second quarters of 2021, finishing *** percent lower than in the first quarter of 2018.[161]

We find that factors other than low priced unfairly traded subject imports cannot explain the observed price declines for the domestic like product. As previously discussed, apparent U.S. consumption in the merchant market fluctuated between years but rose overall from 2018 to 2020.[162] While Honeywell's unit COGS declined from 2018 to 2020, this decline was considerably less than the decline in unit net sales values for Honeywell's commercial sales to non-swap entities, suggesting that Honeywell experienced price declines in excess of any cost savings. The AUVs for Honeywell's commercial sales to non-swap entities decreased by *** percent from 2018 to 2020, more than the *** percent decrease in unit COGS during this period.[163] Meanwhile, U.S. shipments of subject imports fluctuated between years but increased by 11.6 percent overall from 2018 to 2020.[164]

We acknowledge that, after the petitions were filed in January 2021, domestic prices increased in interim 2021.[165] During this time, importers also began to build inventories of R-125 from China, due to enactment of the AIM Act on December 27, 2020, as well as other

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[160] *See* CR/PR at V-9, Tables V-3 and V-4, Fig. V-1.

[161] *See* CR/PR at Tables V-3 and V-4, Fig. V-1.

[162] *See* CR/PR at Table IV-8. Apparent U.S. consumption in the merchant market (not including swap sales) also fluctuated between years but rose overall from 2018 to 2020. *Derived from* CR/PR at Tables III-5 and IV-8

[163] *See* CR/PR at Table VI-4. Moreover, Honeywell's raw material costs increased as share of COGS from 2018 to 2020. *See* CR/PR at Table VI-3.

[164] *See* CR/PR at Tables IV-8, C-2. While subject imports decreased by 29.9 percent from 24,886 short tons in 2018 to 17,433 short tons in 2019, U.S. shipments of subject imports increased by 41.1 percent from 18,008 short tons in 2018 to 25,411 short tons in 2019, as importers drew on their 2018 end-of-period inventories of subject imports. *See* CR/PR at Tables IV-2, IV-8, VII-5; *see also* CR/PR at VII-1 n.2 (*** which experienced the largest drop in inventory levels from 2018 to 2019, reported importing R-125 from China until ***). While we consider the price, purchase cost, and overall U.S. shipment data more probative, we note that when U.S. shipments of subject imports increased by 40.5 percent from 2018 to 2019, the AUVs for Honeywell's commercial U.S. shipments decreased from $*** in 2018 to $*** in 2019. Likewise, when U.S. shipments of subject imports decreased by 20.9 percent from 2019 to 2020, the AUVs for Honeywell's commercial U.S. shipments increased from $*** in 2019 to $*** in 2020. *See* CR/PR at Tables C-2, III-5.

[165] Despite increasing in interim 2021, as previously mentioned, prices for Honeywell's commercial U.S. shipments of R-125 were *** percent lower at the end of the POI, in interim 2021, than at the beginning of the POI, in the first quarter of 2018. *See* CR/PR at Tables V-3 and V-4, Fig. V-1.

factors.[166] As importers' end-of-period inventories of subject imports were *** higher in interim 2021 than in interim 2020,[167] their shipments of subject imports were 17.0 percent lower.[168] An overhang of inventories would normally indicate that supply has outpaced demand, putting downward pressure on prices, but, here, the record indicates that demand for R-125 was outpacing supply while U.S. importers' stockpiled subject imports in anticipation of AIM Act quotas,[169] which contributed to the observed price increases in interim 2021.

Given the significant volume of lower-priced subject imports, and our finding that there is a high degree of substitutability between subject imports and the domestic like product, and that price is an important purchasing factor, we find that low priced subject imports placed downward pricing pressure on the domestic like product and depressed prices to a significant degree.[170]

We have also examined whether subject imports prevented price increases which otherwise would have occurred to a significant degree. Honeywell's COGS-to-net sales ratio in the merchant market fluctuated between years but improved by *** percentage points overall

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[166] The increase in U.S. importers' end-of-period inventories was driven by ***, which had end-of-period inventories that were *** percent higher at the end of interim 2021 than at the end of interim 2020. *** reported that its larger end-of-period inventories at the end of interim 2021 was due to ***. *** also reported that ***. *** reported that ***. *** also reported that ***. *See* CR/PR at VII-11 n.1.

[167] Importers' end-of-period inventories of subject imports were *** percent higher at the end of interim 2021, at *** short tons, than at the end of interim 2020, when they were ***, short tons. They were also higher in interim 2021 than inventories at the end of 2020, at *** short tons. CR/PR at Tables VIII-5, C-2.

[168] U.S. shipments of subject imports were 17.0 percent lower in interim 2021, at 11,141 short tons, than in interim 2020, at 13,427 short tons. CR/PR at Tables IV-8, C-2. At the same time, imports of subject imports were 4.8 percent higher in interim 2021, at 14,100 short tons, than in interim 2020, at 13,451 short tons. CR/PR at IV-4, Table IV-2.

[169] As previously discussed, the demand indicators for R-125 all generally increased during interim 2021. *See supra* Section IV.B.3 n.87. Housing starts, the Dodge Momentum Index, GDP, and U.S. manufacturers' monthly shipments of air-conditioners all generally increased during interim 2021. *See* CR/PR at Tables D-1 through D-4.

[170] Respondents argue that subject import prices were abnormally high in 2018 due to a restriction of supply of raw materials in China, and that subject import prices were returning to normal levels during the POI. *See* Chinese Respondents' Posthearing Brief 13, Responses to Commissioner Questions at 21, 39-40; National's Prehearing Brief at 24; National's Posthearing Brief at APP-36-37. We also note that several importers reported that threats of Section 301 tariffs caused R-125 prices from Chinese manufactures to decrease during the POI. *See* CR/PR at V-9. While, as previously described, we observe that subject import prices and purchase costs were at their highest levels in the first and second quarters of 2018, *see* CR/PR at Table V-3, Fig. V-1, regardless of the reason why they were at these high levels, this does not change the fact that subject imports significantly undersold the domestic like product and significantly depressed prices for the domestic like product after the second quarter of 2018.

from 2018 to 2020, increasing from *** percent in 2018 to *** percent in 2019, before decreasing to *** percent in 2020; it was lower by *** percentage points in interim 2021, at *** percent, than in interim 2020, at *** percent.[171] Apparent U.S. consumption in the merchant market increased overall from 2018 to 2020, and was lower in interim 2021 than in interim 2020.[172] We find, however, that Honeywell's net sales values for all commercial sales in the merchant market, which include net sales values for Honeywell's swap sales, do not fully reflect price competition from subject imports.[173] Nevertheless, as previously described, the AUVs for Honeywell's commercial sales to non-swap entities declined by considerably more than Honeywell's unit COGS from 2018 to 2020, and price increases in interim 2021 occurred as shipments of subject imports were lower in the U.S. merchant market.[174]

In light of the foregoing, we find that subject imports undersold the domestic like product to a significant degree, as Honeywell lost merchant market sales. Additionally, subject imports depressed prices for the domestic like product to a significant degree. We consequently conclude that the subject imports had significant effects on prices for the domestic like product.

E. Impact of the Subject Imports[175]

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

[171] *See* CR/PR at Tables VI-3, C-2.

[172] *See* CR/PR at Table IV-8.

[173] As previously described, ***. *See supra* Section IV.B.5 n.107.

[174] *See* CR/PR at Tables VI-4, IV-8.

[175] The statute instructs the Commission to consider the "magnitude of the dumping margin" in an antidumping proceeding as part of its consideration of the impact of imports. 19 U.S.C. § 1677(7)(C)(iii)(V). In its final determination, Commerce found a dumping margin of 277.95 percent for imports from Chinese producers Sanmei and Fujian Qingliu Dongying Chemical Ind. Co., Ltd. and certain producers supplying non-individually examined exporters, and a dumping margin of 278.05 for imports from the China-Wide Entity. *Pentafluoroethane (R-125) From the People's Republic of China: Final Affirmative Determination of Sales at Less Than Fair Value and Final Affirmative Determination of Critical Circumstances, in Part*, 87 Fed. Reg. 1117, 1118 (Jan. 10, 2022). The China-Wide Entity includes Chinese Producer Juxin. *Id.* at n.15. We take into account in our analysis the fact that Commerce has made a final finding that all subject producers in China are selling subject imports in the United States at less than fair value. In addition to this consideration, our impact analysis has considered other factors affecting domestic prices. Our analysis of the significant underselling and price depression of subject imports, described in both the price effects discussion and below, is particularly probative to an assessment of the impact of the subject imports.

the state of the industry."[176] 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 ("R&D"), and factors affecting domestic prices. No single factor is dispositive and all relevant factors are considered "within the context of the business cycle and conditions of competition that are distinctive to the affected industry."[177]

Honeywell's output-related indicia generally fluctuated between years and, although they were higher overall in 2020 than in 2018, these increases did not keep pace with the higher overall increases in apparent U.S. consumption.[178] Honeywell's capacity remained steady throughout the POI at *** short tons in 2018 through 2020 and *** short tons in interim 2020 and interim 2021.[179] Its production fluctuated between years but increased from 2018 to 2020 by *** percent overall, increasing from *** short tons in 2018 to *** short tons in 2019, then decreasing to *** short tons in 2020; it was *** percent higher in interim 2021 at *** short tons than in interim 2020 at *** short tons.[180] Its capacity utilization fluctuated between years but increased from 2018 to 2020 by *** percentage points overall, increasing from *** percent in 2018 to *** percent in 2019, then decreasing to *** percent in 2020; it was *** percentage points higher in interim 2021 at *** percent than in interim 2020 at *** percent.[181]

Honeywell's U.S. shipments in the merchant market (including non-swap and swap sales) increased each year from 2018 to 2020 by *** percent overall, increasing from *** short tons in 2018 to *** short tons in 2019 and *** short tons in 2020; they were *** percent lower in interim 2021 at *** short tons than in interim 2020 at *** short tons.[182] Its inventories

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[176] 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.").

[177] 19 U.S.C. § 1677(7)(C)(iii). This provision was amended by the TPEA of 2015, Pub. L. 114-27.

[178] Apparent U.S. consumption of R-125 in the merchant market fluctuated between years but increased overall by *** percent from 2018 to 2020; it was lower by *** percent in interim 2021 than in interim 2020. CR/PR at Tables IV-8, C-2. Apparent U.S. consumption in the total market followed a similar trend. It increased overall by *** percent from 2018 to 2020; it was lower by *** percent in interim 2021 than in interim 2020. CR/PR at Tables IV-6, C-1.

[179] CR/PR at Table III-3.

[180] CR/PR at Tables III-3, C-1.

[181] CR/PR at Tables III-3, C-1.

[182] CR/PR at Tables III-5, C-2. Honeywell's U.S. shipments in the total market fluctuated between years but increased overall by *** percent between 2018 and 2020, increasing from *** short tons in 2018 to *** short tons in 2019, then decreasing to *** short tons in 2020; they were *** percent lower in interim 2021 at *** short tons than in interim 2020 at *** short tons. CR/PR at Tables III-5, C-1.

fluctuated between years but decreased from 2018 to 2020 by *** percent overall, increasing from *** short tons in 2018 to *** short tons in 2019, before decreasing to *** short tons in 2020; they were *** percent higher in interim 2021 at *** short tons than in interim 2020 at *** short tons.[183] Honeywell's share of apparent U.S. consumption in the merchant market fluctuated between years but decreased from 2018 to 2020 by *** percentage points overall, falling from *** percent in 2018 to *** percent in 2019, before increasing to *** percent in 2020; it was *** percentage points lower in interim 2021 at *** percent than in interim 2020 at *** percent.[184]

Honeywell's employment-related performance indicia were mixed. Employment,[185] total hours worked,[186] and hours worked per PRW[187] decreased from 2018 to 2019 and then remained stable. Wages paid[188] decreased overall from 2018 to 2020 but were higher in interim 2021 than interim 2020. Hourly wages[189] and productivity[190] increased over the entire POI.

Honeywell began the POI ***. Its financial indicia generally improved overall from 2018 to 2020, although operating income and net income were *** throughout the POI; net sales

[183] CR/PR at Table III-6, C-1.

[184] CR/PR at Tables IV-9, C-2. Honeywell's share of apparent U.S. consumption in the total market fluctuated between years but decreased from 2018 to 2020 by *** percentage points overall, falling from *** percent in 2018 to *** percent in 2019, before increasing to *** percent in 2020; it was *** percentage points higher in interim 2021 at *** percent than in interim 2020 at *** percent. CR/PR at Tables IV-8, C-1.

[185] Employment decreased by *** percent from 2018 to 2019, decreasing from *** production-related workers ("PRWs") in 2018 to *** PRWs in 2019 and 2020; it was *** PRWs in interim 2020 and interim 2021. CR/PR at Tables III-8, C-1.

[186] Total hours worked decreased by *** percent from 2018 to 2019, decreasing from *** hours in 2018 to *** hours in 2019 and 2020; they were *** hours in interim 2020 and interim 2021. CR/PR at Tables III-8, C-1.

[187] Hours worked per PRW decreased by *** percent from 2018 to 2019, decreasing from *** hours in 2018 to *** hours in 2019 and 2020; they were *** hours in interim 2020 and interim 2021. CR/PR at Table III-8.

[188] Wages paid fluctuated between years but decreased from 2018 to 2020 by *** percent overall, decreasing from $*** in 2018 to $*** in 2019, before increasing to $*** in 2020; they were *** percent higher in interim 2021 at $*** than in interim 2020 at $***. CR/PR at Tables III-8, C-1.

[189] Hourly wages increased by *** percent from 2018 to 2020, increasing from $*** per hour in 2018 to $*** per hour in 2019 and $*** per hour in 2020; they were *** percent higher in interim 2021 at $*** per hour than in interim 2020 at $*** per hour. CR/PR at Tables III-8, C-1.

[190] Productivity fluctuated between years but increased by *** percent from 2018 to 2020, increasing from *** short tons per 1,000 hours in 2018 to *** short tons per 1,000 hours in 2019, before decreasing to *** short tons per 1,000 hours in 2020; it was *** percent higher in interim 2021 at *** short tons per 1,000 hours than in interim 2020 at *** short tons per 1,000 hours. CR/PR at Tables III-8, C-1.

values and gross profit in the merchant market were lower in interim 2021 than in interim 2020, while operating income and net income were higher but still ***.[191] Honeywell's net sales values in the merchant market (including non-swap and swap sales) increased from $*** in 2018 to $*** in 2019 and $*** in 2020; net sales values were *** percent lower in interim 2021 at $*** than in interim 2020 at $***.[192] Its gross profit in the merchant market fluctuated between years decreasing from $*** in 2018 to $*** in 2019, before increasing to $*** in 2020; gross profit was *** percent lower in interim 2021 at $*** than in interim 2020 at $***.[193] Its operating income in the merchant market was *** in 2018, *** in 2019, and *** in 2020; it was *** in interim 2020 and *** in interim 2021.[194] Similarly, as a ratio to net sales, Honeywell's operating income margin in the merchant market was *** throughout the POI. It was *** percent in 2018, *** percent in 2019, and *** percent in 2020; it was *** percent in interim 2020 and *** in interim 2021.[195] Honeywell's net income in the merchant market was *** throughout the POI but fluctuated between years and worsened from 2018 to 2020. It was *** in 2018, *** in 2019, and *** in 2020; it was *** in interim 2020 and *** in interim

[191] *See* CR/PR at Table VI-3. As previously discussed, we recognize that direct price competition in the merchant market exists with respect to Honeywell's commercial sales to non-swap entities, which accounted for *** percent of Honeywell's merchant market sales in interim 2021 on a quantity basis. *See supra* Section IV.D; CR/PR at Table VI-3. Contrary to respondents' contentions that swap sales are insulated from direct competition with subject imports, however, as discussed above, *** increased its purchases of subject imports in interim 2021 at the same time that it decreased swap quantities with Honeywell. *See supra* Section IV.D n.150; Chinese Respondents' Posthearing Brief at 7, Responses to Commissioner Questions at 10-17; Chinese Respondents' Final Comments at 4; National's Posthearing Brief at 5, APP-9-10; National's Final Comments at 2-5. Honeywell's swap sales accounted for the remaining *** percent of Honeywell's merchant market sales in interim 2021. *See* CR/PR at Table VI-3.

[192] CR/PR at Tables VI-3, C-2. Honeywell's net sales values in the total market (internal consumption and transfers and non-swap and swap sales) increased from $*** in 2018 to $*** in 2019 and $*** in 2020; net sales values were *** percent lower in interim 2021 at $*** than in interim 2020 at $***. CR/PR at Tables VI-1, C-1.

[193] CR/PR at Tables VI-3, C-2. Honeywell's gross profit in the total market fluctuated between years decreasing from $*** in 2018 to $*** in 2019, before increasing to $*** in 2020; gross profit was *** percent lower in interim 2021 at $*** than in interim 2020 at $***. CR/PR at Tables VI-1, C-1.

[194] CR/PR at Tables VI-3, C-2. Honeywell's operating income in the total market was *** throughout 2018 to 2020 but fluctuated between years decreasing from *** in 2018 to *** in 2019, before increasing to *** in 2020; it was lower in interim 2021 at *** than in interim 2020 at ***. CR/PR at Tables VI-1, C-1.

[195] CR/PR at Table VI-3, C-2. Honeywell's operating income margin in the total market was *** throughout 2018 to 2020 but fluctuated between years decreasing from *** percent in 2018 to *** percent in 2019, before increasing to *** percent in 2020; it was *** percent in interim 2020 and *** percent in interim 2021. CR/PR at Tables VI-1, C-1.

2021.[196] Similarly, as a ratio to net sales, Honeywell's net income margin in the merchant market was *** throughout the POI, but fluctuated between years and worsened from 2018 to 2020. It was *** percent in 2018, *** percent in 2019, and *** percent in 2020; it was *** percent in interim 2020 and *** in interim 2021.[197]

Capital expenditures fluctuated between years, decreasing from $*** in 2018 to $*** in 2019, before increasing to $*** in 2020; they were $*** in interim 2020 and $*** in interim 2021.[198] Net assets increased each year from 2018 to 2020 from $*** to $*** and $***.[199] Return on assets was *** from 2018 to 2020 but fluctuated, decreasing from *** percent in 2018 to *** percent in 2019, before increasing to *** percent in 2020.[200] Honeywell reported actual and anticipated negative effects on investment and growth and development.[201]

As discussed above, the Commission's focus in these investigations is on the merchant market, which is comprised of Honeywell's sales to its swap partners and to non-swap entities. We find that the significant volume of subject imports, accounting for a majority of apparent U.S. consumption in the merchant market, that undersold the domestic like product to a significant degree for most of the POI,[202] had a significant adverse impact on the domestic industry in the merchant market. As discussed above, Honeywell lost sales to subject imports in the merchant market and subject imports placed downward pricing pressure on Honeywell's non-swap sales and depressed prices to a significant degree. The lost sales and significant price-depressing effects of the subject imports, in turn, caused Honeywell's revenues in the merchant market to be lower than they would have been otherwise. In light of these considerations, we find that subject imports had a significant adverse impact on the domestic industry.

We have also considered the role of other factors so as not to attribute injury from other factors to subject imports. As previously discussed, apparent U.S. consumption in the

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[196] CR/PR at Table VI-3, C-2. Honeywell's net income in the total market was *** throughout 2018 to 2020 and worsened from 2018 to 2020, decreasing from *** in 2018 to *** in 2019 and *** in 2020; it was lower in interim 2021 at *** than in interim 2020 at ***. CR/PR at Tables VI-1, C-1.

[197] CR/PR at Table VI-3, C-2. Honeywell's net income margin in the total market was *** throughout 2018 to 2020 and worsened from 2018 to 2020, decreasing from *** percent in 2018 to *** percent in 2019 and *** percent in 2020; it was *** percent in interim 2020 and *** percent in interim 2021. CR/PR at Tables VI-1, C-1.

[198] CR/PR at Tables VI-7, C-1.

[199] CR/PR at Table VI-7, C-1.

[200] CR/PR at Table VI-7. Honeywell did *** related to R-125 during the POI. CR/PR at VI-18 n.27.

[201] CR/PR at Tables VI-9, VI-10.

[202] As previously explained, subject import sales prices and landed duty-paid costs were consistently less than the price of the domestic like product since the second half of 2018 with the exception of one quarter (first quarter of 2021). *See supra* Section IV.D.

merchant market increased overall from 2018 to 2020. While apparent U.S. consumption in the merchant market was lower in interim 2021 as compared to interim 2020, as explained above, prices for the domestic like product increased during this period.[203] Nonsubject imports also do not explain Honeywell's performance in the merchant market during the POI as their share of apparent U.S. consumption in the merchant market was virtually nonexistent until the end of the POI.[204]

Honeywell's data as originally submitted contained numerous errors and omissions. While we anticipate parties to file accurate and complete data at the time of their original submissions, we recognize that as part of the investigatory process, the Commission must strive to obtain accurate data with which to conduct its injury analysis. Consequently, the Commission staff diligently undertook several rounds of revisions throughout the final phase of these investigations in order for this data to be useable and accurate.[205] The final version of Honeywell's reported data was vetted and verified by Commission staff.[206] Furthermore, respondents had an opportunity to comment on revisions to Honeywell's data at the time of their posthearing briefs (the deadline of which was extended to allow respondents adequate time to review revisions to Honeywell's data), as well as in their final comments.[207]

We are not persuaded by respondents' arguments that subject imports did not cause material injury because their market share in the merchant market decreased over the POI or that subject imports are non-injurious because Honeywell did not have sufficient available capacity to supply the merchant market after supplying its internal needs and swap partners.[208]

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[203] *See supra* Section IV.D.

[204] Further, Honeywell reported ***. CR/PR at VI-2 n.5.

[205] Chair Kearns and Commissioner Karpel emphasize the importance of parties' diligence in ensuring timely submission of accurate data to the Commission and that the need for multiple revisions to data submitted to the Commission creates additional burdens on Commission resources and parties in arguing their position before the Commission. In this regard, we urge petitioner and their counsel in any of their future appearances to exercise care and diligence in submitting data to the Commission.

[206] *See* Verification Report (Jan. 7, 2022), EDIS Doc. #760991.

[207] *See Pentafluoroethane (R-125) From China; Revised Schedule for the Subject Investigations*, 86 Fed. Reg. 72619 (Dec. 22, 2021). We do not exercise our discretion to apply adverse facts available against Honeywell, as requested by Chinese Respondents. *See* Chinese Respondents' Prehearing Brief at 17-24; Chinese Respondents' Posthearing Brief at 2-5; Chinese Respondents' Final Comments at 1-3. The statute allows the Commission to apply adverse facts available if an interested party fails to cooperate by not acting to the best of its ability to comply with a request for information. *See* 19 U.S.C. § 1677e(b). Here, as discussed above, Honeywell cooperated with the Commission staff's information requests and ultimately provided usable and accurate data.

[208] *See, e.g.,* Chinese Respondents' Posthearing Brief at 6, 7, 11, Responses to Commissioner Questions at 31-33; Chinese Respondents' Final Comments at 6-7; National's Posthearing Brief at 8-9, APP-1-4, APP-53-57; National's Final Comments at 5-6.

As previously explained, no other factors other than increasing U.S. shipments of low priced unfairly traded subject imports explain the observed price declines for the domestic like product and resulting revenues in the merchant market that were lower than they would have been otherwise. Furthermore, respondents' arguments do not explain the significant underselling or lost sales in the merchant market attributable to subject imports. Finally, the fact that Honeywell may not have been able to supply all of the demand for R-125 in the merchant market does not mean that it cannot be materially injured or threatened with material injury by reason of subject imports.[209]

Respondents also argue that any injury that Honeywell may have experienced by reason of subject imports during the POI has been mooted by the AIM Act restrictions on importation and production of HFC components and implementation of a quota system.[210] As previously discussed, however, based on the record in the final phase of these investigations, we have found that an industry in the United States is materially injured by reason of subject imports.[211]

V. Critical Circumstances

A. Legal Standards and Party Arguments

In its final antidumping and countervailing duty determinations concerning R-125 from China, Commerce found that critical circumstances exist with respect to certain subject producers/exporters.[212] Because we have determined that the domestic industry is materially injured by reason of subject imports from China, we must further determine "whether the imports subject to the affirmative {Commerce critical circumstances} determination ... are likely

[209] *See, e.g., Softwood Lumber from Canada,* Inv. 701-TA-414 and 731-TA-928 (Final) (Remand), USITC Pub. 3658 at 108, n.310 (Dec. 2003).

[210] *See* Chinese Respondents' Posthearing Brief at 10, Responses to Commissioner Questions at 85-88.

[211] Respondents' arguments are misplaced for a present material injury analysis and involve the likely analysis that would be appropriate for a five-year review of the antidumping and countervailing duty orders on R-125 from China.

[212] *See Pentafluoroethane (R-125) From the People's Republic of China: Final Affirmative Countervailing Duty Determination*, 87 Fed. Reg. 1110 (Jan. 10, 2022) *and accompanying* Issues & Decision Memorandum for the Final Determination in the Countervailing Duty Investigation of Pentafluoroethane (R-125) from the People's Republic of China, C-570-138 at 4 (Dec. 30, 2021); *Pentafluoroethane (R-125) From the People's Republic of China: Final Affirmative Determination of Sales at Less Than Fair Value and Final Affirmative Determination of Critical Circumstances, in Part*, 87 Fed. Reg. 1117, 1118 (Jan. 10, 2022).

to undermine seriously the remedial effect of the antidumping {and/or countervailing duty} order{s} to be issued."[213]

The SAA indicates that the Commission is to determine "whether, by massively increasing imports prior to the effective date of relief, the importers have seriously undermined the remedial effect of the order" and specifically "whether the surge in imports prior to the suspension of liquidation, rather than the failure to provide retroactive relief, is likely to seriously undermine the remedial effect of the order."[214] The legislative history for the critical circumstances provision indicates that the provision was designed "to deter exporters whose merchandise is subject to an investigation from circumventing the intent of the law by increasing their exports to the United States during the period between initiation of an investigation and a preliminary determination by {Commerce}."[215] An affirmative critical circumstances determination by the Commission, in conjunction with an affirmative determination of material injury by reason of subject imports, would normally result in the retroactive imposition of duties for those imports subject to the affirmative Commerce critical circumstances determination for a period 90 days prior to the suspension of liquidation.

The statute provides that, in making this determination, the Commission shall consider, among other factors it considers relevant,

> (I) the timing and the volume of the imports,
>
> (II) a rapid increase in inventories of the imports, and
>
> (III) any other circumstances indicating that the remedial effect of the {order} will be seriously undermined.[216]

In considering the timing and volume of subject imports, the Commission's practice is to consider import quantities prior to the filing of the petition with those subsequent to the filing of the petition using monthly statistics on the record regarding those firms for which Commerce has made an affirmative critical circumstances determination.[217]

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[213] 19 U.S.C. §§ 1671d(b)(4)(A)(ii), 1673d(b)(4)(A)(ii).

[214] SAA at 877.

[215] *ICC Industries, Inc. v United States,* 812 F.2d 694, 700 (Fed. Cir. 1987), *quoting* H.R. Rep. No. 96-317 at 63 (1979), *aff'g* 632 F. Supp. 36 (Ct. Int'l Trade 1986). *See* 19 U.S.C. §§ 1671b(e)(2), 1673b(e)(2).

[216] 19 U.S.C. §§ 1671d(b)(4)(A)(ii), 1673d(b)(4)(A)(ii).

[217] *See Lined Paper School Supplies from China, India, and Indonesia,* Inv. Nos. 701-TA-442-43, 731-TA-1095-97, USITC Pub. 3884 at 46-48 (Sept. 2006); *Carbazole Violet Pigment from China and India,* Inv. Nos. 701-TA-437 and 731-TA-1060-61 (Final), USITC Pub. 3744 at 26 (Dec. 2004); *Certain Frozen Fish Fillets from Vietnam,* Inv. No. 731-TA-1012 (Final), USITC Pub. 3617 at 20-22 (Aug. 2003).

Petitioner argues that the timing and volume of imports support an affirmative critical circumstances determination when accounting for unreported volumes of subject imports and considering importers' end-of-period U.S. inventories of subject imports in interim 2021 that were stockpiled and will continue to overhang the market.[218] Chinese Respondents and National argue that the Commission should not make an affirmative critical circumstances finding because subject import volumes were lower in the post-petition period. They acknowledge that importers' U.S. inventories of subject imports were higher in interim 2021 than in interim 2020; however, they argue that most of these inventories were subject imports from Sanmei, a Chinese producer and exporter whose exports were not subject to Commerce's affirmative critical circumstances determinations. Moreover, they point out that prices of R-125 have increased since the petitions were filed.[219] Additionally, A-Gas claims that the subject imports that it imported during the post-petition period were not due to the filing of the petitions in these investigations.[220]

B. Analysis

We first consider the appropriate period for comparisons in our critical circumstances analysis. The Commission frequently relies on six-month comparison periods, and there is no argument that we should do otherwise here.[221] We have thus determined to compare the volume of subject imports in the six months prior to the filing of the petition (July 2020 –

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[218] *See* Petitioner's Prehearing Brief at 44-46.

[219] *See* Chinese Respondents' Prehearing Brief at 94-98; Chinese Respondents' Supplemental Comments at 3-4; National's Prehearing Brief at 42-52; National's Posthearing Brief at 15; National's Final Comments at 15.

[220] *See* A-Gas' Prehearing Brief at 3-6, 9-10.

[221] The Commission has relied on shorter periods when Commerce's preliminary determination applicable to the country at issue fell within the six-month post-petition period the Commission typically considers. *Certain Hot-Rolled Steel Flat Products from Australia, Brazil, Japan, Korea, the Netherlands, Turkey, and the United Kingdom*, Inv. Nos. 701-TA-545-547, 731-TA-1291-1297 (Final), USITC Pub. 4638 at 49-50 (Sept. 2016); *Certain Corrosion-Resistance Steel Products from China, India, Italy, Korea, and Taiwan*, Inv. Nos. 701-TA-534-537 and 731-TA-1274-1278 (Final), USITC Pub. 4630 at 35-40 (July 2016); *Carbon and Certain Steel Wire Rod from China*, Inv. Nos. 701-TA-512, 731-TA-1248 (Final), USITC Pub. 4509 at 25-26 (Jan. 2015) (using five-month periods because preliminary Commerce countervailing duty determination was during the sixth month after the petition). That situation would not arise here because the preliminary countervailing duty determination was made on June 25, 2021, at the very end of the six-month post-petition period of January through June 2021.

The Commission is not required to examine the same periods that Commerce examined in performing the critical circumstances analysis. *See Certain Polyester Staple Fiber from China*, Inv. No. 731-TA-1104 (Final), USITC Pub. 3922 at 35 (June 2007); *Steel Concrete Reinforcing Bars from Turkey*, Inv. No. 731-TA-745 (Final), USITC Pub. 3034 at 34 (Apr. 1997).

December 2020) with the volume of subject imports in the six months after the filing of the petition (January 2021 – June 2021).[222]

Cumulative imports from China subject to Commerce's affirmative critical circumstances determinations decreased from *** short tons in the pre-petition period to *** short tons in the post-petition period, a decrease of *** percent.[223] Importers' end-of-period U.S. inventories of imports subject to Commerce's critical circumstances determination are estimated to have decreased in the six months after the petitions were filed and were at a level that was *** percent lower than the level that they were at on December 31, 2020.[224]

The record reflects that the volumes and inventories of imports subject to Commerce's critical circumstances determinations will not undermine the remedial effects of the countervailing and antidumping duty orders. As described above, both cumulative imports and end-of-period U.S. inventories of imports subject to Commerce's critical circumstances determinations were lower at the end of the post-petition period as compared to the pre-petition period.[225] In addition, Honeywell submitted data indicating ***.[226] These improvements suggest that the volume of subject imports in the post-petition period will not seriously undermine the remedial effect of the order.

In light of these considerations, we find that the record in these investigations does not support a finding that the imports from China subject to Commerce's affirmative critical circumstances determinations would undermine seriously the remedial effect of the countervailing and antidumping duty orders. Consequently, we determine that critical circumstances do not exist with respect to subject imports from China.[227]

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[222] CR/PR at Tables IV-4.

[223] CR/PR at Table IV-4. With the addition of the ***, cumulative imports subject to Commerce's affirmative critical circumstances determinations increased from *** short tons in the pre-petition period to *** short tons in the post-petition period, an increase of *** percent. *See* CR/PR at IV-2 n.7, Table IV-4.

[224] *See* CR/PR at Table IV-5.

[225] Even considering the additional volume of imports from China imported by ***, the increase in the volume of imports involved is modest.

[226] *See* CR/PR at Table V-3. Honeywell's cumulative merchant market shipments increased from *** short tons in the pre-petition period to *** short tons in the post-petition period. *Derived from* CR/PR at Table IV-11.

[227] Chair Kearns and Commissioner Karpel observe that the statute directs the Commission to consider the following factors in making this determination: "the timing and volume the imports, a rapid increase in the inventories of the imports, and any other circumstances indicating that the remedial effect of the antidumping order will be seriously undermined." 19 U.S.C. §1673d(b)(4)(A)(ii). In their analysis, they would therefore take into account a number of factors as appropriate to a given investigation (as directed by the statute) and do not necessarily give precedence to the pre- and post-
(Continued...)

VI. Conclusion

For the reasons stated above, we determine that an industry in the United States is materially injured by reason of subject imports of R-125 from China that are subsidized by the government of China and sold in the United States at less than fair value. We also find that critical circumstances do not exist with respect to imports from China that are subject to Commerce's affirmative critical circumstances determinations.

petition subject import volumes. Among the factors they may consider, depending on the facts of the investigation and the available data, are the parties' arguments, subject import volumes relative to apparent U.S. consumption or production, monthly changes in subject import volume, subject import inventories (both absolute and relative to imports or shipments of imports), purchaser inventories, pricing, and the domestic industry's performance. Chair Kearns and Commissioner Karpel concur that the record in these investigations does not support a finding that the subject imports from China would undermine seriously the remedial effects of the order.

Dissenting Views of Commissioner David S. Johanson

Based on the record in the final phase of these investigations, I find that an industry in the United States is not materially injured or threatened with material injury by reason of imports of pentafluoroethane (R-125) from China found by the U.S. Department of Commerce (Commerce) to be sold in the United States at less than fair value and imports of R-125 from China found by Commerce to be subsidized by the government of China. I join and adopt as my own Sections I–IV(B) (except where otherwise indicated) of the affirmative majority views.

My separate determination that there is no material injury or threat of material injury by reason of subject imports is based primarily on the following findings: (1) volume and price trends in the commercial U.S. shipments segment were not correlated in the way that would have been expected had subject import prices become more attractive to U.S. purchasers; (2) while the domestic industry lost market share in the merchant market over the three full years of the period of investigation, none of that market share was lost to subject imports; (3) Honeywell confirmed at the Commission's hearing that it was operating at full capacity and that there was no possibility, given the regulatory scheme being implemented intended to reduce consumption of HFCs, that it would be adding any production capacity; and (4) the effect of the recently implemented AIM Act makes it unlikely that subject import volume will substantially increase and that subject imports would have a significant depressing or suppressing effect on domestic prices.

I. 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."[1]

Subject import volume in the merchant market declined by 8.5 percent over the three full years of the period of investigation, from 24,886 short tons in 2018 to 22,782 short tons in 2020.[2] The volume of subject imports was higher (by 4.8 percent) in interim 2021, at 14,100

[1] 19 U.S.C. § 1677(7)(C)(i).

[2] CR/PR at Table IV-2. U.S. shipments of subject imports in the merchant market increased by 11.6 percent over the three full years of the period of investigation, from 18,008 short tons in 2018 to 20,099 short tons in 2020. CR/PR at Table C-2. These figures were the same when measured for the whole market. CR/PR at Table C-1.

short tons, than it was in interim 2020, when it was 13,451 short tons.[3] With U.S. consumption in the merchant market increasing by *** percent between 2018 and 2020, the market share of U.S. shipments of subject import decreased by *** percentage points over that period, from *** percent in 2018 to *** percent in 2020.[4] In interim 2021, the market share of U.S. shipments of subject imports was *** percent in the merchant market, *** percentage points lower than the share held by U.S. shipments of subject imports in interim 2020, at *** percent.[5]

Petitioner concedes that subject import volume trends are of limited probative value because of several confounding factors, particularly the filing of anti-circumvention petitions in June 2019, which were translated into provisional duties in May and June 2020 and were then finalized in August and October 2020.[6] Shortly after Commerce's rulings on the anti-circumvention petitions, petitioner brought this petition on January 12, 2021.[7] Finally, due to the passage of the American Innovation and Manufacturing (AIM) Act, signed on December 27, 2020, new restrictions were announced in October 2021 that went into place on January 1, 2022.[8] Petitioner admitted that in advance of this effective date, they were "seeing large amount of imports trying to build inventory to get ahead of that quota position . . . ."[9] Some of these events would tend to accelerate subject imports while other of these events would tend to dampen imports. While this tangle of counteracting incentives for importation over the period led to fluctuating volumes of subject imports, with no clear trend, I conclude that, in both the whole market and the merchant market, the volume of subject imports was significant both in absolute terms and relative to consumption in the United States.

Nevertheless, in the following analysis, I have detailed factors that mitigate the importance of the finding of significant volume. First, petitioner conceded that the domestic

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[3] CR/PR at Table IV-2. The volume of U.S. shipments of subject imports was lower (by 17.0 percent) in interim 2021, at 11,141 short tons, than it was in interim 2020, when it was 13,427 short tons. CR/PR at Table C-2. These figures were the same when measured for the whole market. CR/PR at Table C-1.

[4] CR/PR at Table C-2. In the whole market, U.S. shipments of subject imports from China gained *** percentage points over the three full years of the period, increasing from *** percent in 2018 to *** percent. CR/PR at Table C-1.

[5] CR/PR at Table C-2. Considered for the whole market, the market share of U.S. shipments of subject imports in interim 2021 was *** percent, *** percentage points lower than the share held in interim 2020, when it was *** percent. CR/PR at Table C-1.

[6] Hearing Tr. at 43-44 (Cannistra) & 45-46 (Bowen). A summary of the anti-circumvention timeline can be found at pp. I-5 to I-6 of the staff report.

[7] CR/PR at Table I-1.

[8] CR/PR at I-13 to I-14.

[9] Hearing Tr. at 85 (Wood).

industry, which consists of solely Honeywell, was operating at essentially full capacity; petitioner also conceded that, given the tighter regulation of the industry which the AIM Act represents, it is unlikely that the domestic industry would seek to add production capacity. Second, the current capacity of the domestic industry is not sufficient to supply the whole U.S. market and internal consumption and contractual obligations prevent Honeywell from being able to supply *** of the merchant market, a condition that acts to pull imports into the U.S. market. Finally, U.S. purchasers have asserted that Honeywell is not able or willing to satisfy the R-125 needs of its competitors in the blends market.

Therefore, while I conclude that the volume of subject imports is significant both in absolute terms and relative to consumption in the United States, I do not find that the volume of subject imports or any increase in that volume, either absolutely or relative to U.S consumption, warrants affirmative determinations in light of the conditions of competition in this market and in light of my findings, to be detailed below, concerning a lack of significant price effects and impact.

II. Price Effects of 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.[10]

I agree with the majority that there is a high degree of substitutability between the domestic like product and subject imports and that price is important in purchasing decisions, although there are other important factors.

Price underselling: There was only one pricing product, R-125 sold in bulk. Pricing product data covered *** of the U.S. producer's commercial shipments of R-125 in 2020, and *** percent of U.S. commercial shipments of subject imports from China in 2020.[11] Subject

[10] 19 U.S.C. § 1677(7)(C)(ii).

[11] CR/PR at V-4 to V-5. Chinese price data was *** percent of all imports of R-125 from China in 2020. CR/PR at V-5 n.17.

imports undersold the domestic like product in 9 out of 11 quarterly comparisons involving *** short tons, with margins of underselling ranging from *** percent and averaged *** percent.[12] Subject imports therefore undersold the domestic product in 81.8 percent of quarterly comparisons and for *** percent of the volume.[13]

The Commission also obtained purchase cost data for the pricing product from importers that imported R-125 for their own use or for retail sale. Purchase cost data accounted for approximately *** percent of U.S. imports from China in 2020.[14] Landed duty-paid costs for cumulated subject imports were below the sales prices for U.S. produced R-125 in 12 out of 14 possible quarterly comparisons, with *** short tons of the *** short tons being entered at a cost lower than the U.S. sales price, with price-cost differentials spanning from *** percent and with an average of *** percent.[15]

*** of the four quarters of overselling occurred in the *** quarters of the period of investigation and the *** was recorded in ***.[16] The switch from *** following a decline in Chinese prices.[17] Importer National stated that prices in China for the principal raw materials, perchloroethylene (PCE) and hydrofluoric acid (HF), spiked in 2017 due to temporary production difficulties in China, leading to tightness in the Chinese R-125 market in 2018.[18] Both importer National and the Chinese respondents supplied historical data that supports the contention that Chinese R-125 prices were *** relative to prices over a longer time horizon.[19]

While the data show significant underselling of the domestic like product by subject imports, I do not find, as discussed herein, that subject imports had significant adverse price effects. Despite the significant underselling, the record does not support a finding that subject imports depressed prices for the domestic like product or prevented price increases that would otherwise have occurred to a significant degree. Neither do I find that the underselling led to a significant gain in market share by subject imports at the expense of the domestic industry.

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[12] CR/PR at Table V-5.

[13] Calculated from CR/PR at Table V-5.

[14] CR/PR at V-5.

[15] CR/PR at Table V-6. Subject imports therefore were lower cost than the domestic product in 85.7 percent of quarterly comparisons and for *** percent of the volume. Calculated from CR/PR at Table V-6.

[16] CR/PR at Table V-3.

[17] CR/PR at Figure V-1.

[18] CR/PR at V-1; Hearing Tr. at 176 (Freed).

[19] Importer National's Responses to Commissioners' Questions at APP-36; Chinese Respondents' Responses to Commissioners' Questions at 40.

In the lost sales-lost revenue survey, of twelve responding purchasers, nine stated that they had purchased subject imports instead of U.S.-produced R-125.[20] Of those, three stated that subject imports were lower priced, and those three purchasers agreed that a primary reason for purchasing subject imports was due to their lower price with those purchasers accounting for *** short tons of imports.[21] When compared to total purchases reported by these purchasers over the period of investigation (*** short tons[22]), these lost sales represent *** percent.[23] Further, the largest purchaser reporting that its choice was based primarily on price, ***, also cited the ***."[24]

Our staff report noted that "Honeywell has the ability to respond to changes in demand with small changes in the quantity of shipments of U.S.-produced R-125 to the U.S. market."[25] It further notes that the "main contributing factor" to this limited ability to respond is "limited unused capacity."[26] In the merchant market, the highest market share served by the domestic industry was *** percent in 2018,[27] at a time when the domestic industry's capacity utilization was *** percent,[28] meaning that the domestic industry is unlikely to have been able to satisfy even a *** of merchant market demand. Although a majority of purchasers reported no supply constraints over the period of investigation, several purchasers, namely *** due to concerns about *** and these purchasers.[29]

Price Depression: The U.S. price of the pricing product showed a decline of *** percent over the *** quarters of the period of investigation.[30] Prices dipped twice; beginning in the first quarter of 2019 and again in the third quarter of 2020, but were otherwise stable or increasing.[31] Petitioner, however, agreed that U.S. prices recovered in interim 2021.[32]

[20] CR/PR at V-11 to V-12 and Table V-8.
[21] CR/PR at Table V-8.
[22] CR/PR at Table V-7.
[23] Calculated from CR/PR at Tables V-7 and V-8.
[24] CR/PR at Table V-8.
[25] CR/PR at II-7.
[26] CR/PR at II-7.
[27] CR/PR at Table C-2.
[28] CR/PR at Table C-1.
[29] CR/PR at II-9; Hearing Tr. at 148 (Kahn) and 156 (Dougan).
[30] CR/PR at Table V-4.
[31] CR/PR at Table V-3 and Figure V-1.
[32] Hearing Tr. at 25 (Wilson), at 41 and 111 (Cannistra).

Respondents pointed to the imminent restrictions of the AIM Act as the cause of the price increases in interim 2021.[33]

In an effort to focus on the merchant market, I examine the trends in AUVs of both subject imports and commercial U.S. shipments.[34] The annual AUV of Honeywell's commercial U.S. shipments declined irregularly from $*** per short ton in 2018, to $*** per short ton in 2019, and then increased somewhat to $*** per short ton in 2020, for an overall decline of *** percent.[35] In interim 2021, the AUV of Honeywell's commercial U.S. shipments was *** percent lower, at $*** per short ton, than it was in interim 2020, when it was $*** per short ton.[36]

The initial decline of *** percent in Honeywell's AUV between 2018 and 2019 occurred at the same time that the AUV of subject imports declined from $5,494 per short ton in 2018 to $3,114 per short ton in 2019, a decline of 43.3 percent.[37] Although these declines in both commercial U.S. shipment and subject import AUVs were simultaneous, I cannot conclude that the decline in subject import AUV was the cause of the decline in U.S. AUV in 2019 because subject import volume declined by 30.0 percent between 2018 and 2019[38] [39] while commercial U.S. shipments increased by *** percent,[40] a trend exactly opposite from what would have been expected had subject imports' AUV become more attractive to U.S. purchasers.

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[33] Hearing Tr. at 185 and 201-02 (Freed).

[34] The annual volumes of Honeywell's U.S. commercial shipments are *** the volume by year of the pricing product, supporting the probative value of annual AUV data. *Compare* CR/PR at Table III-5 (showing AUV of U.S. commercial shipments) *with* CR/PR at Table V-3 (pricing product data).

[35] CR/PR at Table III-5.

[36] CR/PR at Table III-5.

[37] CR/PR at Table IV-2. As recounted above, prices of R-125 imported from China declined from historic highs at the beginning of 2018 to more typical levels by the beginning of 2019 as a consequence of the easing of raw material shortages in China. Importer National's Responses to Commissioners' Questions at APP-36; Chinese Respondents' Responses to Commissioners' Questions at 40.

[38] Calculated from CR/PR at Table IV-2. U.S. imports of subject merchandise declined from 24,886 short tons in 2018 to 17,433 short tons in 2019. *Id*. The volumes of subject imports calculated from the pricing product (summing both price data imports and cost data imports) correspond closely to this decline, showing subject imports dropping from *** short tons in 2018 to *** short tons in 2019. Calculated from CR/PR at Table V-3.

[39] U.S. shipments of imports from China showed an increase of 41.1 percent from 2018 (18,008 short tons) to 2019 (25,411 short tons). CR/PR at Table IV-8. The discrepancy in trends is almost entirely accounted for by the drawing down of U.S. importers' inventories of subject merchandise from *** short tons at the end of 2018 to *** short tons at the end of 2019, a decline of *** percent. CR/PR at Table C-1.

[40] Calculated from CR/PR at Table III-5.

Further, as the AUV of subject imports declined further in 2020, to $2,074 per short ton (a 33.4 percent decline), and subject import volume increased by 30.7 percent,[41] the U.S. commercial shipment AUV increased by *** percent, although not enough to reverse the decline in 2019.[42] While Honeywell's commercial U.S. shipments decreased by *** percent between 2019 and 2020, they remained *** percent higher than the volume recorded in 2018.[43]

In interim 2021, Honeywell's commercial U.S. shipment and subject import AUVs again moved in opposite directions, as Honeywell's AUV was lower than it had been in interim 2020 (by *** percent)[44] and the subject import AUV in interim 2021 was 73.9 percent higher than it had been in interim 2020.[45] In interim 2021, the domestic industry's commercial U.S. shipment volume was *** percent higher than in interim 2020 (in response to the lower AUV)[46] and subject imports volume was 4.8 percent higher than in interim 2020 despite the higher AUV.[47]

In addition to the lack of correlation between AUVs in the relatively narrow commercial U.S. shipments segment—Honeywell's shipments to the commercial U.S. shipment accounting for *** the volume of Honeywell's total U.S. shipments in every period—I note that U.S. AUVs in the other, larger segments were steady. For Honeywell's shipments to the swaps segment of the market, ***, the AUV *** in the three full years of the period, increasing from a low of $*** per short ton in 2018 to a high of $*** per short ton in 2019, before declining to $*** per short ton, still *** percent higher than in 2018.[48] In interim 2021, the AUV of Honeywell's swaps was $***, higher (by *** percent) than in interim 2020.[49] The *** segment, transfers to related firms, *** from a high of $*** per short ton in 2018 to a low of $*** per short ton in 2019,

[41] CR/PR at Table IV-2. U.S. shipments of subject imports decreased by 20.9 percent from 2019 (at 25,411 short tons) to 2020 (at 20,099 short tons). CR/PR at Table IV-8.

[42] CR/PR at Table III-5. This would likely have been a larger increase but for *** imported *** short tons. CR/PR at Table III-7. Such imports accounted for *** percent of subject imports in ***. Calculated from CR/PR at Table IV-2. The AUV of ***. ***, U.S. Importers' Questionnaire at II-5a and CR/PR at Table C-1. *See* Chinese Respondents' Posthearing Brief at 13.

[43] CR/PR at Table III-5.

[44] CR/PR at Table III-5.

[45] CR/PR at Table IV-2.

[46] CR/PR at Table III-5.

[47] CR/PR at Table IV-2. In interim 2021, U.S. shipments of subject imports in the merchant market were 11,141 short tons, 17.0 percent lower than they were in interim 2020, when they were 13,427 short tons. CR/PR at Table IV-8.

[48] CR/PR at Table III-5.

[49] CR/PR at Table III-5.

before recovering to $*** per short ton in 2020, *** percent lower than in 2018.[50] In interim 2021, the AUV in the transfers to related firms segment was $***, higher (by *** percent) than in interim 2020.[51] (AUVs for shipments to the internal consumption segment were *** the AUVs for shipments to the transfers to related firms segment.[52]) Therefore, for segments making up at least *** and, in one year over *** percent,[53] of Honeywell's shipments, AUVs were stable over the three full years and somewhat higher in interim 2021 than in interim 2020.

In the relatively thin commercial U.S. shipments segment, the fluctuations observed in the AUVs of subject imports and U.S. producers' shipments are uncorrelated and are not sufficient for me to infer causality by reason of subject imports. For the remaining *** percent of Honeywell's shipments to the other segments of the whole market, the trends are stable, with an upward trend in interim 2021. Therefore, I cannot conclude that the presence of subject imports has depressed U.S. prices.

Price Suppression: The COGS-to-net-sales ratio for the domestic industry in the merchant market fluctuated, ending lower by *** percentage points.[54] In interim 2021, the COGS-to-net-sales ratio in the merchant market was *** percent, *** percent lower than in interim 2020, when it was *** percent.[55] This narrow range of fluctuation does not suggest a cost-price squeeze or price suppression. There is only one purchaser, out of the twelve responding purchasers, reporting that Honeywell had reduced prices to compete with subject imports.[56]

In sum, despite subject imports underselling the domestic like product, the record does not support a finding that the effect of subject imports was to depress prices to a significant degree or prevent price increases, which otherwise would have occurred, to a significant degree. Accordingly, I do not find that subject imports had significant adverse price effects on the domestic industry.

[50] CR/PR at Table III-5.

[51] CR/PR at Table III-5.

[52] CR/PR at Table III-5.

[53] CR/PR at Table III-5.

[54] CR/PR at Table C-2. The COGS-to-net-sales ratio in the merchant market initially rose from *** percent in 2018 to *** percent in 2019, but then declined to *** percent in 2020. *Id*.

[55] CR/PR at Table C-2.

[56] CR/PR at V-12. *** estimated that Honeywell reduced prices by *** percent. Id.

III. Impact of Subject Imports[57]

Section 771(7)(C)(iii) of the Tariff Act provides that examining the impact of subject imports, the Commission "shall evaluate all relevant economic factors which have a bearing on the state of the industry."[58] 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."[59]

The domestic industry's production capacity was constant at *** short tons (on an annual basis) over the full period of investigation, including the interim periods.[60] Production quantity by Honeywell fluctuated but was higher in 2020 than in 2018 (by *** percent) and was higher in interim 2021 than in interim 2020 (by *** percent).[61] Capacity utilization fluctuated but increased by *** percentage points over the three full years of the period (from *** percent in 2018 to *** percent in 2020) and was higher in interim 2021 than in interim 2020 (by

[57] The statute instructs the Commission to consider the "magnitude of the dumping margin" in an antidumping proceeding as part of its consideration of the impact of imports. 19 U.S.C. § 1677(7)(C)(iii)(V). In its final determination, Commerce found a dumping margin of 277.95 percent for imports from Chinese producers Sanmei and Fujian Qingliu Dongying Chemical Ind. Co., Ltd. and certain producers supplying non-individually examined exporters, and a dumping margin of 278.05 for imports from the China-Wide Entity. *Pentafluoroethane (R-125) From the People's Republic of China: Final Affirmative Determination of Sales at Less Than Fair Value and Final Affirmative Determination of Critical Circumstances, in Part*, 87 Fed. Reg. 1117, 1118 (Jan. 10, 2022). The China-Wide Entity includes Chinese Producer Juxin. *Id*. at n.15. I take into account in my analysis the fact that Commerce has made a final finding that all subject producers in China are selling subject imports in the United States at less than fair value. In addition to this consideration, my impact analysis has considered other factors affecting domestic prices. My analysis of the underselling and price depression of subject imports, described in both the price effects discussion and below, is particularly probative to an assessment of the impact of the subject imports.

[58] 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.").

[59] 19 U.S.C. § 1677(7)(C)(iii). This provision was amended by the Trade Preferences Extension Act of 2015, Pub. L. 114-27.

[60] CR/PR at Table C-1.

[61] CR/PR at Table C-1. Honeywell's U.S. production was *** short tons in 2018, *** short tons in 2019, and *** short tons in 2020. In interim 2021, Honeywell's production was *** short tons, greater than the *** short tons recorded in interim 2020. *Id*.

*** percentage points).[62] The volume of U.S. producers' U.S. commercial and swap shipments to the merchant market increased steadily by *** percent over the full three years; Honeywell's U.S. shipment in interim 2021 were lower than in interim 2020 (by *** percent).[63] The volume of U.S. producers' U.S. shipments to the whole market fluctuated but was higher in 2020 than in 2018 (by *** percent); Honeywell's U.S. shipment in interim 2021 were lower than in interim 2020 (by *** percent).[64]

Considering that competition between Honeywell and subject imports was focused on the segment of the merchant market composed of commercial U.S. shipments (excluding the swaps segment, in which subject imports did not compete), it is worth noting that, as a share of quantity, Honeywell's commercial U.S. shipments accounted for a relatively narrow share of the total market, between *** percent and *** percent, during the three full years of the period 2018 to 2020.[65] Further, the share of Honeywell's shipments directed toward the commercial U.S. shipments market segment increased over the three full years and was higher in interim 2021, at *** percent, compared to interim 2020, when it was *** percent.[66]

The domestic industry's market share of the merchant market declined irregularly by *** percentage points over the three full years of the period of investigation, from *** percent in 2018 to *** percent in 2020; Honeywell's market share was *** percentage points lower in interim 2021 than it had been in interim 2020.[67] In the total market, the market share held by Honeywell declined irregularly by *** percentage points, declining from *** percent in 2018 to

[62] CR/PR at Table C-1. Honeywell's capacity utilization was *** percent in 2018, *** percent in 2019, and *** percent in 2020. Capacity utilization was *** percent in interim 2021, higher than in the *** percent recorded in interim 2020. *Id*.

[63] CR/PR at Table C-2. Honeywell's U.S. commercial and swap shipments to the merchant market increased from *** short tons in 2018 to *** short tons in 2019 and to *** short tons in 2020. Honeywell's U.S. shipments to the merchant market in interim 2021 were *** short tons, lower than the *** short tons recorded in interim 2020. *Id*.

[64] CR/PR at Table C-1. Honeywell's U.S. shipments to the whole market increased from *** short tons in 2018 to *** short tons in 2019 but then declined slightly to *** short tons in 2020. Honeywell's U.S. shipments to the whole market in interim 2021 were *** short tons, lower than the *** short tons recorded in interim 2020. *Id*.

[65] CR/PR at III-5 and Table III-5. Honeywell's commercial U.S. shipments were *** short tons in 2018, *** short tons in 2019, and *** short tons in 2020, an increase of *** percent over the three full years. CR/PR at Table III-5.

[66] CR/PR at Table III-5. Honeywell's commercial U.S. shipments were *** short tons in interim 2021, *** percent higher than in interim 2020, when they were *** short tons. *Id*.

[67] CR/PR at Table C-2. Honeywell's market share in the merchant market was *** percent in 2018, *** percent in 2019, and *** percent in 2020. Its market share in interim 2021 was *** percent, *** percentage points lower than Honeywell's market share in interim 2020, at *** percent. *Id*.

*** percent in 2020, and was higher in interim 2021 than in interim 2020 (by *** percentage points).[68]

While the domestic industry lost market share over the three full years of the period of investigation, in the case of the merchant market, none of that market share was lost to subject imports. The domestic industry's *** percentage point loss in market share in the merchant market over the full three years occurred as subject imports' market share in the merchant market declined by *** percentage points.[69] The same relationship held between the interim periods when both the domestic industry and subject imports recorded lower merchant market shares in interim 2021 as compared to interim 2020 (by *** percentage points and by *** percentage points, respectively).[70] In the case of the total market, the domestic industry's *** percentage point loss in market share over the full three years of the period of the investigation occurred as subject imports' market share in the merchant market increased by only *** percentage points, *** of the share that the domestic industry lost.[71] Between the interim periods, both the domestic industry had a higher total market share in interim 2021 than in interim 2020 (by *** percentage points) while subject imports had lower total market shares in interim 2021 than in interim 2020 (by *** percentage points).[72]

Honeywell confirmed at the Commission's hearing that it was operating at full capacity[73] and that there was no possibility, given the regulatory scheme being implemented intended to reduce consumption of HFCs, that it would be adding any production capacity.[74]

Inventories held by U.S. producers declined irregularly from 2018 to 2020 on both an absolute basis (by *** percent) and as a share of total shipments (by *** percentage points) and although inventories were higher at the end of interim 2021 than they had been at the end of interim 2020, they were lower than they had been at the end of any of the full years.[75]

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[68] CR/PR at Table C-1. Honeywell's market share in the total market was *** percent in 2018, *** percent in 2019, and *** percent in 2020. Its total market share in interim 2021 was *** percent, *** percentage points higher than Honeywell's market share in interim 2020, at *** percent. *Id*.

[69] CR/PR at Table C-2.

[70] CR/PR at Table C-2.

[71] CR/PR at Table C-1.

[72] CR/PR at Table C-1.

[73] Hearing Tr. at 57 (Koutsaftes) and at 58 (Wood).

[74] Hearing Tr. at 86 & 88 (Wood).

[75] CR/PR at Table C-1. Inventories initially increased from *** short tons in 2018 to *** short tons in 2019, but then declined to *** short tons in 2020. Inventories were higher at the end of interim 2021 (at *** short tons) than they were at the end of interim 2020 (at *** short tons). *Id*. The share of

Employment measures generally declined over the three full years. Production-related workers (PRWs) declined from *** in 2018 to *** in 2019 (a *** percent decline), a level at which they remained for the remainder of the period of investigation.[76] Hours worked experienced the same trend, declining from *** hours in 2018 to *** hours in 2019 (a *** percent decline), a level at which they remained for the remainder of the period of investigation.[77] Wages paid fluctuated, declining over the three full years from $*** in 2018 to $*** in 2020 (a *** percent decline), but wages paid in interim 2021 were higher, at $***, than in interim 2020, when they were $***.[78] In contrast, both hourly wages and labor productivity increased over the three full years and were higher in interim 2021 than in interim 2020.[79] Indeed, petitioner conceded that its employment trends were related more to productivity improvements than to any impact of subject imports.[80]

The domestic industry's capital expenditures increased irregularly by *** percent, from $*** in 2018 to $*** in 2020.[81] Honeywell's capital expenditures in interim 2021 were *** percent higher, at $***, than they had been in interim 2020, when they were $***.[82]

The domestic industry's operating income margin in the merchant market was *** but improved steadily by *** percentage points over the three full years, from *** percent in 2018 to *** percent in 2019 to *** percent in 2020.[83] In interim 2021, the domestic industry's operating margin in the merchant market was better, at *** percent, than it was in interim 2020, when it was *** percent. Honeywell's operating income margin in the whole market was

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inventories to total shipments also initially increased from *** percent in 2018 to *** percent in 2019, after which it declined to *** percent at the end of 2020. Inventories were higher as a share of total shipments in interim 2021 (at *** percent) than at the end of interim 2020 (at *** percent). *Id*.

[76] CR/PR at Table C-1.

[77] CR/PR at Table C-1.

[78] CR/PR at Table C-1.

[79] CR/PR at Table C-1. Hourly wages increased steadily from $*** per hour in 2018 to $*** per hour in 2019 to $*** per hour in 2020, an increase of *** percent over the three-year period. Hourly wages in interim 2021 were $*** per hour, *** percent higher than in interim 2020, when hourly wages were $*** per hour. Labor productivity increased irregularly from *** short tons per 1,000 hours in 2018 to *** short tons per 1,000 hours in 2020, an increase of *** percent over the three-year period. Labor productivity in interim 2021 was *** short tons per 1,000 hours, *** percent higher than the value recorded in interim 2020, when it was *** short tons per 1,000 hours. *Id*.

[80] CR/PR at III-9 n.13.

[81] CR/PR at Table C-1.

[82] CR/PR at Table C-1.

[83] CR/PR at Table C-2.

***, fluctuating with an improving trend.[84] In the total market, Honeywell's operating income margin in interim 2021, at *** percent, was *** lower (by *** percentage points) than the margin recorded in interim 2020, at *** percent.[85] Net income as a share of net sales in the merchant market declined irregularly from *** percent in 2018 to *** percent in 2020 (by *** percentage points); the net income ratio in the merchant market was better in interim 2021 (at *** percent) than it was in interim 2020 (when it was *** percent).[86]

Before I conclude, I note that in the prehearing staff report that was delivered to the Commission on November 30, 2021,[87] the data on the operating income margin was notably different from how it appears in the final staff report. Honeywell's operating income margin in the merchant market for 2018, for instance, *** by *** percentage points, *** percent in the prehearing staff report to *** percent in the final staff report, which was delivered on January 20, 2022.[88] The Commission's confidential staff report recounts the revisions that were made upon verification and these revisions are extensive.[89] Chinese respondents complain about Honeywell's questionnaire revisions having been delivered to the Commission on December 16 and 21, 2021, after the December 14, 2021 hearing, which was the respondents' best opportunity to test the reliability and veracity of questionnaire data.[90] While I relied on the data in the final staff report to reach my conclusions, I nevertheless believe that, in these proceedings, respondents' due process expectations were disappointed by the dilatory revisions made to petitioner's submissions and the magnitude of those changes, largely in a direction beneficial to petitioner's case. This situation undermines my confidence in the record on which this Commission relies.[91]

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[84] CR/PR at Table C-1. Honeywell's operating income margin was *** percent in 2018, *** percent in 2019, and *** percent in 2020, for an overall improvement of *** percentage points.

[85] CR/PR at Table C-1.

[86] CR/PR at Table C-2. Net income as a share of net sales in the total market declined steadily from *** percent in 2018 to *** percent in 2019 to *** percent in 2020 (by *** percentage points); the net income ratio in the merchant market was worse in interim 2021 (at *** percent) than it was in interim 2020 (when it was *** percent).

[87] Confidential Prehearing Staff Report, Memorandum INV-TT-134 ("Prehearing Report").

[88] *Compare* CR/PR at Table C-2 *with* Prehearing Report at Table C-2.

[89] CR/PR at VI-1 to VI-2, n.4.

[90] Chinese Respondents' Posthearing Brief at 2 and 13-14.

[91] As noted by staff, one of the revisions was that "{c}orporate allocations were added to SG&A and interest expenses." CR/PR at VI-1 n.4. Yet, as noted by Chinese respondents, petitioner's witness stated at the hearing that Honeywell did not advertise its R-125, but only its HFC blend products. Chinese Respondents' Posthearing Brief at 4 (citing Hearing Tr. at 60-61); Chinese Respondents' Final Comments at 10.

For the reasons stated above, I do not find that subject imports had a significant adverse impact on the domestic industry. Accordingly, I find that the domestic industry is not materially injured by reason of subject imports of R-125 from China.

IV. 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 domestic 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."[92] 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.[93] In making my determination, I consider all statutory threat factors that are relevant to these investigations.[94]

[92] 19 U.S.C. § 1677(7)(F)(ii).

[93] 19 U.S.C. § 1677(7)(F)(ii).

[94] 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

b. Likely Volume of Subject Imports[95]

As discussed above, I have found the volume of cumulated subject imports to be significant during the period of investigation. Nevertheless, I also found that the significant subject import volume did not injure the domestic industry.

Over the three full years of the period of investigation, subject import volume fluctuated, initially declining from 24,886 short tons in 2018 to 17,433 short tons in 2019, but then increasing to 22,782 short tons in 2020, for an overall decline over the three full years of the period of 8.5 percent.[96] Subject import volume in interim 2021 was 14,100 short tons, 4.8 percent higher than subject import volume in interim 2020, when it was 13,451 short tons.[97] These subject import volume trends do not evince an increasing tendency likely to imminently threaten the domestic industry with material injury.

(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 my analysis, I discuss the applicable statutory threat factors using the same volume/price/impact framework that applies to my material injury analysis. Statutory threat factor (I) is discussed concerning countervailable subsidies. Statutory threat factors (II), (III), (V), and (VI) are discussed in the analysis of subject import volume. Statutory threat factor (IV) is discussed in the analysis of subject import price effects. Statutory factors (VIII) and (IX) are discussed in the analysis of impact. Statutory factor (VII) concerning agricultural products is inapplicable to these investigations.

[95] In my analysis, I 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 WTO 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). I observe that in its final countervailing duty determination concerning R-125 from China, Commerce found the following programs to be countervailable, six of which appear to be export subsidies: (1) four loan programs, (2) four Less-Than-Adequate-Remuneration ("LTAR") programs, (3) 17 tax programs, (4) and 157 grant programs. *Pentafluoroethane (R-125) From the People's Republic of China: Final Affirmative Countervailing Duty Determination*, 87 Fed. Reg. 1110 (Jan. 10, 2022) and accompanying Issues & Decisions Memorandum, C-570-138 (Dec. 30, 2021) at Appendix II. I have taken these subsidy findings into account in my analysis of likely subject import volume.

[96] CR/PR at Table IV-2. U.S. shipments of subject imports increased from 18,008 short tons in 2018 to 25,411 short tons in 2019 and then decreased to 20,099 short tons in 2020, for an overall increase of 11.6 percent. CR/PR at Table IV-8.

[97] CR/PR at Table IV-2. U.S. shipments of subject imports were 11,141 short tons in interim 2021, 17.0 percent lower than in interim 2020, when they were 13,427 short tons. CR/PR at Table IV-8.

Further, capacity utilization in the domestic industry is high (*** percent in interim 2021) and petitioner testified that it is nearly at full capacity.[98]

Inventories held by foreign producers in China declined from 4,599 short tons in 2018 to 2,260 short tons in 2020, a decrease of 50.9 percent, and inventories in interim 2021 were higher, at 4,698 short tons, than they were in interim 2020, when they were 2,817 short tons.[99] Inventories of subject imports held by U.S. importers fell irregularly from 10,303 short tons in 2018 to *** short tons in 2020.[100] In interim 2021, the inventories of subject imports held by U.S. importers was *** short tons, higher than the *** short tons held in inventory in interim 2020.[101] A witness for importer National explained the higher level of inventory in interim 2021 is related to the impending entry into force of the AIM Act, noting that "{w}e have increased our {R-}125 inventories ahead of the allocation system that goes into effect in two-and-a-half weeks, we have paid significantly higher prices to Honeywell in recent months because they are setting the prices in anticipation of the reduced 125 availability."[102]

The AIM Act, even though it will not specifically limit imports of R-125, is likely to have a significant dampening effect due to the continuing increased demand for R-125[103] and its high global warming potential index.[104]

I therefore find that the increase in subject import volume during the period does not indicate a likelihood of any significant increase in subject import volume in the imminent future.

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[98] Hearing Tr. at 57 (Koutsaftes) and at 58 (Wood).

[99] CR/PR at Table VII-3. As a ratio to total shipments, these inventories declined from 4.6 percent in 2018 to 2.0 percent in 2020. In interim 2021, the ratio was 4.0 percent, 1.4 percentage points higher than it had been in interim 2020, when it was 2.6 percent. *Id*.

[100] CR/PR at Table VII-5. As a ratio to U.S. shipments of imports, inventories of subject merchandise held by U.S. importers declined from 57.2 percent in 2018 to *** percent in 2020. *Id*.

[101] CR/PR at Table VII-5. In interim 2021, the ratio was *** percent, higher than the ratio of *** percent recorded in interim 2020. *Id*.

[102] Hearing Tr. at 141 (Beatty). *See also* CR/PR at VII-11 n.1 (explaining National's ***).

[103] CR/PR at Table II-6.

[104] Hearing Tr. at 143 (Beatty) ("For National, if we use our entire '22 allocation to import 125, we could import about 5600 metric tons. But, of course, we cannot use our allocations solely for 125 because we need other HFCs to produce our other refrigerant products."). CR/PR at I-15 ("R-125, with a GWP of 3,500, has one of the higher GWPs of the HFCs targeted for reduction under the AIM Act and the Kigali Amendment.")

c. Likely Price Effects of Subject Imports

In my discussion above, I found that underselling by subject imports was prevalent. However, I also found that notwithstanding the significant volume of subject imports and underselling by those imports during the period of investigation, the subject imports did not have a significant effect on prices for the domestic like product. In the material injury section, I found that despite fluctuating U.S. prices, there was insufficient evidence indicating that subject import pricing was having the effect of depressing U.S. prices and noted that prices for the single pricing product showed increases in the interim 2021 period with an overall decline of *** percent from January 2018 to June 2021.[105] Given the tighter market conditions that are likely going forward under the restrictions of the AIM Act, I expect that the imminent future will be more like interim 2021 than the previous three full years of the period and that subject imports will not have the effect of depressing U.S. prices. In summary, nothing in the record indicates that subject imports will likely depress or suppress domestic prices.

I consequently find that imports of the subject merchandise are unlikely to enter at prices that are likely to have a significant depressing or suppressing effect on domestic prices or to increase demand for further imports.

d. Likely Impact of Subject Imports

I do not find that subject imports are likely to have actual or potential negative effects on the existing development and production efforts of the domestic industry. As I discussed above, the domestic industry has experienced improvement in many indicators, with production, capacity utilization, U.S. shipments to the merchant market, and several employment trends favorable. While the domestic industry lost some market share, it was not taken by subject imports, which also lost market share. Honeywell's capital expenditures generally increased over the period and there were ***.[106] R-125 is a mature product the domestic consumption of which the U.S. federal government, through the AIM Act, is actively attempting to diminish. Petitioner concedes there is no possibility that further expansion of production capacity will occur given the realities of the AIM Act.[107]

[105] CR/PR at Table V-4. Petitioner agreed that U.S. prices recovered in interim 2021. Hearing Tr. at 25 (Wilson), at 41 and 111 (Cannistra). Respondents pointed to the imminent restrictions of the AIM Act as the cause of the price increases in interim 2021. Hearing Tr. at 185 and 201-02 (Freed).

[106] CR/PR at Table C-1.

[107] Hearing Tr. at 86-88 (Wood and Cannistra).

With respect to operating income levels, these were ***. Although the domestic industry's financial performance during the period of investigation was generally poor, I did not find a causal relationship between competition from the subject imports and the domestic industry's performance during the period. Nothing in the record of this investigation gives me reason to believe that any further deterioration of the condition of the domestic industry will be by reason of the subject imports in the imminent future.

In view of the foregoing, I conclude that an industry in the United States is not threatened with material injury by reason of subject imports.

V. Conclusion

For the reasons stated above, I determine that an industry in the United States is not materially injured or threatened with material injury by reason of subject imports of R-125 from China found by Commerce to be sold in the United States at less than fair value and subsidized by the government of China.

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 Honeywell International, Inc. ("Honeywell"), Charlotte, North Carolina, on January 12, 2021, 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 pentafluoroethane ("R-125")[1] from China. Table I-1 provides information relating to the background of these investigations.[2] [3]

Table I-1
R-125: Information relating to the background and schedule of this proceeding

Effective date	Action
January 12, 2021	Petitions filed with Commerce and the Commission; institution of Commission investigations (86 FR 5247, January 19, 2021)
February 1, 2021	Commerce's notice of initiation of the antidumping duty investigation (86 FR 8583, February 8, 2021) and countervailing duty investigation (86 FR 8589, February 8, 2021)
February 26, 2021	Commission's preliminary determinations (86 FR 12712, March 4, 2021)
June 25, 2021	Commerce's preliminary countervailing duty determination (86 FR 33648)
July 12, 2021	Commerce's preliminary determination of critical circumstances in the countervailing duty investigation (86 FR 36526)
August 17, 2021	Commerce's preliminary antidumping duty and critical circumstances determination (86 FR 45959); scheduling of final phase of Commission's investigations (86 FR 50171, September 7, 2021)

[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 presents the witnesses appearing at the Commission's hearing.

Effective date	Action
August 30, 2021	Commerce's amended scope of preliminary countervailing duty investigation (86 FR 48398)
December 14, 2021	Commission's hearing
December 17, 2021	Commission's revised investigations' schedule (86 FR 72619, December 22, 2021)
January 10, 2022	Commerce's final countervailing duty determination (87 FR 1110). See note below on critical circumstances determination.
January 10, 2022	Commerce's final antidumping duty and critical circumstances determination, in part (87 FR 1117)
February 2, 2022	Commission's vote
February 23, 2022	Commission's views

Note: For its final determination, Commerce continued to find that critical circumstances exist. Commerce's Issues and Decision Memorandum for the Final Determination in the Countervailing Duty Investigation of Pentafluoroethane (R-125) from the People's Republic of China, C-570-138, December 30, 2021, p. 4.

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*

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

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

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

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

Organization of report

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

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

Market summary

R-125 generally is used as a component in HFC blends such as R-410A, R-404A, R-407C, and R-507A, which are used in refrigerant applications. Honeywell is the sole producer of R-125 in the United States,[6] while leading producers of R-125 in China include *** and ***. The leading U.S. importers of R-125 from China in 2020 are ***, ***, and ***. *** and *** are the leading importers of R-125 from India in 2020, the only nonsubject source reported by U.S. importers of R-125. U.S. purchasers of R-125 are firms that incorporate R-125 into hydrofluorocarbon ("HFC") blends for refrigeration applications, including air conditioners; leading purchasers include ***.

Apparent U.S. consumption of R-125 totaled approximately *** short tons ($***) in 2020. The sole U.S. producer's U.S. shipments of R-125 totaled *** short tons ($***) in 2020, and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value. U.S. importers' U.S. shipments from subject sources totaled 20,099 short tons ($42.4 million) in 2020 and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value. U.S. importers' U.S. shipments from nonsubject sources totaled *** short tons ($***) in 2020 and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value.[7]

Summary data and data sources

A summary of data collected in these investigations is presented in appendix C, tables C-1 and C-2. Except as noted, U.S. industry data are based on questionnaire responses of one firm that accounted for all known U.S. production of R-125 during 2020. U.S. imports are based on questionnaire data of 18 firms that accounted for approximately 48.5 percent of U.S. imports from China in 2020 under HTS subheading 2903.39.20, a "basket" category.[8] Data concerning the subject industry in China are based on questionnaire responses from three foreign producers of R-125, whose exports to the United States accounted for approximately ***

[6] Petition, p. 1.
[7] For information on the merchant market, see Part IV of this report.
[8] See Part IV for an explanation on the calculation of data coverage.

percent of reported U.S. imports of R-125 from China in 2020, and whose production accounted for approximately 50.0 percent of overall production of R-125 in China.[9]

Previous and related investigations

R-125, and other HFC components, have been the subject of several prior antidumping and countervailing duty investigations in the United States. As a result of a petition filed on June 25, 2015, on behalf of the American HFC Coalition, and its members,[10] the Commission conducted an antidumping investigation concerning HFC blends and components from China.[11] Included in the components subject to investigation was R-125.[12] On July 22, 2016, the Commission determined that an industry in the United States was materially injured by imports of HFC blends from China, but determined that an industry in the United States producing HFC components, including R-125, was neither materially injured nor threatened with material injury.[13] Commerce published the antidumping duty order on HFC blends from China ("Blends Order") on August 19, 2016.[14]

On June 18, 2019, Commerce initiated four anti-circumvention inquiries of the antidumping duty order on HFC blends from China to address: (1) whether imports of HFC components R-32, R-125, and R-143a from China that are further processed into HFC blends in the United States were circumventing the antidumping duty order on HFC blends from China; (2) whether certain HFC blends containing HFC components from India and China were circumventing the antidumping duty order on HFC blends from China; (3) whether imports of unfinished blends of HFC components R-32 and R-125 from China that are further processed into finished HFC blends in the United States are circumventing the antidumping duty order on HFC blends from China, and; (4) whether imports of non-patented R-421A (a blend of HFC components R-125 and R-134a) from China that are further processed into finished HFC blends in the United States are circumventing the antidumping duty order on HFC blends from China.[15]

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[9] See Part VII.

[10] Members included Amtrol, Inc., West Warwick, Rhode Island; Arkema, Inc., King of Prussia, Pennsylvania; The Chemours Company FC, LLC, Wilmington, Delaware; Honeywell International, Inc., Morristown, New Jersey; Hudson Technologies, Pearl River, NY; Mexichem Fluor, Inc., St. Gabriel, Louisiana; and Worthington Industries, Inc., Columbus, Ohio.

[11] Hydrofluorocarbon Blends and Components from China, Investigation No. 731-TA-1279 (Final), USITC Publication 4629, August 2016 ("HFC Publication") at p. I-1.

[12] HFC Publication at pp. I-7 and I-8. See also 81 FR 42314, June 29, 2016.

[13] HFC Publication at p. 1.

[14] 81 FR 55436, August 19, 2016. The antidumping duty margins ranged from 101.82 percent to 216.37 percent. HFC Publication at I-6.

[15] 84 FR 28273, 84 FR 28276, 84 FR 28269, and 84 FR 28281, June 18, 2019.

On March 18, 2020, Commerce determined that imports of unfinished blends of HFC components R-32 and R-125 from China that are further processed into finished HFC blends in the United States were circumventing the antidumping duty order on HFC blends from China.[16] On June 4, 2020, Commerce determined that imports of unpatented R-421A from China were circumventing the antidumping duty order on HFC blends from China.[17] On August 19, 2020, following notification from the Commission that an affirmative final determination would raise a significant injury issue, Commerce issued its final negative determination not to include R-32, R-125, and R-143a from China that are further processed in the United States to produce subject HFC blends within the scope of the HFC order.[18] [19] On October 1, 2020, Commerce determined that imports of certain HFC blends containing HFC components from India and China were circumventing the antidumping duty order on HFC blends from China.[20] [21]

As a result of a petition filed on March 3, 2016 by the American HFC Coalition and its members,[22] the Commission conducted an antidumping investigation concerning imports of 1,1,1,2-tetrafluoroethane (R-134a) ("R-134a"), a single HFC component refrigerant typically used in automotive and commercial air conditioning systems among other applications, from China.[23] On April 5, 2017, the Commission issued its final determination that an industry in the

[16] 85 FR 15428, March 18, 2020.

[17] 85 FR 34416, June 4, 2020.

[18] As a result of its preliminary affirmative determination published on April 10, 2020, Commerce directed U.S. Customs and Border Protection ("Customs") to suspend liquidation and to require a cash deposit of estimated duties at the rate applicable for an exporter of the subject imports from China, on all unliquidated entries of HFC components from China that were entered, or withdrawn from warehouse, for consumption on or after June 18, 2019, the date of initiation of Commerce's anticircumvention inquiry. 85 FR 20248, April 10, 2020. However, given its final negative circumvention finding that HFC components (including R-125) were not within the scope of the antidumping duty order on HFC blends, Commerce directed Customs to refund any cash deposits made for these entries and to discontinue the suspension of liquidation of HFC components. 85 FR 51018, August 19, 2020.

[19] 85 FR 51018, August 19, 2020.

[20] 85 FR 61930, October 1, 2020.

[21] On July 1, 2021, the Commission instituted an expedited five-year review of the Blends Order, (86 FR 35131). The Commission's review is currently ongoing. For more information, see 87 FR 118, January 3, 2022.

[22] Members included Amtrol, Inc., West Warwick, Rhode Island; Arkema, Inc., King of Prussia, Pennsylvania; The Chemours Company FC, LLC, Wilmington, Delaware; Honeywell International, Inc., Morristown, New Jersey; Hudson Technologies, Pearl River, NY; Mexichem Fluor, Inc., St. Gabriel, Louisiana; and Worthington Industries, Inc., Columbus, Ohio.

[23] 1,1,1,2-Tetrafluoroethane from China, Investigation No. 731-TA-1313 (Final), USITC Publication 4679, April 2016 ("R-134a Publication") at p. 1.

United States was materially injured by imports of R-134a from China.[24] Commerce issued its antidumping duty order on R-134a from China on April 19, 2017.[25]

As a result of a petition filed on January 23, 2020, on behalf of Arkema Inc., King of Prussia, Pennsylvania, the Commission conducted an antidumping investigation concerning imports of R-32, an HFC component commonly blended with R-125 to produce refrigerant blend R-410A, from China.[26] The Commission determined on March 2, 2021 that an industry in the United States was materially injured by reason of imports of R-32 from China that were found by Commerce to be sold in the United States at less than fair value.[27] Commerce issued its antidumping duty order on R-32 from China on March 11, 2021.[28]

Nature and extent of subsidies and sales at LTFV

Subsidies

On January 10, 2022, Commerce published a notice in the Federal Register of its final determination of countervailable subsidies for producers and exporters of R-125 from China.[29] Table I-2 presents Commerce's findings of subsidization of R-125 in China.

Table I-2
R-125: Commerce's final subsidy determination with respect to imports from China

Entity	Final countervailable subsidy rate (percent)
Arkema Daikin Advanced Fluorochemicals (Changsu) Co., Ltd.	306.57
Daikin Fluorochemicals (China) Co., Ltd.	306.57
Hongkong Richmax Ltd.	306.57
Weitron International Refrigeration Equipment (Kunshan) Co., Ltd.	306.57
Zhejiang Quzhou Juxin Fluorine Chemical Co., Ltd.	14.66
Zhejiang Sanmei Chemical Ind. Co., Ltd.	12.75
All others	14.43

Source: 87 FR 1110, January 10, 2022.

[24] 82 FR 17280, April 10, 2017.
[25] 82 FR 18422, April 19, 2017.
[26] 85 FR 5239, January 29, 2020.
[27] 86 FR 13400 and Difluoromethane (R-32) from China, Investigation No. 731-TA-1472 (Final), USITC Publication 5165, March 2021 at p. 3. Commerce issued its final affirmative determination on January 12, 2021 (86 FR 5136, January 19, 2021).
[28] 86 FR 13886.
[29] 87 FR 1110.

Note: For further information on programs determined to be countervailable, see Commerce's associated Issues and Decision Memorandum for Investigation C-570-138, issued December 30, 2021.

Sales at LTFV

On January 10, 2022, Commerce published a notice in the Federal Register of its final determination of sales at LTFV with respect to imports from China.[30] Table I-3 presents Commerce's dumping margins with respect to imports of R-125 from China.

Table I-3
R-125: Commerce's final weighted-average LTFV margins with respect to imports from China

Producer	Exporter	Final dumping margin (percent)
Zhejiang Sanmei Chemical Ind. Co., Ltd.	Zhejiang Sanmei Chemical Ind. Co., Ltd.	277.95
Fujian Qingliu Dongying Chemical Ind. Co., Ltd.	Zhejiang Sanmei Chemical Ind. Co., Ltd.	277.95
Producers Supplying the Non-Individually-Examined Exporters Receiving Separate Rates	Non-Individually-Examined Exporters Receiving Separate Rates	277.95
China-Wide Entity	NA	278.05

Source: 87 FR 1117, January 10, 2022.

Note: The China-Wide Entity also includes Zhejiang Quzhou Juxin Fluorine Chemical Co., Ltd.

[30] 87 FR 1117.

The subject merchandise

Commerce's scope

In the current proceeding, Commerce has defined the scope as follows:[31]

> *The merchandise covered by these investigations is pentafluoroethane (R-125), or its chemical equivalent, regardless of form, type or purity level. R-125 has the Chemical Abstracts Service (CAS) registry number of 354-33-6 and the chemical formula C2HF5. R-125 is also referred to as Pentafluoroethane, Genetron HFC 125, Khladon 125, Suva 125, Freon 125, and Fc-125.*
>
> *R-125 contained in blends that do not conform to ANSI/ASHRAE Standard 34 is included in the scope of these investigations when R-125 constitutes the largest relative component by volume, on an actual percentage basis, of the blend.[32] However, R-125 incorporated into a blend that conforms to ANSI/ ASHRAE Standard 34 is excluded from the scope of these investigations. When R-125 is blended with other products and otherwise falls under the scope of these investigations, only the R-125 component of the mixture is covered by the scope of these investigations.*
>
> *Subject merchandise also includes purified and unpurified R-125 that is processed in a third country or otherwise outside the customs territory of the United States, including, but not limited to, purifying, blending, or any other processing that would not otherwise remove the merchandise from the scope of these investigations if performed in the country of manufacture of the in-scope R-125. The scope also includes R-125 that is commingled with R-125 from sources not subject to these investigations. Only the subject component of such commingled products is covered by the scope of these investigations.*

[31] 87 FR 1110, January 10, 2022. See below section on domestic like product issues for discussion of how Commerce amended the scope of the investigations in its antidumping duty preliminary determination.

[32] "Largest relative component by volume, on an actual percentage basis" means that the percentage of R-125 contained in a blend is larger than the individual percentages of all the other components. For example, R-125 contained in a blend that does not conform to ANSI/ASHRAE Standard 34 and which contains 35 percent R-125 by volume is covered by the scope of the investigations if no other component part of the blend equals or exceeds 35 percent of the volume of the blend. See product section below for more information on ANSI/ASHRAE Standard 34.

Excluded from the scope is merchandise covered by the scope of the antidumping order on Hydrofluorocarbon Blends from the People's Republic of China, including merchandise subject to the affirmative anti-circumvention determination in Hydrofluorocarbon Blends from the People's Republic of China: Affirmative Final Determination of Circumvention of the Antidumping Duty Order; Unfinished R-32/R-125 Blends, 85 FR 15428 (March 18, 2020). See Hydrofluorocarbon Blends from the People's Republic of China: Antidumping Duty Order, 81 FR 55436 (August 19, 2016) (the Blends Order).

Tariff treatment

Based upon the scope set forth by Commerce, information available to the Commission indicates that the merchandise subject to these investigations is imported under statistical reporting number 2903.39.2038 of the Harmonized Tariff Schedule of the United States ("HTS").[33] Other merchandise within the scope of these investigations, including HFC blends that are outside the scope of the Blends Order, may be imported under statistical reporting number 3824.78.0020. The 2022 general rate of duty is 3.7 percent *ad valorem* for both HTS subheadings 2903.39.20 and 3824.78.00.[34] Decisions on the tariff classification and treatment of imported goods are within the authority of U.S. Customs and Border Protection.

An additional 15 percent ad valorem duty on imports of R-125 produced in China was scheduled to go into effect on December 15, 2019, under Section 301 of the Trade Act of 1974; however, negotiations led to a suspension of the implementation of these additional duties. There are currently no Section 301 duties in effect for subheading 2903.39.20.[35]

[33] The tariff classification of R-125 changed on July 1, 2021, to an *eo nomine* statistical reporting number. Previously, R-125 was imported under statistical reporting number 2903.39.2035, which also covered two other products that are outside the scope of these investigations: difluoromethane (R-32) and 1,1,1-trifluoroethane (R-143a).

[34] Harmonized Tariff Schedule of the United States (2022), Basic Edition, Chapters 29 and 38.

[35] Harmonized Tariff Schedule of the United States (2022), Basic Edition, Chapter 99, Subchapter III, U.S. Notes 20(t) and 20(u). Duties under 9903.88.16 were suspended pursuant to the Federal Register Notice of December 18, 2019 (84 FR 69447), "Notice of Modification of Section 301 Action: China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation."

Hydrofluorocarbon refrigerant blends[36] produced in China entering under subheading 3824.78.20 are subject to an additional 25 percent ad valorem duty under Section 301.[37]

The product

Description and applications

These petitions cover pentafluoroethane, more commonly referred to as R-125.[38] R-125 is a hydrofluorocarbon ("HFC"), a class of man-made chemicals that contain fluorine, carbon, and hydrogen atoms. The chemical formula for R-125 is C_2HF_5 (also written as CF_3CHF_2).[39] It is typically sold in bulk.[40]

[36] For the purposes of statistical reporting number 3824.78.0020, the term "hydrofluorocarbon refrigerant blends" consists of hydrofluorocarbon mixtures containing at least pentafluoroethane (R-125) or difluoromethane (R-32) or 1,1,1-trifluoroethane (R-143a), mixed, with or without other ingredients. Harmonized Tariff Schedule of the United States (2022), Basic Edition, Chapter 38, Statistical Note 3.

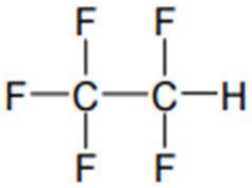
[37] A Section 301 tariff of 10 percent ad valorem became effective on September 24, 2018. 83 FR 47974, "Notice of Modification of Section 301 Action: China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation," September 21, 2018. The Section 301 tariff was increased to 25 percent ad valorem effective May 10, 2019. 84 FR 20459, "Notice of Modification of Section 301 Action: China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation," May 9, 2019. Harmonized Tariff Schedule of the United States (2022), Basic Edition, Chapter 99, Subchapter III, U.S. Notes 20(e) and 20(f). Exclusions to the additional duty are the following: 1) Mixtures of hydrofluorocarbons, containing 40 to 44 percent by weight of 1,1,1,2-tetrafluoroethane (CAS No. 811-97-2), 56 to 60 percent by weight of pentafluoroethane (CAS No. 354-33-6) and up to 2 percent by weight of lubricating oil (described in statistical reporting number 3824.78.0020) (subchapter III, footnote 20(xx)(12)); 2) Refrigerant gas R-421B, comprising mixtures containing at least 83 percent but not more than 87 percent by weight of pentafluoroethane, at least 13 percent but not more than 17 percent by weight of 1,1,2,2-tetrafluoroethane, and at least 0.5 percent but not more than 2 percent by weight of lubricant (described in statistical reporting number 3824.78.0020) (subchapter III, footnote 20(aaa)(32), p. 99-III-172); 3) Mixtures of hydrofluorocarbons, containing 40 to 44 percent by weight of 1,1,1,2-tetrafluoroethane (CAS No. 811-97-2), 56 to 60 percent by weight of pentafluoroethane (CAS No. 354-33-6) and up to 2 percent by weight of lubricating oil (described in statistical reporting number 3824.78.0020) (subchapter III, footnote 20(iii)(55)); 4) Refrigerant gas R-421B, comprising mixtures containing at least 83 percent but not more than 87 percent by weight of pentafluoroethane, at least 13 percent but not more than 17 percent by weight of 1,1,2,2-tetrafluoroethane, and at least 0.5 percent but not more than 2 percent by weight of lubricant (described in statistical reporting number 3824.78.0020) (subchapter III, footnote 20(iii)(56)).

[38] Petition, p. 6.

[39] Petition, pp. 7-8.

[40] Petition, p. 6.

Pentafluoroethane



R-125 is a colorless, odorless gas that is used primarily as a component in HFC blends, which are used in refrigerant applications such as air conditioning and refrigeration.[41] R-125 is also used as a fire extinguishing agent.[42]

R-125 is classified as an A-1 refrigerant: non-flammable and non-toxic.[43] It does not deplete the ozone. [44] R-125 is either internally consumed to produce HFC blends or sold to third-party blenders as a component used to produce HFC blends, which are refrigerants for various applications.[45]

R-125 is the most common component used in refrigerant blends, primarily because it is nonflammable.[46] It has satisfactory heat transfer properties, but it does not have sufficient heat transfer capacity or other thermal properties to be a standalone refrigerant.[47] Five of the most commonly used refrigerant blends, all of which contain R-125, are included in the Blends Order.[48] Those five blends account for approximately *** percent of the U.S. refrigerant blends market.[49] Most of the blends that constitute the rest of the U.S. refrigerant blends market also contain R-125. Even many of the next-generation blends, those with hydrofluoroolefins ("HFOs"), contain R-125.[50] ANSI/ASHRAE Standard 34 is an industry publication that lists all the registered refrigerants and the proportions of the various components in any blends, such as

[41] R-125 is also referred to as Genetron HFC 125, Khladon 125, Suva 125, Freon 125, and Fc-125. Petition, p. 6.

[42] Petition, p. 12.

[43] Conference transcript, p. 13 (LaPietra).

[44] Petition, p. 6.

[45] Petition, pp. 6-7.

[46] Hearing transcript, p. 16 (Koutsaftes) and p. 100 (Wood). Conference transcript, pp. 13, 84 (LaPietra).

[47] Conference transcript, p. 83 (LaPietra).

[48] The blends covered under the Blends Order are R-404A, R-407A, R-407C, R-410A, and R-507A.

[49] Petitioner Post-conference brief, p. 31.

[50] ASHRAE Refrigerant designations, https://www.ashrae.org/technical-resources/standards-and-guidelines/ashrae-refrigerant-designations (accessed January 28, 2021).

those containing R-125. It also assigns safety classifications based on toxicity and flammability.[51]

HFCs were developed to replace both chlorofluorocarbons ("CFCs") and hydrochlorofluorocarbons ("HCFCs") as components in refrigerant blends in residential and commercial applications.[52] CFCs and HCFCs, which cause ozone depletion, have been phased out of production pursuant to the Montreal Protocol.[53] After the refrigerant threat to the ozone layer was addressed, HFCs were determined to be greenhouse gases ("GHGs") that contribute to global warming. In an effort to curb global warming, countries, including the United States, committed under the Kigali Amendment in 2016 to reduce by more than 85 percent their production and use of HFCs over the next 30 years.[54]

On December 27, 2020, the President signed the American Innovation and Manufacturing (AIM) Act, which will result in reduced production and use of HFCs[55] in alignment with the Kigali Amendment to the Montreal Protocol.[56] It intends to accomplish this reduction by lowering the allowable annual sums of the global warming potentials ("GWPs") for all HFCs produced and imported each year. Specifically, the allowable annual sums of the GWPs for all regulated HFCs in the AIM Act, including R-125, will decrease in phases from a baseline. The baseline is determined primarily as the average of the annual sums of GWPs for all HFCs

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[51] https://www.ashrae.org/technical-resources/standards-and-guidelines/ashrae-refrigerant-designations, retrieved January 13, 2022. The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) is an industry organization that coordinates standards for heating, ventilation, air conditioning, refrigeration and their allied fields.

[52] Petition, p. 7.

[53] Petition, p. 7.

[54] Amendment to Address HFCs under the Montreal Protocol, U.S. Environmental Protection Agency ("EPA"), https://www.epa.gov/ozone-layer-protection/recent-international-developments-under-montreal-protocol (accessed January 25, 2021).

[55] Doniger, David and Alex Hillbrand, "HFC Phasedown Marks Top Climate Win of 116th Congress," NRDC, December 20, 2020 and updated December 27, 2020 https://www.nrdc.org/experts/david-doniger/hfc-phasedown-marks-top-climate-win-116th-congress; Garry, Michael, "U.S. enacts HFC Phase-down Law as Part of COVID Relief Bill," Hydrocarbon 21, January 4, 2021 https://hydrocarbons21.com/articles/9879/u_s_enacts_hfc_phase_down_law_as_part_of_covid_relief_bill; S. 2754, 116th Congress, §6(b)(3), available at https://www.congress.gov/bill/116th-congress/senate-bill/2754/text.

[56] United Nations Environment Economy Division, "The Kigali Amendment to the Montreal Protocol: HFC Phasedown," retrieved January 31, 2021, https://multimedia.3m.com/mws/media/1365924O/unep-fact-sheet-kigali-amendment-to-mp.pdf; S. 2754, 116th Congress, §6(b)(3), available at https://www.congress.gov/bill/116th-congress/senate-bill/2754/text.

produced and imported in 2011, 2012, and 2013.[57] The allowable annual sums of GWPs for HFCs produced and imported in 2022 and 2023 are mandated to be at least 10 percent below the baseline levels. Stepwise reductions in the GWP levels relative to the baseline will continue through 2036: 40 percent lower in 2024-28, 70 percent lower in 2029-33, 80 percent lower in 2034-35, and 85 percent lower in 2036 and thereafter.[58]

To meet these goals, in October of each year, the EPA is to publish GWP allowances, by company, for the following calendar year. Unlike the baseline, which is the average annual sums of all HFCs produced or imported in 2011-13, each company's allowance is based on the average of its own three-highest, non-consecutive years of production and importation between 2011 and 2019.[59] Rather than specifying an allowance on a product-by-product basis, these allowances are for a company's aggregate GWP. Therefore, a company may import or produce any combination of HFCs as long as the aggregate GWP of its imports or production falls within its annual allowance. The calendar year 2022 GWP allowances, released by EPA in October 2021, were for 90 percent of each company's calculated average within the baseline, as described above.[60] The AIM Act also permits trading of allowances.[61]

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[57] In addition, the baselines include 15 percent of the HCFC levels in 1989 and 0.42 percent of the CFC levels in 1989. EPA Fact Sheet: Final Rule – Phasedown of Hydrofluorocarbons: Establishing the Allowance Allocation and Trading Program under the American Innovation and Manufacturing (AIM) Act, September 2021, https://www.epa.gov/climate-hfcs-reduction.

[58] As the Act stipulates that the allowable sums of GWPs for all HFCs on the regulated list will in total be decreased by 85 percent by 2036, the individual HFC components themselves may have different percentages of decrease. Recycled product is excluded. S. 2754, 116th Congress, §6(b)(3), available at https://www.congress.gov/bill/116th-congress/senate-bill/2754/text.

[59] Phasedown of Hydrofluorocarbons (HFCs): Issuing Allowance Allocations, U.S. EPA, https://www.epa.gov/climate-hfcs-reduction/phasedown-hydrofluorocarbons-hfcs-issuing-allowance-allocations (accessed November 16, 2021). While the allowances are focused on companies that produced or imported in 2020, the EPA has also allowed companies that did not import in 2020 to request "special consideration." Allowance Allocation Methodology for 2022, U.S. EPA, https://www.epa.gov/climate-hfcs-reduction/allowance-allocation-methodology-2022 (accessed January 19, 2022).

[60] *Phasedown of Hydrofluorocarbons: Notice of 2022 Allowance Allocations for Production and Consumption of Regulated Substances Under the American Innovation and Manufacturing Act of 2020*, EPA, 86 FR 55841, October 7, 2021.

[61] An allowance is a limited authorization for the production or consumption of a regulated substance under the Act and does not constitute a property right. S. 2754, 116th Congress, §6(b)(3), available at https://www.congress.gov/bill/116th-congress/senate-bill/2754/text. In one example of a trading program, a company may be permitted one ton of sulfur dioxide emissions into the air. It can trade that allowance amount in an allowance market for its benefit. Environmental Protection Agency, "How Do Emissions Trading Programs Work?" retrieved January 31, 2021, https://www.epa.gov/emissions-trading-resources/how-do-emissions-trading-programs-work.

Each HFC on the regulated list has a specific GWP, which is called an "exchange value" in the AIM Act.[62] This value is a common measure that allows for comparison of the Earth-warming effects of the different gases and for comparison of emissions reduction opportunities across sectors and gases. R-125, with a GWP of 3,500, has one of the higher GWPs of the HFCs targeted for reduction under the AIM Act and the Kigali Amendment.[63]

In an allowance system in which all the individual GWPs are added together and the lowering of the aggregate GWP is the goal, there is no direct correlation between the mandated reduction in levels and the specific HFC components. Therefore, those individual HFCs with a lower GWP may be impacted less in the market than those with a higher GWP. For example, some of the next-generation HFOs have GWPs below ten.[64] Therefore, replacing R-125 in a blend with one of these HFOs would substantially lower the aggregate GWP of the blend without any need to reduce the volume of refrigerants or restrict the usage of refrigeration/air-conditioning equipment. However, as most air conditioning or refrigeration units are designed around the selected refrigerant, lowering the aggregate GWP by changing a blend cannot

[62] The GWP is a measure of how much energy the emissions of 1 ton of a gas will absorb over a given period of time, relative to the emissions of 1 ton of carbon dioxide (CO_2). Carbon dioxide was set as the reference substance with a GWP of 1. The standard time period used is 100 years. GWP is a common unit of measure across gases, enabling the compilation of a national GHG inventory. EPA, "Understanding Global Warming Potentials," (accessed January 31, 2021), https://www.epa.gov/ghgemissions/understanding-global-warming-potentials. In the AIM Act, the GWP over 100 years is called the "exchange value."

[63] Intergovernmental Panel on Climate Change (IPCC), IPCC's Fifth Assessment Report (AR5). https://www.ipcc.ch/report/ar5/wg3/ (accessed January 28, 2021). The range of GWPs (exchange values) of individual chemical substances listed in the AIM Act is 53 to 14,800. The AIM Act lists R-125 with a GWP of 3,500, a value that is from the previous (fourth) IPCC assessment report. S. 2754, 116th Congress, §6(b)(3), available at https://www.congress.gov/bill/116th-congress/senate-bill/2754/text. On November 16, 2021, the Biden Administration submitted the Kigali Amendment to the Senate for formal treaty ratification. Grandoni, Dino, "Biden submits treaty fighting climate super-pollutants for Senate approval," *Washington Post*, November 16, 2021, https://www.washingtonpost.com/climate-environment/2021/11/16/biden-kigali-amendment-senate/.

[64] Intergovernmental Panel on Climate Change (IPCC), IPCC's Fifth Assessment Report (AR5). https://www.ipcc.ch/report/ar5/wg3/ (accessed January 28, 2021).

happen quickly.[65] Either new units would have to be installed or existing units would have to be retrofitted to work efficiently with the new refrigerant blend.[66]

The industry has yet to reach consensus on a refrigerant or refrigerants that will replace high-GWP blends such as R-410A. In previous iterations of refrigerant transitions, the industry has coalesced around universal refrigerants, which facilitated the transition at the equipment manufacturers. A few of the primary equipment manufacturers have announced plans to replace R-410A with two refrigerants in certain applications: R-32 and R-454B.[67] Neither of these refrigerants contains R-125. R-32 is a stand-alone HFC refrigerant. R-454B is a new blend that uses R-32 and R-1234yf, an HFO. Both of these refrigerants have much lower GWPs than R-410A: 675 for R-32 and 466 for R-454B. These announcements have been for air conditioning applications, which agrees with National's assertion that next-generation blends containing R-125 have been selected only for refrigeration applications, not air conditioning.[68] During the hearing, National discussed an example of the expected continued use of R-125 in blends with HFOs for refrigeration applications.[69]

[65] For example, in 2023, Carrier and Trane, two major HVAC equipment manufacturers in the U.S. market, will start marketing HVAC equipment with refrigerant R-454B because of the blend's lower GWP. R-454B replaces R-125 with R-1234yf, an HFO with a GWP of 4. "Carrier Selects R-454B to Replace R-410A in North America," January 2, 2019, https://www.achrnews.com/articles/140379-carrier-selects-r-454b-to-replace-r-410a-in-north-america. "Trane Announces Sintesis™ Advantage Air-Cooled Scroll Chiller with Low GWP R-454B Refrigerant," June 22, 2021, http://commercial.trane.com.html. "R-454B Gaining Traction as an R-410A Replacement," Engineering Systems Magazine, August 13, 2020, https://www.esmagazine.com/articles/100678-r-454b-gaining-traction-as-a-r-410a-replacement.

[66] "A unit that runs 410A cannot run with another blend; it simply will fail," Hearing transcript, p. 17 (Koutsaftes).

[67] "What's Next: Specifying the Right R-410A Replacement," Philip Johnston, Engineered Systems Magazine, October 13, 2020, https://www.esmagazine.com/articles/100839-whats-next-specifying-the-right-r-410a-replacement.

[68] National Posthearing Brief, p. APP52.

[69] Ms. Wood discussed the expected continued use of R-448A, a blend containing HFOs and 26 percent R-125, in supermarket refrigeration applications. Hearing transcript, p. 87 (Wood).

Manufacturing processes

R-125 is manufactured by the reaction of a chlorinated starting compound with hydrofluoric acid. This reaction, known as hydrofluorination, yields a carbon-hydrogen-fluorine compound, and hydrochloric acid.

Specifically, one method of producing R-125 involves the reaction of perchloroethylene (PCE) and hydrofluoric acid (HF).[70] The result of the repeated hydrofluorination reaction is R-125 and gaseous wastes that are destroyed in a thermal oxidizer. The chemical formula summarizing the reaction is:

$$CCl_2{=}CCl_2 \ + \ 5HF \ \rightarrow \ CF_3CHF_2 \ + \ 4HCl$$

Individual refrigerant components, such as R-125, could technically be extracted from blends (such as a domestically produced or imported blend), whether before use or after reclamation from a refrigeration unit.[71] However, this process would not be an economically feasible means of acquiring standalone R-125.[72] Additionally, since R-125 has few uses as a standalone product,[73] separating it from a blend would be a costly exercise only to mix the R-125 again with other components into a refrigerant blend. It would be more economically viable to "balance" a new/reclaimed blend by adding components as necessary to bring it in line with Air-Conditioning, Heating and Refrigeration Institute ("AHRI") blend specifications.[74]

The production of blends is a much less capital-intensive operation and requires less expertise than producing R-125. A state-of-the-art facility to blend up to five different components can be built for approximately $4 million,[75] whereas a plant to manufacture R-125 costs "over $200 million."[76] A blending facility does not have the toxic acids and wastes that are part of a R-125 production plant and which require additional equipment, infrastructure, and

[70] Honeywell also mentioned co-feeding R-124 that it sourced in the United States to "incrementally raise production" of R-125. Hearing transcript, p. 29 (Cerri). R-124 is an intermediate product in the production of R-125. R-124 is produced through the same process as R-125 and only needs one additional hydrofluorination reaction, swapping out the last chlorine atom with one more fluorine atom, to become R-125.

[71] Conference transcript, pp. 89-90 (LaPietra).

[72] Conference transcript, p. 129 (Goldfeder).

[73] Conference transcript, pp. 83-84 (LaPietra) and pp. 128-129 (Goldfeder).

[74] Conference transcript, pp. 89-90 (LaPietra).

[75] Conference transcript, p. 75 (Wood).

[76] Hearing transcript, p. 15 (Koutsaftes). Another Honeywell representative stated that it would cost $300 million to rebuild its existing R-125 facility or $100 million to expand its capacity. Conference transcript, pp. 42-3 (Wood).

expertise. The blending operation itself involves connecting tanks, whether storage tanks or the isocontainers generally used for transportation of refrigerants, and allowing the component to flow from that tank to a blending tank. The operator adds the components one at a time and then draws a sample of the blend to ensure that the components are at the prescribed ratio for the desired blend. If the component ratios are not within specification, the operator adds more of the underrepresented component until the proper specifications are reached.

Domestic like product issues

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

In the preliminary phase of these investigations the petitioner proposed the Commission define a single domestic like product that is coextensive with the scope.[77] The petitioner argued that all R-125 sold in the domestic market is interchangeable, as the chemical composition is identical, and that there are no meaningful differences in the production process of domestically-produced R-125 and subject R-125.[78] With respect to blends containing R-125, the petitioner pointed out that the R-125 like product is limited to the R-125 component within the mixture, not the mixture itself.[79]

Respondent National argued in the preliminary phase of these investigations, that the Commission should find two separate like products: standalone R-125 as a component, and R-125 contained in covered blends (e.g., blends that are not covered by the existing antidumping duty order on HFC blends).[80]

In the preliminary phase of these investigations the Commission defined a single like product coextensive with the scope, including standalone R-125 and R-125 as a component within a blend.[81]

[77] Petitioner's post-conference brief, p. 29.

[78] Petitioner's post-conference brief, p. 30.

[79] Petitioner's post-conference brief, p. 32. See also conference transcript, pp. 54 and 58-59 (Cannistra).

[80] National's post-conference brief pp. 4-8, and conference transcript, pp. 109-117 (Goldfeder).

[81] Pentafluoroethane (R-125) from China, Investigation Nos. 701-TA-662 and 731-TA-1554 (Preliminary), USITC Publication 5170, March 2021 ("R-125 Prelim Publication"), pp. 13-14.

In its preliminary antidumping duty determinations, Commerce amended the scope of these investigations to exclude R-125 contained in any blends with an ASHRAE designation, including R-125 contained in certain blends.[82] In the Preliminary Scope Decision Memorandum, Commerce made a number of preliminary modifications to the scope, including:

(1) excluding R-125 contained in blends that conform to American National Standards Institute (ANSI)/American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) Standard 34;

(2) only covering R-125 contained in blends not conforming to ANSI/ASHRAE Standard 34 (i.e., unfinished blends) when such blends contain greater than 85 percent by volume on an actual percentage basis of R-125; and

(3) other minor modifications including updating the applicable list of Harmonized Tariff Schedule of the United States (HTSUS) codes for the merchandise subject to the investigation due to an update to the HTSUS that occurred on July 1, 2021.[83]

On December 30, 2021, Commerce issued its Final Scope Decision Memorandum and removed the following language from the scope "R-125 that has been blended with other products is included within the scope if such blends contain 85% or more by volume R-125, on an actual percentage basis" and revised it to read "R-125 contained in blends that do not conform to ANSI/ASHRAE Standard 34 is included in the scope of these investigations when R-125 constitutes the largest relative component by volume, on an actual percentage basis, of the blend."[84]

The exclusion of the R-125 contained in ASHRAE-designated blends resolved the domestic like product issue that National raised in the preliminary phase of these investigations.[85] There were no further challenges to the definition of the domestic like product from the petitioner or respondents.[86]

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[82] For more information on Commerce's amended scope, see 86 FR 45959, August 17, 2021, and 86 FR 48398, August 30, 2021, and Antidumping and Countervailing Duty Investigations of Pentafluoroethane (R-125) from the People's Republic of China: Preliminary Scope Decision Memorandum, A-570-137 and C-570-138, August 10, 2021.

[83] Decision Memorandum for the Preliminary Determination in the Less-Than-Fair-Value Investigation of Pentafluoroethane (R-125) from the People's Republic of China, A-570-137, August 10, 2021, p. 5.

[84] Antidumping and Countervailing Duty Investigations of Pentafluoroethane (R-125) from the People's Republic of China: Final Scope Decision Memorandum, December 30, 2021, p. 9.

[85] National's prehearing brief, p. 5.

[86] Chinese respondents' prehearing brief, p. 9.

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

U.S. market characteristics

Pentafluoroethane ("R-125") is a non-ozone-depleting[1] hydrofluorocarbon ("HFC") gas used in HFC blends for low and medium temperature residential and commercial refrigerant applications, such as air-conditioning.[2] [3] R-125 is not used as a standalone refrigerant because R-125 has poor thermal performance thus it must be blended for use in refrigerant applications.[4] [5] HFC blends are used in residential air conditioning and heat pumps and in commercial air conditioning, particularly decentralized systems with less than 100 tons in capacity.[6] HFCs, such as R-125, were developed to replace the previous generation of hydrochlorofluorocarbons ("HCFC") and chlorofluorocarbon (CFC) refrigerants that caused ozone depletion.[7]

Standards set by the Air Conditioning, Heating, and Refrigeration Institute ("AHRI") establish maximum levels of contaminants for R-125.[8] Chinese-produced and U.S.-produced product have the same chemical formula.[9] R-125 is not flammable, and has a higher global warming potential than many other HFC components.[10] Most R-125 is either internally consumed to produce HFC blends or sold to third-party blenders as a component for production of HFC blends,[11] including R-404A, R-407A, R-407C, R-407F, R-407H, R-410A, R-422B, R-422D,

[1] Petition, p. 12.

[2] Petition, p. 6, and Petition exh. I-3, p. 18.

[3] R-125 is sold under various names including Genetron HFC 125, Khladon 125, Suva 125, Freon 125, and Fc-125. Petition, p. 6.

[4] Petition, p. 73 (LaPietra).

[5] Conference transcript, p. 73 (LaPietra) and National Refrigerants witness testimony, p. 2 (Goldfeder). Importers *** reported that R-125 must be blended with other HFC components to achieve the desired physical characteristics for end-use applications.

[6] HFC Publication 4629, p. II-1.

[7] Petition, p. 6.

[8] Petition, p. 7.

[9] All R-125 "sold in the domestic market is interchangeable regardless of location of manufacture because the chemical composition is identical." Petition, p. 11.

[10] Petition, p. 12. In contrast, R-32 is a flammable gas and has been designated by the Occupational Safety and Health Administration as a hazardous material.

[11] Honeywell reported ***. Petition, p. 13.

R-438A, R-448A, R-449A, R-453A, and R-507A.[12] [13] Modern air conditioning units use the HFC blend R-410A, which is composed of 50 percent R-32 and 50 percent R-125 by material composition.[14] R-125 comprises a varying share of the material composition for other HFC blends.[15]

R-125's primary end use is in refrigeration applications as a component for HFC blends. However, R-125 also has other downstream applications, including as a fire-extinguishing agent[16] and in semiconductor plasma etching in materials fabrication.[17] The market for R-125 as a fire suppressant is small, and there are only seven or eight companies in the U.S. that require R-125 for this use.[18] Importer *** reported that *** percent of its R-125 sales are to the fire-extinguishing market.

R-125 is typically sold in bulk to large customers[19] but can also be sold in skids[20] and is transported in cylinders.[21] Imported R-125 is transported via ISO[22] tanks, while domestically-produced R-125 is transported via rail in ISOtainers.[23] ISO tanks are usually leased and are returned to the manufacturer to be refilled.[24] Railcar transportation is less costly per pound of R-125, as railcars can transport greater volumes using less energy and labor.[25]

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[12] Petition exh. I-5, pp. 12-23.

[13] Other blends containing R-125 include R-402A, R-407B, R-407D, R-407E, R-407G, R-407I, R-408A, R-410B, R-417A, R-417B, R-419A, R-419B ,R-421A, R-421B, R-422A, R-422C, R-422E, R-424A, R-426A, R-427A, R-428A, R-437A, R-439A, R-442A, R-447A, R-447B, R-449B, R-449C, R-452A, R-452B, R-452C, R-460B, R-460C, R-461A, R-462A, R-463A, and R-464A. Petition exh. I-5, pp. 12-23.

[14] Petition exh. I-5, p. 14.

[15] Petition exh. I-5, pp. 12-23, and Petition exh. I-14, p. 1.

[16] Petition, p. 13.

[17] Philip D. Rack, University of Tennessee and Purdue University, "Plasma Etching Outline," (accessed February 15, 2021), https://wiki.itap.purdue.edu/download/attachments/74680195/Plasma%20Etching%20Outline%20-%20P.D.%20Rack%20U%20of%20Tennessee%20PPT.pdf?version=1&modificationDate=1575403889000&api=v2. R. G. Poulsen, Plasma Etching in Integrated Circuit Manufacture—A Review, 14 Journal of Vacuum Science & Technology 266 (1977), (accessed February 15, 2021). https://avs.scitation.org/doi/10.1116/1.569137.

[18] Hearing transcript, p. 60 (Wood). See also Arkema importers' questionnaire response.

[19] Petition, p. 6.

[20] One skid is a pallet equaling 40 jugs of packaged product and is intended to be sold to aftermarket service business segments. Conference transcript, p. 46 (LaPietra).

[21] The steel cylinders used to transport R-125 are disposable. See *** importers' and purchasers' questionnaire responses.

[22] See *** importer's questionnaire response at question V-1 and hearing transcript, pp. 112-113 (Cannistra).

[23] Petition, p. 6 and hearing transcript, p. 17 (Koutsaftes).

[24] Petition exh. II-3b, p. 3.

[25] Conference transcript, p. 66.

There is one U.S. producer of R-125, Honeywell;[26] R-125 is also produced in China,[27] and nonsubject countries India,[28] Japan, Russia,[29] and South Korea. Twelve of 18 importers reported that they internally consume R-125 for their own use, typically in domestic blending operations that produced HFC blends.[30] Eight of 18 importers reported that they had imported from China for sales of R-125 to unrelated U.S. customers[31] and one importer reported transferring R-125 to related firms. Petitioner argued that the antidumping duty order on HFC blends, effective August 2016, led to an increase in imports of R-125 for blending in the United States.[32]

Apparent U.S. consumption of R-125 increased by *** percent between 2018 and 2019, and then decreased by *** percent between 2019 and 2020. Overall, total market U.S. consumption in 2020 was *** percent higher than in 2018.

U.S. purchasers

The Commission received 12 usable questionnaire responses from firms that had purchased R-125 during January 2018–June 2021.[33] [34] [35] Eight responding purchasers are HFC component blenders, two are distributors/service companies, and two *** identified as other.[36] In general, responding U.S. purchasers were located in the Northeast and Southeast. The responding purchasers represented the HVAC (heating, ventilation, and air

[26] Hearing transcript, p. 133 (Beatty). Honeywell supplies the total U.S. market with R-125 through commercial U.S. shipments, swap arrangements, internal consumption, and transfers to related firms. For more details on Honeywell's swap arrangements, please refer to Part VI. ***.

[27] Petition Volume II, p. 6.

[28] Petition, p. 1. *** reported ***. ***.

[29] Conference transcript, p. 66 (Wood).

[30] Questionnaire responses and petition, pp. 6-7.

[31] Three of these also reported internal consumption.

[32] Petition, p. 15-16.

[33] The following firms provided purchaser questionnaire responses: ***.

[34] Of the 12 responding purchasers, 7 purchased domestically-produced R-125, 11 purchased imports of R-125 from China, and 4 purchased imports of R-125 from nonsubject sources.

[35] Eight purchasers indicated they had marketing/pricing knowledge of domestic product, 11 of Chinese product, and 7 of nonsubject countries.

[36] ***.

conditioning) and refrigerant chemicals industry. The largest purchasers of R-125 include ***.

Channels of distribution

U.S. producer Honeywell shipped mainly to *** and distributors/service companies (which it identified as ***) while importers sold almost exclusively to HFC component blenders, as shown in table II-1.

Table II-1
R-125: Share of U.S. shipments by source, channel of distribution, and period

Shares in percent

Source	Channel	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
United States	Distributors / service companies	***	***	***	***	***
United States	HFC component blenders	***	***	***	***	***
United States	OEMS / other non-blender end users	***	***	***	***	***
China	Distributors / service companies	***	***	***	***	***
China	HFC component blenders	***	***	***	***	***
China	OEMS / other non-blender end users	***	***	***	***	***
Nonsubject	Distributors / service companies	***	***	***	***	***
Nonsubject	HFC component blenders	***	***	***	***	***
Nonsubject	OEMS / other non-blender end users	***	***	***	***	***
All imports	Distributors / service companies	***	***	***	***	***
All imports	HFC component blenders	***	***	***	***	***
All imports	OEMS / other non-blender end users	***	***	***	***	***

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

Geographic distribution

Honeywell reported selling R-125 to *** United States (table II-2), while importers reported selling to all regions in the contiguous United States. Honeywell sold *** percent of its R-125 within 100 miles of its production facility, *** percent between 101 and 1,000 miles, and *** percent over 1,000 miles. Importers delivered *** percent of R-125

imported from China within 100 miles of their firm's U.S. point of shipment, *** percent between 101 and 1,000 miles, and *** percent over 1,000 miles.

Table II-2
R-125: Count of U.S. producer's and U.S. importers' geographic markets

Count in number of firms reporting

Region	U.S. producers	China
Northeast	***	3
Midwest	***	2
Southeast	***	6
Central Southwest	***	2
Mountains	***	1
Pacific Coast	***	4
Other	***	1
All regions (except Other)	***	0
Reporting firms	1	8

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

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

Impact of section 301 tariffs

Honeywell, U.S. importers, and purchasers were asked if the imposition of tariffs on Chinese-origin R-125 blends under section 301 had an impact on the stand-alone R-125 market in the United States. Honeywell reported that ***. Importer *** reported that the section 301 tariffs reduced the available supply for the HFC blends market. Importer/purchasers *** reported that suppliers from China decreased prices for future orders each time a new round of tariffs was announced. Two purchasers *** reported that the tariffs did not include R-125, while one purchaser *** reported that its demand for R-125 increased due to the section 301 tariffs ***.

Impact of HFC blends antidumping orders

On August 19, 2016, Commerce issued an antidumping duty order on HFC blends from China.[37] When asked if the Blends Order had an impact on the R-125 market in the United States, *** of 17 responding importers reported that it had, while *** reported that it did not know. Similarly, *** of 12 responding purchasers reported that the Blends Order had an impact, while *** reported that it did not know and *** reported that

[37] 81 FR 55436, August 19, 2016 (the "Blends Order").

it had not had an impact on the R-125 market in the United States.[38] ***, while most importers and purchasers reported that it had not changed U.S. supply (table II-3). Most firms reported that the Blends Order had increased the supply of R-125 from China. ***, while importers and purchasers were mixed on whether it had increased or had not changed supply from nonsubject sources. Most firms reported that prices and raw material costs for R-125 fluctuated, and that U.S. demand for R-125 had increased due to the Blends Order.

Table II-3
R-125: Impact of HFC blends order

Count in number of firms reporting

Item	Firm type	Increase	No change	Decrease	Fluctuate
U.S. supply	U.S. producers	***	***	***	***
U.S. supply	Importers	2	10	1	2
U.S. supply	Purchasers	1	7	1	2
China supply	U.S. producers	***	***	***	***
China supply	Importers	11	5	1	0
China supply	Purchasers	8	2	0	1
Nonsubject supply	U.S. producers	***	***	***	***
Nonsubject supply	Importers	7	8	0	0
Nonsubject supply	Purchasers	6	4	0	1
Prices	U.S. producers	***	***	***	***
Prices	Importers	3	2	2	8
Prices	Purchasers	0	2	1	8
U.S. demand	U.S. producers	***	***	***	***
U.S. demand	Importers	13	3	0	0
U.S. demand	Purchasers	9	1	0	1
Raw material costs	U.S. producers	***	***	***	***
Raw material costs	Importers	4	3	0	8
Raw material costs	Purchasers	0	1	1	8

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

Supply and demand considerations

U.S. supply

Table II-4 provides a summary of the supply factors regarding R-125 from U.S. producer Honeywell and from China. Responding Chinese producers' capacity was *** than the reported capacity of Honeywell in 2020.

[38] Purchaser *** reported that it had not.

Table II-4
R-125: Supply factors that affect the ability to increase shipments to the U.S. market, by country

Quantity in short tons; ratio and share in percent; count is number of "yes" responses

Factor	Measure	United States	China
Capacity 2018	Quantity	***	***
Capacity 2020	Quantity	***	***
Capacity utilization 2018	Ratio	***	***
Capacity utilization 2020	Ratio	***	***
Ending inventories 2018	Ratio	***	***
Ending inventories 2020	Ratio	***	***
Home market 2020	Ratio	***	***
Non-US export markets 2020	Ratio	***	***
Ability to shift production	Count	***	***

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

Note: The capacity utilization ratio represents the ratio of the U.S. producer's production to its production capacity; ending inventories ratios are to total shipments. Home market and non-US export market ratios are to total shipments.

Note: Honeywell accounted for all of U.S. production of R-125 in 2020. Responding foreign producer/exporter firms accounted for more than half of U.S. imports of R-125 from China during 2020. For additional data on the number of responding firms and their share of U.S. production and of U.S. imports from China, please refer to Part I, "Summary Data and Data Sources."

Domestic production

Based on available information, Honeywell has the ability to respond to changes in demand with small changes in the quantity of shipments of U.S.-produced R-125 to the U.S. market. The main contributing factor to this degree of responsiveness of supply is the availability of limited unused capacity.[39] Factors mitigating responsiveness of supply include limited inventories and no reported ability to shift production to ***.

Between 2018 and 2020, Honeywell's capacity was stable and production increased, leading to increased capacity utilization. The ratio of ending inventories to U.S. shipments decreased by *** percentage points between 2018 and 2020. Home market shipments comprised *** of Honeywell's shipments.

There are no reported barriers to exporting. Honeywell reported that other HFC components do not share common manufacturing facilities. Honeywell produces hydrofluoric

[39] Honeywell's ***.

acid, a key component of R-125, at its plant in Geismar, Louisiana facility, and blends the R-125 produced at Geismar at its facility in Baton Rouge, Louisiana.[40]

Subject imports from China

Based on available information, producers of R-125 in China have the ability to respond to changes in demand with moderate changes in the quantity of shipments of R-125 to the U.S. market. The main contributing factor to this degree of responsiveness of supply is the availability of unused capacity. Factors mitigating responsiveness of supply include very small inventories, limited exports to non-U.S. markets, and no reported ability to shift production to or from alternate products.

Between 2018 and 2020, capacity in China increased; however, capacity utilization decreased. While the ratio of ending inventories to total shipments decreased by more than half, the ratio of ending inventories to total shipments was *** percentage points lower in 2020 than in 2018. Most production was used in the Chinese home market, followed by exports to the United States, then to non-U.S. markets. *** percent of R-125 produced in China in 2020 was exported to the United States. Responding foreign producers reported they cannot produce other products on the same equipment as R-125 because R-125 is easily reactive with other materials and the residue is not easily cleaned.

Imports from nonsubject sources

Nonsubject imports accounted for *** percent of total U.S. imports in 2020. The largest source of nonsubject imports during January 2018–June 2021 was India.[41]

Supply constraints

*** 13 of 14 responding importers reported that they had not experienced supply constraints between January 1, 2018 and January 12, 2021. *** 11 of 16 responding importers reported that they had not experienced supply constraints since the petition was filed on January 12, 2021. Six of 11 responding purchasers reported that there had not been any supply constraints either between January 1, 2018 and January 12, 2021 or since January 12, 2021.

However, a number of firms cited supply constraints elsewhere in questionnaire responses, and in their briefs. For example, in its brief, respondent National reported that

[40] Hearing transcript, pp.17-18 (Kousaftes).

[41] No other country was reported as a nonsubject source by importers or purchasers.

"Honeywell *** and cannot or will not come close to satisfying National's *** lb. annual requirement for R-125."[42] Importer *** reported ***. ***, reported ***. Honeywell reported ***.[43]

*** importers *** reported supply chain, importation, and shipment problems due to the COVID-19 pandemic. Those importers reported *** caused supply constraints due to COVID-19. U.S. producer Honeywell reported that COVID-19 ***.[44] Honeywell also reported ***.[45]

Purchaser *** reported raw material and capacity constraints since January 12, 2021 and importer/purchaser *** reported domestic production and inland transportation delays due to severe weather (Winter Storm Uri, Hurricanes Ida and Nicholas).[46] Purchaser *** also reported inland transportation delays due to hurricanes and reported that *** but that it had no issues with R-125 produced in China or the United States.

New suppliers

Six of 12 purchasers indicated that new suppliers entered the U.S. market since January 1, 2018. Importer/purchasers *** cited SRF (India), while *** cited IGas and Scales n Stuff, and *** cited Hua'an (China).

[42] National's post conference brief, p. 4. National also states that ***, National's post conference brief, Appendix responses to Commissioners' questions, APP-4 and exhibits 11 and 19.

[43] Conference transcript (LaPietra), p. 64.

[44] Conference transcript (LaPietra), p. 45.

[45] Conference transcript (Wood), p. 61.

[46] ***. *** U.S. importers' questionnaire, response to II-4.

U.S. demand

Based on available information, the overall demand for R-125 is likely to experience small changes in response to changes in price. The main contributing factors are the lack of substitute products and the small cost share of R-125 in its ultimate end-use of refrigeration and air conditioning systems. Also, demand for refrigerants was increasing during the period of investigation.[47]

End uses and cost share

U.S. demand for R-125 depends on the demand for U.S.-produced downstream products, such as HFC blends, which, in turn, depends on the demand for refrigeration and air conditioning. R-125 accounts for varying shares of the cost of various refrigerant blends (table II-5).[48] [49]

Table II-5
R-125: Cost share of end uses, by blend

Range in percent share that R-125 accounts for in blend end use

Blend	Importer range	Purchaser range
R-404A	***	***
R-407A	***	***
R-407C	***	***
R-410A	***	***
R-422B	***	***
R-427A	***	***
R-453A	***	***
R-507	***	***

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

Note: When asked to list the end uses of the R-125 that it manufactures, ***.

[47] Hearing transcript (Cannistra), pp. 5-6.

[48] Importer *** reported that its cost share was 100 percent because ***. Purchaser *** reported that the cost share of R-125 in the cost of refrigerant blends had increased approximately 12 to 13 percent in 2021, outpacing cost increases in other components.

[49] See Part III for more information on the cost shares and material composition of R-125 in Honeywell's downstream production of blends.

Business cycles

***. Seven of 17 responding importers and 8 of 12 purchasers indicated that the market was subject to business cycles or distinctive conditions of competition. Importers/purchasers *** and purchaser *** reported that the HFC phase down due to the American Innovation and Manufacturing (AIM) Act in alignment with the Kigali Amendment to the Montreal Protocol is a district condition of competition.[50] Given the relatively high Global Warming Potential of R-125 at 3,500 per metric ton,[51] changes due to these phase downs based on individual company allocations, may limit future demand for R-125. Honeywell stated that it would be "close to impossible" for a new entrant to the U.S. market to expand production capacity or build a new production facility for R-125, since they would have to have a production quota.[52]

Demand for refrigerants, including R-125, is seasonal. Production in Honeywell's plants increases in the summer months, and it has a period of reduced sales for R-125 and blends in the fourth quarter of the year.[53] *** reported that demand increases in spring/summer because R-125 is used in R-410A, which is then used in air conditioning. According to Arkema, its refrigeration and air conditioning market sales are generally higher in the first half of the year than in the second.[54] Importer/purchaser *** reported that the majority of production and R-125 sales occur in the first, second, and third quarters of the year, while Honeywell reported that most refrigerant sales occur in the second and third quarter of each year.[55] Purchaser *** reported that market prices increase in the first and second quarters of the year.

[50] For additional information on the AIM Act, please refer to Part I.

[51] A Global Warming Potential of 3,500 indicates that a metric ton of R-125 has a similar impact as 3,500 metric tons of carbon dioxide. Understanding Global Warming Potentials, https://www.epa.gov/ghgemissions/understanding-global-warming-potentials; retrieved January 18, 2022.

[52] Hearing transcript, pp. 86-87 (Wood).

[53] Hearing transcript, p. 109 (Wood).

[54] Arkema. "Universal Registration Document 2020", accessed November 17, 2021. https://www.arkema.com/files/live/sites/shared_arkema/files/downloads/investorrelations/en/finance/ARKEMA_URD_EN%20_2020.pdf

[55] Conference transcript, p. 27 (Cannistra).

Demand trends

Demand for R-125 is derived from the demand for refrigeration and air conditioning, which is seasonal and mirrors general economic activity. Most firms reported U.S. demand for R-125 had increased since January 1, 2018, but several firms reported that U.S. demand has not changed (table II-6). Most firms reported no change in foreign demand. Most purchasers reported that demand for end use products, such as air conditioners, increased.

Table II-6
R-125: Count of firms' responses regarding overall domestic and foreign demand

Count in number of firms reporting

Market	Firm type	Increase	No change	Decrease	Fluctuate
Domestic demand	U.S. producers	***	***	***	***
Domestic demand	Importers	9	7	0	1
Domestic demand	Purchasers	9	2	0	1
Foreign demand	U.S. producers	***	***	***	***
Foreign demand	Importers	4	8	2	1
Foreign demand	Purchasers	1	2	4	1
Demand for end use products	Purchasers	7	1	3	1

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

Honeywell reported that it follows several indicators to track demand for R-125, including GDP,[56] housing starts,[57] and the Dodge Momentum Index.[58] With regard to housing starts, the rate of seasonally adjusted new residential construction increased overall from 1,309,000 units in January 2018 to 1,661,000 units in December 2020. However, the rate decreased from 1,589,000 units in January 2020 to 938,000 units in April 2020. New residential construction then recovered, increasing to a peak of 1,725,000 units in March 2021 before experiencing smaller fluctuations throughout 2021 (figure II-1). The Dodge Momentum Index increased by 7.5 percent between January 2018 and December 2020. It was 42.1 percent higher

[56] See conference transcript, p. 89 (Cannistra) (explaining that increases in demand for air conditioners are "driven by GDP growth primarily"). See also petitioner's postconference brief, p. 6.

[57] "Housing starts" is a key economic indicator that measures new residential construction. U.S. Census Bureau, "New Residential Construction," retrieved November 18, 2021, https://www.census.gov/construction/nrc/index.html. See also New York University Stern School of Business, "Housing Starts/Building Permits," retrieved November 18, 2021, http://pages.stern.nyu.edu/~nroubini/bci/HousingStarts.htm.

[58] The Dodge Momentum Index is a monthly measure "of the first (or initial) report for nonresidential building products in planning, which have been shown to lead construction spending for nonresidential buildings for a full year."

in October 2021 than in October 2020 (figure II-2).[59] Between January 2018 and December 2019, seasonally adjusted real GDP as a percent change from the preceding quarter was positive but it decreased by 31.2 percent in the second quarter of 2020 and recovered in the next quarter, increasing by 33.8 percent (figure II-3).

Arkema expects demand for its refrigeration, air conditioning, and foam products to increase on average by one percent per year.[60] As shown in figure II-4, U.S. manufacturers' shipments of central air conditioners increased by 4.4 percent between January 2018 and December 2020. Shipments decreased by 11.2 percent between January 2021 and February 2021, and then increased through September 2021. Overall, shipments increased by 41.5 percent between January 2021 and September 2021, the last month for which data were available. There is a high correlation between U.S. manufacturers' shipments of central air conditioners and average monthly temperatures in the contiguous United States. The U.S. Energy Information Administration expects air conditioning energy use to grow faster than any other use in residential and commercial buildings. Increases in the percentage of households in single-family residences and an increased total square footage are expected to further drive increases in air conditioning energy use.[61]

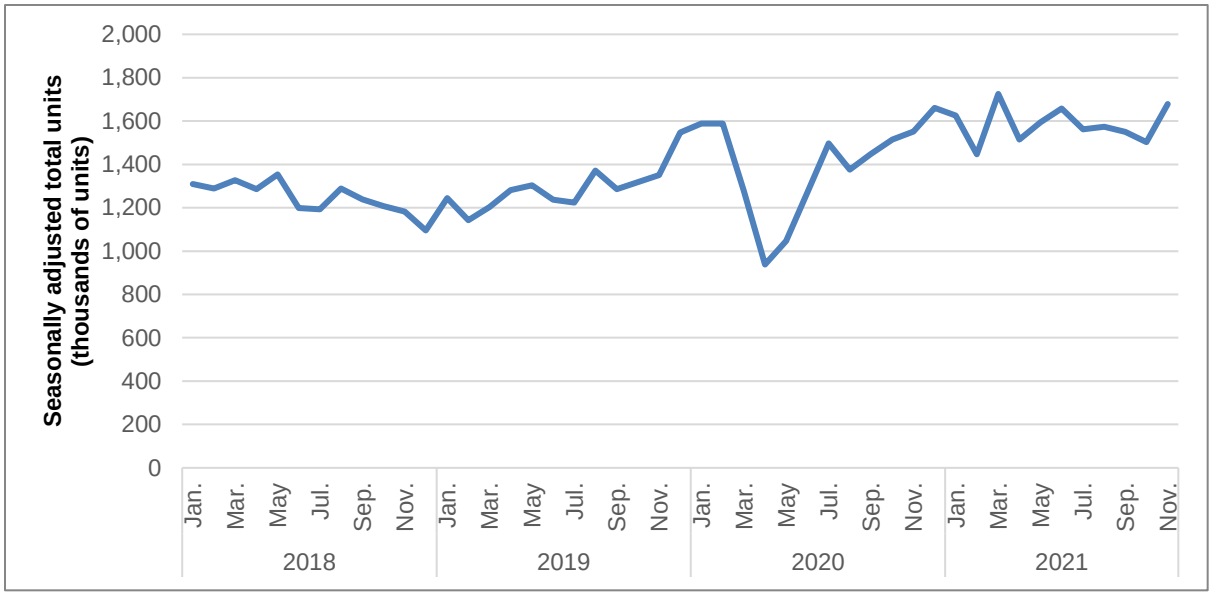
[59] Cf. Dodge Data & Analytics "Dodge Momentum Index Ends 2020 on a High Note" retrieved February 15, 2021, https://www.construction.com/news/dodge-momentum-index-ends-2020-high-note, and Dodge Data & Analytics, "Dodge Momentum Index Starts 2020 on the Downside," retrieved February 15, 2021, https://www.construction.com/news/dodge-momentum-index-starts-2020-downside (analyzing the Dodge Momentum Index for January 2020), and Dodge Data & Analytics, "Dodge Momentum Index Increases in September" retrieved February 15, 2021, https://www.construction.com/news/dodge-momentum-index-increases-september-2020 (analyzing the Dodge Momentum Index for September 2020).

[60] Arkema. "Universal Registration Document 2020", accessed November 17, 2021. https://www.arkema.com/files/live/sites/shared_arkema/files/downloads/investorrelations/en/finance/ARKEMA_URD_EN%20_2020.pdf

[61] Sourmehi, Courtney. U.S. Energy Information Administration. "EIA Projects air-conditioning energy use to grow faster than any other use in buildings". March 13, 2020. https://www.eia.gov/todayinenergy/detail.php?id=43155

Figure II-1

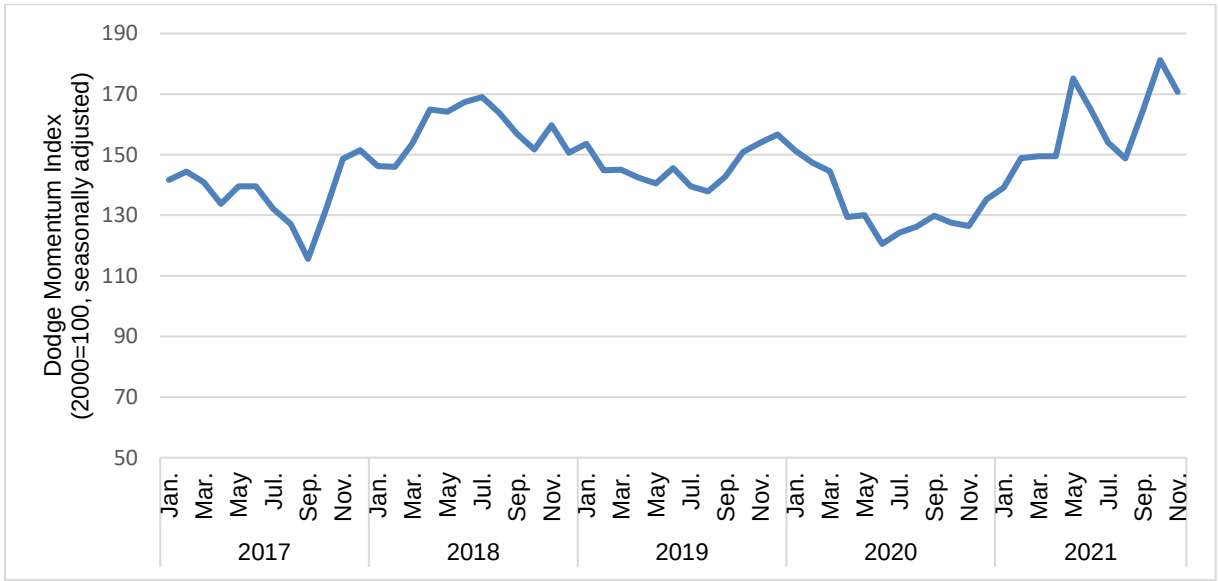
Housing starts: Annual rate for housing units started, United States, January 2018–November 2021



Source: U.S. Census Bureau, New Residential Construction, Annual Rate for Housing Units Started, United States, Seasonally Adjusted Total Units (Thousands of Units), https://www.census.gov/econ/currentdata/dbsearch, retrieved November 5, 2021.

Figure II-2

Dodge Momentum Index, January 2018–November 2021

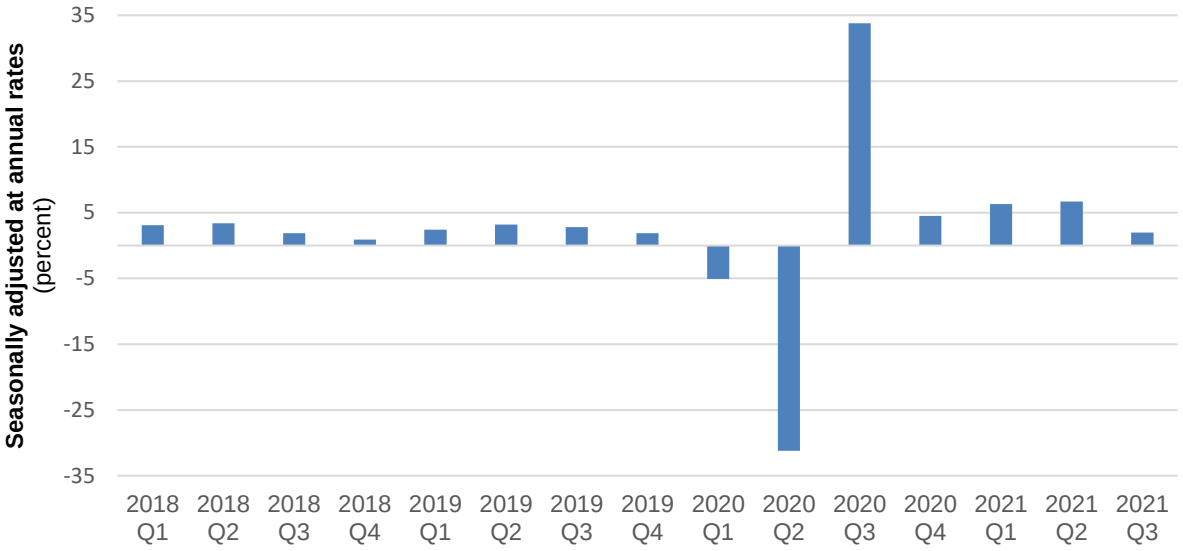


Source: Compiled from data from Dodge Data & Analytics, Dodge Momentum Index, January 2018–November 2021, https://www.construction.com/news, accessed January 5, 2021.

Note: The Dodge Momentum Index is a seasonally adjusted monthly measure of the first or initial report for nonresidential building projects in planning, which have been shown to lead construction spending for nonresidential buildings by a full year. Dodge Analytics, "Dodge Momentum Index Pulls Back in July", August 6, 2021, https://www.construction.com/news/Dodge-Momentum-Index-Pulls-Back-In-July.

Figure II-3

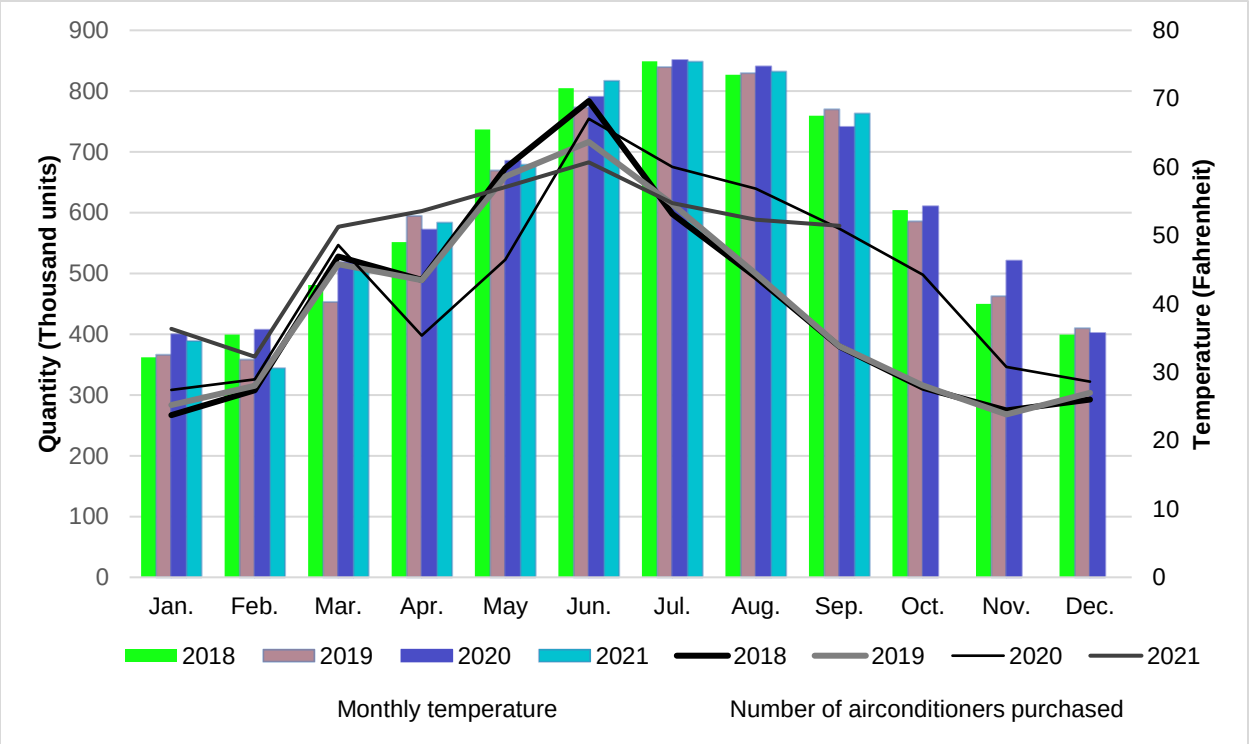
GDP: Real gross domestic product, percent change from preceding quarter, seasonally adjusted at annual rates, January 2018–September 2021



Source: U.S. Bureau of Economic Analysis, National Data, National Income and Product Accounts, https://www.bea.gov/data/gdp/gross-domestic-product, accessed November 18, 2021.

Figure II-4

U.S. Manufacturers' Monthly Shipments of Central Air Conditioners and Contiguous U.S. Average Monthly Temperature, January 2018–September 2021



Source: Compiled from data from the Air-Conditioning, Heating, and Refrigeration Institute, U.S. Heating and Cooling Equipment Shipment Data, January 2018–September 2021, (retrieved November 18, 2021), https://www.ahrinet.org/statistics and the National Oceanic and Atmospheric Administration (NOAA) National Centers for Environmental Information, Climate at a Glance: National Time Series, published November 2021, (retrieved on November 18, 2021), https://www.ncdc.noaa.gov/cag/national/time-series/110/tavg/1/2/2021-2021.

Substitute products

According to the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE), R-125 is non-flammable and non-toxic, with an A1 rating designation.[62] All firms reported that there are no substitutes for R-125.

[62] Petition, pp. 13-14 and ASHRAE, "Designation and Safety Classification of Refrigerants", p. 3, https://www.ashrae.org/file%20library/technical%20resources/standards%20and%20guidelines/standards%20addenda/34_2019_f_20191213.pdf, accessed November 17, 2021.

Substitutability issues

This section assesses the degree to which U.S.-produced R-125 and imports of R-125 from China can be substituted for one another by examining the importance of certain purchasing factors and the comparability of R-125 from domestic and imported sources based on those factors. Based on available data, staff believes that there is a high degree of substitutability between domestically produced R-125 and R-125 imported from China.[63] Factors contributing to this level of substitutability include interchangeability between domestic and subject sources, industry-wide specifications for R-125 quality, ability of R-125 imported from China to meet minimum quality specifications, little preference and no requirements for particular country of origin, similarities between domestically-produced R-125 and R-125 imported from China across multiple purchasing factors, and no reported failure of R-125 imported from China to qualify.

Factors reducing substitutability include different lead times between domestic and subject sources, differences in availability, and some (limited) purchaser preferences for R-125 from domestic sources.

Factors affecting purchasing decisions

Purchaser decisions based on source

As shown in table II-7, most purchasers and their customers never make purchasing decisions based on the producer or country of origin. Of the four purchasers that reported that they always make decisions based on the manufacturer, ***, *** reported that its supplier must be qualified in terms of legal, safety, and quality compliance, and *** reported that it does business with companies it is familiar with.

[63] The degree of substitution between domestic and imported R-125 depends upon the extent of product differentiation between the domestic and imported products and reflects how easily purchasers can switch from domestically produced R-125 to the R-125 imported from China (or vice versa) when prices change. The degree of substitution may include such factors as relative prices (discounts/rebates), quality differences (e.g., grade standards, defect rates, etc.), and differences in sales conditions (e.g., lead times between order and delivery dates, reliability of supply, product services, etc.).

Table II-7
R-125: Count of purchasing decisions by purchaser or their customer, based on producer and country of origin

Count in number of firms reporting

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

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

Importance of purchasing domestic product

Nearly all (eight of nine) responding purchasers reported that most or all of their purchases did not require purchasing U.S.-produced product. *** purchasers reported that domestic product was required by law, *** reported it was required by its customers (for ***), and *** reported other preferences for domestic product.[64] *** cited that its preference for domestic product was due to U.S.-produced R-125 reliably meeting its requirements.

Most important purchase factors

The most often cited top three factors that firms consider in their purchasing decisions for R-125 were availability/supply (12 firms), price/cost (8 firms), and quality (6 firms) as shown in table II-8. Availability/supply was the most frequently cited first-most important factor (cited by 8 firms), followed by quality (3 firms); price/cost and quality were the most frequently reported second-most important factor (3 firms each); and price/cost was the most frequently reported third-most important factor (4 firms).

Importer/purchaser *** reported that it purchases multiple refrigerant components from China and India, which provides it with flexibility in negotiations.[65]

[64] *** provided explanation was “preference”; however, it was a small purchaser, with reported purchases of *** short tons of R-125 in 2020.

[65] Honeywell does not bundle or sell multiple refrigerant components, but sells R-125 and the finished blend product. Conference transcript, p. 68 (LaPietra) and hearing transcript, pp. 23-24 (Wilson).

Table II-8
R-125: Count of ranking of factors used in purchasing decisions as reported by U.S. purchasers, by factor

Count in number of firms reporting

Factor	First	Second	Third	Total
Availability / Supply	8	2	2	12
Price / Cost	1	3	4	8
Quality	3	3	0	6
All other factors	0	4	6	NA

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

Note: Other factors include ease of delivery, lead time, timing, payment and shipping terms, range of product line, and volume requirements.

Most purchasers (8 of 12) reported that they only sometimes purchase the lowest-priced product, while 2 usually purchase the lowest-priced product, 1 always purchases the lowest-priced product, and 1 never purchases the lowest-priced product.

Importance of specified purchase factors

Purchasers were asked to rate the importance of 15 factors in their purchasing decisions (table II-9). The factors rated as very important by more than half of responding purchasers were reliability of supply (12 purchasers), availability, and quality meets industry standards (11 each); product consistency (10); delivery time (9); price (8); and delivery terms and payment terms (6 each). At least half of the responding purchasers reported that minimum quantity requirements, packaging, and quality exceeds industry standards were not important.

Table II-9
R-125: Count of importance of purchase factors, as reported by U.S. purchasers, by factor

Count in number of firms reporting

Factor	Very important	Somewhat important	Not important
Availability	11	1	0
Delivery terms	6	6	0
Delivery time	9	2	1
Discounts offered	1	6	5
Minimum quantity requirements	2	1	9
Packaging	1	5	6
Payment terms	6	5	1
Price	8	4	0
Product consistency	10	2	0
Product range	5	4	3
Quality meets industry standards	11	1	0
Quality exceeds industry standards	2	3	7
Reliability of supply	12	0	0
Technical support/service	1	6	5
U.S. transportation costs	2	5	5

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

Lead times

R-125 is primarily produced-to-order. ***. U.S. importers reported that *** percent of commercial shipments were produced-to-order, with lead times averaging *** days, while the remaining *** percent were from U.S. inventories, with lead times averaging *** days.

Supplier certification

Seven of 12 responding purchasers require their suppliers to become certified or qualified to sell R-125 to their firm. Purchasers reported that the time to qualify a new supplier ranged from 14 to 180 days. One purchaser *** reported that, since 2018, one R-125 supplier, GFL (India), had failed in its attempt to qualify.

Minimum quality specifications

As can be seen in table II-10, 10 of 12 responding purchasers reported that domestically produced product always met minimum quality specifications, the remaining two reported that they did not know. Ten of 12 responding purchasers reported that the R-125 produced in China always met minimum quality specifications. Purchasers' responses were mixed concerning R-125 from nonsubject sources; 4 reported that they did not know, while 3 reported that it always met minimum quality specifications, and 1 *** reported that R-125 sourced from India rarely or never met minimum quality specifications.

Table II-10
R-125: Count of firms' responses regarding suppliers' ability to meet minimum quality specifications, by source

Count in number of firms reporting

Source of purchases	Always	Usually	Sometimes	Rarely or never	Don't know
United States	10	0	0	0	2
China	10	1	0	0	1
All other sources	3	0	0	1	5

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

Note: Purchasers were asked how often domestically produced or imported R-125 meets minimum quality specifications for their own or their customers' uses.

Six of 12 responding purchasers reported that meeting AHRI-700 specifications for R-125 was a factor that determined quality. Four purchasers[66] reported meeting purity and/or moisture standards as factors that determined quality and one purchaser reported end user requirements.

[66] ***.

Changes in purchasing patterns

Purchasers were asked about changes in their purchasing patterns from different sources since 2018 (table II-11); reasons reported for increasing purchases of domestic R-125 included *** and antidumping investigations ***. Other purchasers reported that purchases fluctuated or remained constant due to market demand. Five of 12 responding purchasers reported that they had changed suppliers since January 1, 2018. Specifically, firms dropped or reduced purchases from Arkema because it closed its affiliated facility in China. Firms added or increased purchases from Honeywell and SRF (India) *** after the Arkema closure.

Table II-11
R-125: Count of changes in purchase patterns from U.S., subject, and nonsubject countries

Count in number of firms reporting

Source of purchases	Decreased	Increased	Constant	Fluctuated	Did not purchase
United States	1	2	4	3	2
China	3	1	3	4	1
All other sources	1	4	2	1	4
Sources unknown	0	1	2	0	7

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

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

Purchasers were asked a number of questions comparing R-125 produced in the United States, China, and nonsubject countries. First, purchasers were asked for a country-by-country comparison on the same 15 factors (table II-12) for which they were asked to rate the importance of in their purchasing decisions.

The majority of purchasers reported that U.S. R-125 and R-125 imported from China were comparable on every factor except for availability (four purchasers each reported comparable and inferior, with three purchasers (***) reporting that U.S.-produced R-125 was superior), delivery terms (six reported that U.S.-produced R-125 was superior), price (most purchasers reported that U.S.-produced R-125 was inferior), and U.S. transportation costs (most purchasers reported that U.S.-produced R-125 was superior).

Table II-12
R-125: Count of purchasers' responses comparing U.S.-produced and imported product

Count in number of firms reporting

Factor	Country pair	Superior	Comparable	Inferior
Availability	U.S. vs China	3	4	4
Delivery terms	U.S. vs China	6	5	0
Delivery time	U.S. vs China	5	6	0
Discounts offered	U.S. vs China	1	8	1
Minimum quantity requirements	U.S. vs China	0	10	1
Packaging	U.S. vs China	1	9	0
Payment terms	U.S. vs China	4	7	0
Price	U.S. vs China	0	4	7
Product consistency	U.S. vs China	0	11	0
Product range	U.S. vs China	1	6	4
Quality meets industry standards	U.S. vs China	0	11	0
Quality exceeds industry standards	U.S. vs China	0	10	0
Reliability of supply	U.S. vs China	2	9	0
Technical support/service	U.S. vs China	2	9	0
U.S. transportation costs	U.S. vs China	7	4	0

Table continued.

Table II-12 Continued
R-125: Count of purchasers' responses comparing U.S.-produced and imported product

Count in number of firms reporting

Factor	Country pair	Superior	Comparable	Inferior
Availability	U.S. vs Nonsubject sources	6	1	0
Delivery terms	U.S. vs Nonsubject sources	5	2	0
Delivery time	U.S. vs Nonsubject sources	6	1	0
Discounts offered	U.S. vs Nonsubject sources	1	4	1
Minimum quantity requirements	U.S. vs Nonsubject sources	0	6	1
Packaging	U.S. vs Nonsubject sources	1	5	0
Payment terms	U.S. vs Nonsubject sources	4	3	0
Price	U.S. vs Nonsubject sources	1	1	5
Product consistency	U.S. vs Nonsubject sources	0	7	0
Product range	U.S. vs Nonsubject sources	1	2	4
Quality meets industry standards	U.S. vs Nonsubject sources	0	7	0
Quality exceeds industry standards	U.S. vs Nonsubject sources	0	6	0
Reliability of supply	U.S. vs Nonsubject sources	5	2	0
Technical support/service	U.S. vs Nonsubject sources	4	3	0
U.S. transportation costs	U.S. vs Nonsubject sources	5	2	0

Table continued.

Table II-12 Continued
R-125: Count of purchasers' responses comparing U.S.-produced and imported product

Count in number of firms reporting

Factor	Country pair	Superior	Comparable	Inferior
Availability	China vs Nonsubject sources	6	0	0
Delivery terms	China vs Nonsubject sources	3	3	0
Delivery time	China vs Nonsubject sources	3	3	0
Discounts offered	China vs Nonsubject sources	0	5	0
Minimum quantity requirements	China vs Nonsubject sources	0	6	0
Packaging	China vs Nonsubject sources	0	5	0
Payment terms	China vs Nonsubject sources	4	2	0
Price	China vs Nonsubject sources	5	1	0
Product consistency	China vs Nonsubject sources	0	5	0
Product range	China vs Nonsubject sources	1	4	0
Quality meets industry standards	China vs Nonsubject sources	0	6	0
Quality exceeds industry standards	China vs Nonsubject sources	0	4	0
Reliability of supply	China vs Nonsubject sources	4	1	0
Technical support/service	China vs Nonsubject sources	3	2	0
U.S. transportation costs	China vs Nonsubject sources	3	2	0

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

Note: 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.

Comparison of U.S.-produced and imported R-125

In order to determine whether U.S.-produced R-125 can generally be used in the same applications as imports from China, U.S. producers, importers, and purchasers were asked whether the products can always, frequently, sometimes, or never be used interchangeably. Honeywell reported that R-125 can *** be used in the same applications, regardless of source. All responding importers[67] and purchasers[68] reported that R-125 can always be used in the same applications, regardless of source.

In addition, U.S. producers, importers, and purchasers were asked to assess how often differences other than price were significant in sales of R-125 from the United States, China, or nonsubject countries. Honeywell reported that differences other than price were *** significant regardless of the source. As seen in table II-13, most importers reported that factors other than price were always significant in sales of R-125 from the United States versus China,[69] and most importers reported that they were always significant between R-125 from the United States versus nonsubject sources. Half of responding importers reported that factors other than price were sometimes significant in sales of R-125 from China versus nonsubject sources. As seen in table II-14, the majority of responding purchasers reported that factors other than price were always or frequently significant in sales of R-125 from the United States versus China, while most responding purchasers reported that they were sometimes significant in sales of R-125 from the United States versus nonsubject sources and from China versus nonsubject sources. Importer/purchaser *** reported product availability at needed volumes as a significant factor, while importer *** reported that multiple refrigerant components are available from China and India suppliers while R-125 is the only refrigerant component available from the U.S., and purchaser *** reported quality and availability as key factors other than price.

[67] All responding importers reported that R-125 can always be used in the same applications between the United States and China (16 firms), the United States and nonsubject sources (15 firms), and China and nonsubject sources (14 firms).

[68] All responding purchasers reported that R-125 can always be used in the same applications between the United States and China (11 firms), the United States and nonsubject sources (10 firms), and China and nonsubject sources (9 firms).

[69] *** were the two importers that reported that there were never differences other than price regardless of the source.

Table II-13
R-125: Count of importers reporting the significance of differences other than price between R-125 produced in the United States and in other countries, by country pair

Count in number of firms reporting

Country pair	Always	Frequently	Sometimes	Never
United States vs. China	9	1	4	2
United States vs. Other	4	0	3	2
China vs. Other	2	0	4	2

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

Table II-14
R-125: Count of purchasers reporting the significance of differences other than price between R-125 produced in the United States and in other countries, by country pair

Count in number of firms reporting

Country pair	Always	Frequently	Sometimes	Never
United States vs. China	4	2	3	0
United States vs. Other	1	1	3	0
China vs. Other	0	1	5	0

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

Elasticity estimates

This section discusses elasticity estimates. Parties were encouraged to comment on these estimates as an attachment to their prehearing or posthearing brief; no comments were received regarding elasticity estimates.

U.S. supply elasticity

The domestic supply elasticity for R-125 measures the sensitivity of the quantity supplied by U.S. producers to changes in the U.S. market price of R-125. 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 R-125. Analysis of these factors above indicates that the U.S. industry has little ability to increase shipments to the U.S. market; an estimate in the range of 1 to 3 is suggested.

U.S. demand elasticity

The U.S. demand elasticity for R-125 measures the sensitivity of the overall quantity demanded to a change in the U.S. market price of R-125. 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 R-125 in the production of any downstream products. Based on the available information, the aggregate demand for R-125 is likely to be highly inelastic; a range of -0.25 to -0.5 is suggested.

Substitution elasticity

The elasticity of substitution depends upon the extent of product differentiation between the domestic and imported products.[70] 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 R-125 and imported R-125 is likely to be high, in the range of 4 to 7. Factors contributing to this include interchangeability between domestic and subject sources, industry-wide specifications for R-125 quality, ability of R-125 imported from China to meet minimum quality specifications, little preference and no requirements for particular country of origin, similarities between domestically-produced R-125 and R-125 imported from China across multiple purchasing factors, and no reported failure of R-125 imported from China to qualify.

[70] 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. producer's 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 response of one firm that accounted for all of U.S. production of R-125 during 2020.

U.S. producers

The Commission issued a U.S. producer questionnaire to one firm based on information contained in the petition. This firm, Honeywell, the only known producer of R-125, provided usable data on its operations.[1]

Table III-1 lists Honeywell's R-125 production locations, positions on the petition, and shares of total production.

[1] The Commission received a late U.S. producer questionnaire response from ***. Staff telephone interview with ***, November 2, 2021. As this firm does not appear to produce R-125, staff has not incorporated the U.S. producer questionnaire response in this report.

Table III-1
R-125: U.S. producer Honeywell's position on the petition, production locations, and share of reported production, 2020

Firm	Position on petition	Production location(s)	Share of production
Honeywell	Petitioner	Charlotte, NC Carville, LA	***
All firms	Various	Various	***

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

Honeywell is ***. As discussed in greater detail below, ***.

Table III-2 presents Honeywell's reported changes in operations since January 1, 2018.

Table III-2
R-125: U.S. producer Honeywell's reported changes in operations, since January 1, 2018

Item	Firm name and accompanying narrative response
Expansions	***
Revised labor agreements	***

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

U.S. production, capacity, and capacity utilization

Table III-3 and figure III-1 present Honeywell's production, capacity, and capacity utilization. While capacity remained steady during 2018-20 and in both interim periods (January-June 2020 and January-June 2021), production and capacity utilization peaked in 2019, and slightly increased overall during 2018-20.[2] Production increased by *** percent between 2018-19, before decreasing by *** percent from 2019 to 2020. Production quantities were higher by *** percent in interim 2021 compared to interim 2020. Honeywell's capacity utilization ratio followed production trends, increasing from *** percent in 2018 to *** percent in 2019, before decreasing to *** percent in 2020. Capacity utilization was higher in by *** percentage points in interim 2021 at *** percent, compared to *** percent in interim 2020.

[2] Honeywell reported higher production in the final phase than in the preliminary phase of these investigations due to ***. Email from ***, January 20, 2022.

Table III-3
R-125: U.S. producer Honeywell's production, capacity, and capacity utilization, by period

Quantity in short tons; ratio in percent

Item	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Capacity	Quantity	***	***	***	***	***
Production	Quantity	***	***	***	***	***
Capacity utilization	Ratio	***	***	***	***	***

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

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

Figure III-1
R-125: U.S. producer Honeywell's production, capacity, and capacity utilization, by period

* * * * * * *

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

Alternative products

Honeywell reported *** on the same equipment as R-125 during the period for which data were collected.[3]

[3] Honeywell stated that other products could not be produced on the same machinery as R-125 without significant capital investment. Petitioner's post-conference brief, pp. 5 and 30.

U.S. producer's U.S. shipments and exports

Tables III-4 and III-5 present Honeywell's commercial U.S. shipments, internal consumption, transfers to related firms, swaps, and total shipments. Honeywell reported ***. The quantity of Honeywell's total shipments, inclusive of U.S. commercial shipments, internal consumption, transfers to related firms, and swaps, increased irregularly by *** percent during 2018-20, peaking in 2019, and was lower in interim 2021 by *** percent compared to interim 2020.[4] [5] By value, Honeywell's total shipments increased by *** percent during 2018-20, and were lower by *** percent interim 2021, compared to the same period in 2020. The unit value of total shipments experienced downward trends during 2018-20, but was higher in interim 2021 compared to interim 2020. The unit value of total shipments ranged from $*** per short ton at its lowest in 2019 to its highest of $*** per short ton in interim 2021.

The quantity of Honeywell's commercial U.S. shipments increased overall during 2018-20 by *** percent, and was higher by *** percent in interim 2021 than in interim 2020.[6] The quantity of Honeywell's internal consumption increased during 2018-20 by *** percent, and was higher by *** percent in interim 2021 than in interim 2020.[7] By quantity, Honeywell's transfers of R-125 to related firms, typically used to produce downstream blends such as R-410A and R-404A, increased irregularly overall during 2018-20 by *** percent, and was *** percent higher in interim 2021 than in interim 2020. In contrast, the quantity of

[4] According to Honeywell, ***. Email from ***, November 18, 2021.

[5] Honeywell reported higher shipments in the final phase than in the preliminary phase of these investigations due to the addition of internal consumption transactions.

[6] According to Honeywell, ***, Ibid. Further, counsel explained that ***.

[7] ***.

Honeywell's swaps decreased overall during 2018-20 by *** percent, but increased during 2019-20 by *** percent and was *** percent lower in interim 2021 than in interim 2020.[8]

As a share of quantity, Honeywell's commercial U.S. shipments accounted for between *** percent and *** percent of the firm's total U.S. shipments during 2018-20, and were lowest in 2018. The share of commercial U.S. shipments was higher in interim 2021 compared to interim 2020. Honeywell's internal consumption accounted for between *** percent and *** percent as a share of quantity during 2018-20. The share of internal consumption was higher in interim 2021 compared to interim 2020. Honeywell's transfers to related firms accounted for between *** percent and *** percent as a share of quantity during 2018-20 The share of transfers was higher in interim 2021 compared to 2020. Honeywell's swaps accounted for the largest share of total shipments by quantity during 2018-20, between *** percent and *** percent of Honeywell's total shipments, at its highest in 2018. The share of quantity of swaps was lower in interim 2021 compared to interim 2020.

The value of Honeywell's commercial U.S. shipments increased overall during 2018-20 by *** percent, and was *** percent higher in interim 2021 than in interim 2020. The value of Honeywell's internal consumption increased during 2018-20 by *** percent, and was *** percent higher in interim 2021 than in interim 2020. By value, Honeywell's transfers of R-125 to related firms decreased overall during 2018-20 by *** percent, but was *** percent higher in interim 2021 than in interim 2020. The value of Honeywell's swaps decreased irregularly during 2018-20 for an overall decrease of *** percent, and was *** percent lower in interim 2021 than in interim 2020. Similar to quantity trends, Honeywell's swaps accounted for largest share of value during 2018-20, between *** percent and *** percent of the value of the firm's total shipments, though the share was lower in interim 2021 than in interim 2020.[9]

The unit value of Honeywell's commercial U.S. shipments decreased during 2018-20, from $*** per short ton in 2018 to $*** per short ton in 2020.[10] Commercial U.S.

[8] Honeywell reported that the firm ***. Email from ***, February 8, 2021. See Part VI of this report for additional information on swaps and the valuation of swap transactions.

[9] See Part VI of this report for additional information on the valuation of internal consumption, internal transfers, and swap transactions.

[10] On the declining commercial U.S. shipments AUV trends, petitioner's counsel explained that ***. Email from ***, November 29, 2021.

shipments unit values were lower in interim 2021 compared to 2020. The unit value of Honeywell's internal consumption and transfers to related firms declined from $*** per short ton in 2018 to $*** per short ton in 2020. The unit value of Honeywell's internal consumption and transfers to related firms was higher in interim 2021 than in interim 2020. The average unit values of Honeywell's swaps slightly increased from $*** per short ton in 2018 to $*** per short ton in 2020 and were higher in interim 2021 than in interim 2020.

Table III-4
R-125: U.S. producer Honeywell's shipments, by destination and period

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

Item	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
U.S. shipments	Quantity	***	***	***	***	***
Export shipments	Quantity	***	***	***	***	***
Total shipments	Quantity	***	***	***	***	***
U.S. shipments	Value	***	***	***	***	***
Export shipments	Value	***	***	***	***	***
Total shipments	Value	***	***	***	***	***
U.S. shipments	Unit value	***	***	***	***	***
Export shipments	Unit value	***	***	***	***	***
Total shipments	Unit value	***	***	***	***	***
U.S. shipments	Share of quantity	***	***	***	***	***
Export shipments	Share of quantity	***	***	***	***	***
Total shipments	Share of quantity	***	***	***	***	***
U.S. shipments	Share of value	***	***	***	***	***
Export shipments	Share of value	***	***	***	***	***
Total shipments	Share of value	***	***	***	***	***

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

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

Table III-5
R-125: U.S. producer Honeywell's U.S. shipments, by type and period

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

Item	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Commercial U.S. shipments	Quantity	***	***	***	***	***
Internal consumption	Quantity	***	***	***	***	***
Transfers to related firms	Quantity	***	***	***	***	***
Swaps	Quantity	***	***	***	***	***
U.S. shipments	Quantity	***	***	***	***	***
Commercial U.S. shipments	Value	***	***	***	***	***
Internal consumption	Value	***	***	***	***	***
Transfers to related firms	Value	***	***	***	***	***
Swaps	Value	***	***	***	***	***
U.S. shipments	Value	***	***	***	***	***
Commercial U.S. shipments	Unit value	***	***	***	***	***
Internal consumption	Unit value	***	***	***	***	***
Transfers to related firms	Unit value	***	***	***	***	***
Swaps	Unit value	***	***	***	***	***
U.S. shipments	Unit value	***	***	***	***	***
Commercial U.S. shipments	Share of quantity	***	***	***	***	***
Internal consumption	Share of quantity	***	***	***	***	***
Transfers to related firms	Share of quantity	***	***	***	***	***
Swaps	Share of quantity	***	***	***	***	***
U.S. shipments	Share of quantity	***	***	***	***	***
Commercial U.S. shipments	Share of value	***	***	***	***	***
Internal consumption	Share of value	***	***	***	***	***
Transfers to related firms	Share of value	***	***	***	***	***
Swaps	Share of value	***	***	***	***	***
U.S. shipments	Share of value	***	***	***	***	***

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

U.S. producer's inventories

Table III-6 presents Honeywell's end-of-period inventories and the ratio of these inventories to U.S. producer's production, U.S. shipments, and total shipments**.** Honeywell's end-of-period inventories increased between 2018 and 2019, by *** percent, before decreasing from 2019 to 2020 by *** percent. End-of-period inventories were higher and more than doubled in January-June 2021 compared to January-June 2020. Inventory ratio to U.S. production decreased by *** percentage points from *** percent to *** percent during 2018-20, but was higher by *** percentage points in interim 2021 compared to interim 2020. Inventory ratio to total shipments decreased by *** percentage points during 2018-20, ending at *** percent in 2020, but was higher by *** percentage points in interim 2021 compared to interim 2020. Overall, inventory ratios ranged between *** percent to *** percent during the period for which data were collected.

Table III-6
R-125: U.S. producer Honeywell's inventories and their ratio to select items, by period

Quantity in short tons; ratio in percent

Item	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
End-of-period inventory quantity	***	***	***	***	***
Inventory ratio to U.S. production	***	***	***	***	***
Inventory ratio to U.S. shipments	***	***	***	***	***
Inventory ratio to total shipments	***	***	***	***	***

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

U.S. producer's imports and purchases

Honeywell's imports of R-125 are presented in table III-7. Honeywell did not import R-125 until ***.[11] Honeywell's imports from *** accounted for *** percent of U.S. production of R-125 in 2019, *** percent in 2020, and *** percent in January-June 2020. Honeywell *** in January-June 2021. Honeywell also ***.[12]

[11] Honeywell testified that the firm is importing R-125 to support an OEM customer in Mexico. It is bringing R-125, mixing with R-32 and exporting it to Mexico. Hearing transcript, p. 116 (Wood).

[12] U.S. producer's questionnaire, II-12.

Table III-7
R-125: U.S. producer Honeywell's U.S. production, U.S. imports, and ratio of imports to production, by source and period

Quantity in short tons; ratios are ratios of imports to U.S. production in percent

Item	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
U.S. production	Quantity	***	***	***	***	***
Imports from ***	Quantity	***	***	***	***	***
Imports from *** to U.S. production	Ratio	***	***	***	***	***

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

Note: Honeywell's counsel stated that the firm "imported R-125 *** Email from ***, November 18, 2021.

U.S. employment, wages, and productivity

Table III-8 shows Honeywell's employment-related data. The number of production and related workers ("PRWs"), total hours worked, hours worked per PRW, wages paid, and unit labor costs decreased during 2018-20. Wages paid and unit labor costs dropped between 2018 and 2019, but experienced a slight recovery in 2020. In contrast, hourly wages steadily increased during 2018-20, by *** percent, and productivity increased between 2018 and 2019, before declining in 2020. These indicators remained steady in both interim periods for PRWs, total hours worked, and hours worked per PRWs. Wages paid, hourly wages, productivity, and unit labor costs were higher in interim 2021 compared to interim 2020.[13]

[13] Honeywell explained that the decrease in PRWs consisted ***. Email from ***, February 16, 2021.

Table III-8
R-125: U.S. producer Honeywell's employment related information, by period

Item	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Production and related workers (PRWs) (number)	***	***	***	***	***
Total hours worked (1,000 hours)	***	***	***	***	***
Hours worked per PRW (hours)	***	***	***	***	***
Wages paid ($1,000)	***	***	***	***	***
Hourly wages (dollars per hour)	***	***	***	***	***
Productivity (short tons per 1,000 hours)	***	***	***	***	***
Unit labor costs (dollars per short ton)	***	***	***	***	***

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

Captive consumption

Section 771(7)(C)(iv) of the Act states that–[14]

> *If domestic producers internally transfer significant production of the domestic like product for the production of a downstream article and sell significant production of the domestic like product in the merchant market, and the Commission finds that–*
>
> *(I) the domestic like product produced that is internally transferred for processing into that downstream article does not enter the merchant market for the domestic like product,*
>
> *(II) the domestic like product is the predominant material input in the production of that downstream article, and*
>
> *then the Commission, in determining market share and the factors affecting financial performance . . ., shall focus primarily on the merchant market for the domestic like product.*

Transfers and sales

As reported in table III-5 above, Honeywell's internal consumption accounted for between *** percent and *** percent of the quantity of the U.S. producer's U.S. shipments during 2018-20 and *** percent during January-June 2020 and *** percent during January-June 2021. Transfers to related firms for the production of downstream blends accounted for between *** percent and *** percent of U.S. producers' U.S. shipments by quantity during 2018-20, and *** percent and *** percent of U.S. producer's U.S. shipments by quantity, during interim 2020 and interim 2021, respectively.

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

First statutory criterion in captive consumption

The first requirement for application of the captive consumption provision is that the domestic like product that is internally transferred for processing into that downstream article not enter the merchant market for the domestic like product. Honeywell reported both internal consumption and transfers to related firms of R-125 for the production of downstream blends.[15] Honeywell reported *** diverting R-125 intended for internal consumption or transfer to related firms to the merchant market.

Second statutory criterion in captive consumption

The second criterion of the captive consumption provision concerns whether the domestic like product is the predominant material input in the production of the downstream article that is captively produced. With respect to the downstream articles resulting from captive production (tables III-9 and III-10), R-125 reportedly comprises between *** percent and *** percent of the value material inputs of the downstream blends and *** percent and *** percent of the quantity of material inputs for the downstream blends.

Table III-9
R-125: Honeywell's transfers to related firms of R-125 used in production of downstream products, 2020

Quantity in short tons; shares in percent

Downstream product	Quantity	Share of quantity
410A	***	***
404A	***	***
407C	***	***
507A	***	***
Other downstream products	***	***
All downstream products	***	***

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

[15] From 2018 to 2020, R-125 Honeywell used R-125 to produce the following downstream blends: R-410A, R-407C, R-422D, R-404A, R-507A, R-438A, R-407A, R-407F, R-407H, R-448A, and R-449A. Petitioner's posthearing brief, p. 11. Honeywell also reported that during the same period, the transferred R-125, was also used as material input to produce ***, in addition to several blends previously mentioned. U.S. producer questionnaire, II-16.

Table III-10
R-125: Honeywell's share of materials in production of downstream products, 2020

Shares in percent

Downstream product	Material input	Share of value/cost	Share of quantity
410A	R-125	***	***
410A	Other inputs	***	***
410A	All material inputs	***	***
404A	R-125	***	***
404A	Other inputs	***	***
404A	All material inputs	***	***
407C	R-125	***	***
407C	Other inputs	***	***
407C	All material inputs	***	***
507A	R-125	***	***
507A	Other inputs	***	***
507A	All material inputs	***	***
Other downstream products	R-125	***	***
Other downstream products	Other inputs	***	***
Other downstream products	All material inputs	***	***
All downstream products	R-125	***	***
All downstream products	Other inputs	***	***
All downstream products	All material inputs	***	***

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

Note: All downstream products' total shares are derived using a weighted average from Honeywell's reported share of transfers to related firms for each downstream product (table III-9).

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

U.S. importers

The Commission issued importer questionnaires to 20 firms believed to be importers of subject R-125, as well as to all U.S. producers of R-125.[1] Usable questionnaire responses were received from 18 companies, representing at least 48.5 percent of U.S. imports of R-125 from China in 2020 under the primary statistical reporting number 2903.39.2035, a "basket"

[1] The Commission issued questionnaires to those firms identified in the petition, along with firms that, based on a review of data from third-party sources, may have accounted for more than one percent of total imports under HTSUS statistical reporting number 2903.39.2035 in 2020.

category.[2] Table IV-1 lists all responding U.S. importers of R-125 from China and other sources, their locations, and their shares of U.S. imports, in 2020.[3] [4] [5] [6] [7]

[2] Merchandise covered by these investigations were imported under HTSUS statistical reporting number 2903.39.2035 which included out-of-scope products, but effective July 1, 2021, it was replaced by statistical reporting number 2903.39.2038.

Based on official U.S. import statistics, the U.S. importers' questionnaire responses represent 48.5 percent of total U.S. imports from China in 2020 under HTS 2903.39.2035, by quantity. Since official U.S. import statistics under HTS 2903.39.2035 include out-of-scope products as well as R-125, staff believes that the coverage of U.S. imports of R-125 from China is higher, given that the Commission increased its response rate from the preliminary phase of these investigations, and responses include the majority of the known largest importers under that statistical reporting number.

In the final phase of these investigations, staff received U.S. importer questionnaire responses from four importers that did not participate in the preliminary phase: A-Gas Americas ("A-Gas"), Daikin America, Inc. ("Daikin"), Hudson Technologies Company ("Hudson"), and Weitron Inc. ("Weitron").

[3] ***. Email from ***, October 20, 2021, and Chinese respondents posthearing brief, pp. 64-65.

***. Email from ***, October 20, 2021.

[4] ***. Ibid.

[5] U.S. importers *** reported importing from India as the sole nonsubject source of R-125. *** stated that the firm did not import R-125 during the period for which the data was collected.

[6] Importers FluoroFusion and Kivlan and Co. reported that ***.

[7] ***. Emails from ***, January 13 and 20, 2022. Neither *** provided an importer questionnaire responses during these investigations. Therefore, this data is not included in the dataset.

Table IV-1
R-125: U.S. importers, their headquarters, and share of total imports within a given source by firm, 2020

Shares in percent

Firm	Headquarters	China	Nonsubject sources	All import sources
A-Gas	Bowling Green, OH	***	***	***
Arkema	King of Prussia, PA	***	***	***
BMP USA	Tampa, FL	***	***	***
Chemours	Wilmington, DE	***	***	***
Cool Master	Tampa, FL	***	***	***
Daikin	Orangeburg, NY	***	***	***
First Continental	Glen Rock, NJ	***	***	***
FluoroFusion	Clayton, NC	***	***	***
Golden G	Tampa, FL	***	***	***
Honeywell	Charlotte, NC	***	***	***
Hudson	Pearl River, NY	***	***	***
iGas	Tampa, FL	***	***	***
Kivlan	Clayton, NC	***	***	***
National	Philadelphia, PA	***	***	***
RAMJ	Tampa, FL	***	***	***
Scales N Stuff	Tampa, FL	***	***	***
Technical Chemical	Cleburne, TX	***	***	***
Weitron	Newark, DE	***	***	***
All firms	Various	***	***	***

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

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

U.S. imports

Table IV-2 presents data for U.S. imports of R-125 from China and all other sources.[8] [9] By quantity and value, U.S. imports of R-125 from China accounted for *** of all imports of R-125 in 2018 and 2020, and *** imports in 2019. During 2018-20, the quantity of U.S. imports from China decreased overall by 8.5 percent. While the quantity of U.S. imports of R-125 from China decreased by 29.9 percent between 2018 and 2019, it recovered between 2019 and 2020, increasing by 30.7 percent.[10] U.S. imports of R-125 from China were 4.8 percent higher in January-June 2021 than in January-June 2020. By quantity, U.S. imports of R-125 from nonsubject sources, which accounted for between *** percent and *** percent of the quantity of U.S. imports during 2018-20, increased by *** percent or by (***) short tons during 2018-20. The quantity of U.S. imports of R-125 from nonsubject sources were higher in January-June 2021 by (*** short tons) than in January-June 2020. [11]

The value of U.S. imports of R-125 from China decreased steadily during 2018-20 by 65.4 percent overall, then was higher by 82.2 percent in January-June 2021 compared to January-June 2020. The value of U.S. imports of R-125 from nonsubject sources increased between 2018 and 2020 by *** percent or by $***. The value of U.S. imports of R-125 from nonsubject sources was higher, by *** percent in January-June 2021 than in January-June 2020.

[8] *** reported importing in-scope R-125 in blends over the period for which data was collected.

[9] Only one importer *** reported using a foreign trade zone ("FTZ") and none reported using a bonded warehouse or temporary importation bond ("TIB"). *** reported that its first admission into an FTZ was August 21, 2021. Email from ***, December 20, 2021.

[10] ***. According to ***. Telephone interview with ***, November 19, 2021.

***. Telephone interview with ***, November 19, 2021.

[11] ***.

The unit value of U.S. imports of R-125 from China decreased during 2018-20 by 62.2 percent, though year-on-year it decreased most dramatically between 2018 and 2019, when the unit value dropped from $5,494 to $3,114 per short ton.[12] The unit value of U.S. imports of R-125 from China was 73.8 percent higher in January-June 2021 than in January-June 2020, with four firms reporting higher unit values in January-June 2021 compared to January-June 2020.[13] The unit value of U.S. imports of R-125 from nonsubject sources, decreased by *** percent during 2018-20, but was *** percent higher in January-June 2021 than in January-June 2020.

The ratio of subject import volume to U.S. production decreased between 2018 to 2019 from *** percent to *** percent, and then increased to *** percent in 2020. The ratio of subject import volume to U.S. production was lower in interim 2021 than in interim 2020 but remained above *** percent in both periods. The ratio of nonsubject import volume to U.S. production was comparatively smaller and ranged between *** percent in 2018 to *** percent in 2020 and was higher in interim 2021 than in interim 2020. The ratio of all import volume to U.S. production was *** percent in 2020.

[12] ***. ***, email from ***, January 10, 2022. ***. Telephone interview with ***, January 7, 2022.
[13] ***.

Table IV-2
R-125: U.S. imports by source and period

Quantity in short tons; value in 1,000 dollars; unit value in dollars per short tons

Source	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
China	Quantity	24,886	17,433	22,782	13,451	14,100
Nonsubject sources	Quantity	***	***	***	***	***
All import sources	Quantity	***	***	***	***	***
China	Value	136,728	54,293	47,253	27,338	49,810
Nonsubject sources	Value	***	***	***	***	***
All import sources	Value	***	***	***	***	***
China	Unit value	5,494	3,114	2,074	2,032	3,533
Nonsubject sources	Unit value	***	***	***	***	***
All import sources	Unit value	***	***	***	***	***

Table continued.

Table IV-2 Continued
R-125: U.S. imports by source and period

Shares and ratios in percent

Source	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
China	Share of quantity	***	***	***	***	***
Nonsubject sources	Share of quantity	***	***	***	***	***
All import sources	Share of quantity	***	***	***	***	***
China	Share of value	***	***	***	***	***
Nonsubject sources	Share of value	***	***	***	***	***
All import sources	Share of value	***	***	***	***	***
China	Ratio	***	***	***	***	***
Nonsubject sources	Ratio	***	***	***	***	***
All import sources	Ratio	***	***	***	***	***

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

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

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

Figure IV-1
R-125: U.S. imports quantity and average unit value, by source and period

* * * * * * *

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

Negligibility

The statute requires that an investigation be terminated without an injury determination if imports of the subject merchandise are found to be negligible.[14] 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.[15] Imports from China accounted for *** percent of total imports of R-125 by quantity during 2020.[16]

Table IV-3
R-125: U.S. imports in the twelve-month period preceding the filing of the petition, January 2020 through December 2020

Quantity in short tons; share of quantity is the share of total imports by quantity in percent

Source of imports	Quantity	Share of quantity
China	22,782	***
Nonsubject sources	***	***
All import sources	***	***

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

[14] 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)).

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

[16] Based on official U.S. import statistics (HTS 2903.39.2035), the share of quantity for China in 2020 is 88.5 percent, and nonsubject sources 11.5 percent.

Critical circumstances

On December 30, 2021, Commerce issued its final affirmative determination that "critical circumstances" exist with regard to subsidized imports of R-125 from China with respect to Arkema Daikin Advanced Fluorochemicals (Changsu) Co., Ltd. ("Arkema"), Daikin Fluorochemicals (China) Co., Ltd. ("Daikin"), Hongkong Richmax Ltd. ("Hongkong"), Zhejiang Quzhou Juxin Fluorine Chemical Co., Ltd. ("Juxin"), Weitron International Refrigeration Equipment (Kunshan) Co., Ltd. ("Weitron"), and all other exporters and producers not individually examined in the countervailing duty investigation, but do not exist for Zhejiang Sanmei Chemical Ind. Co., Ltd. ("Sanmei").[17] In this investigation, if both Commerce and the Commission make affirmative final critical circumstances determinations, certain subject imports may be subject to countervailing duties retroactive by 90 days from June 25, 2021, the effective date of Commerce's preliminary affirmative countervailing duty determination.[18]

On January 10, 2022, Commerce issued its final affirmative determination that "critical circumstances" exist with regard to imports of R-125 from China with respect to non-selected companies receiving a separate rate and the China-wide entity, including Juxin, but do not exist for Sanmei in the LTFV investigation.[19] In this investigation, if both Commerce and the Commission make affirmative final critical circumstances determinations, certain subject imports may be subject to antidumping duties retroactive by 90 days from August 17, 2021, the effective date of Commerce's preliminary affirmative LTFV determination.

Tables IV-4 and IV-5, and figure IV-2 present data on U.S. imports of R-125 subject to Commerce's final affirmative critical circumstances determinations.

[17] Commerce's Issues and Decisions Memorandum for the Final Determination in the Countervailing Duty Investigation of Pentafluoroethane (R-125) from the People's Republic of China, C-570-138, December 30, 2021.

[18] 86 FR 33648, June 25, 2021.

[19] 87 FR 1117, January 10, 2022. Referenced in app. A. For a full description of the methodology and results of Commerce's critical circumstances analysis, see Preliminary Decision Memorandum A-570-137, August 10, 2021, and Final Decision Memorandum A-570-137, December 30, 2021.

When petitioners file timely allegations of critical circumstances, Commerce examines whether there is a reasonable basis to believe or suspect that (1) either there is a history of dumping and material injury by reason of dumped imports in the United States or elsewhere of the subject merchandise, or the person by whom, or for whose account, the merchandise was imported knew or should have known that the exporter was selling the subject merchandise at LTFV and that there was likely to be material injury by reason of such sales; and (2) there have been massive imports of the subject merchandise over a relatively short period.

Table IV-4
R-125: U.S. imports from China subject to Commerce's affirmative final critical circumstances AD and CVD determinations, by period

Quantity in short tons

Month	Relation to petition	Quantity
July 2020	Before	***
August 2020	Before	***
September 2020	Before	***
October 2020	Before	***
November 2020	Before	***
December 2020	Before	***
January 2021	After	***
February 2021	After	***
March 2021	After	***
April 2021	After	***
May 2021	After	***
June 2021	After	***

Table continued.

Table IV-4 Continued
R-125: U.S. imports subject to Commerce's affirmative final critical circumstances AD and CVD determinations

Quantity in short tons

Comparison pre-post petition period	Cumulative before period	Cumulative after period	Difference in percent
1 month	***	***	***
2 months	***	***	***
3 months	***	***	***
4 months	***	***	***
5 months	***	***	***
6 months	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires, which excludes monthly imports from Sanmei.

Figure IV-2
R-125: U.S. imports from China subject to Commerce's affirmative final critical circumstances AD and CVD determinations, month and year

* * * * * * *

Source: Compiled from data submitted in response to Commission questionnaires, which excludes monthly imports from Sanmei.

Table IV-5
R-125: U.S. importers' U.S. inventories of imports from China subject to Commerce's final affirmative critical circumstances AD and CVD determinations, by date

Quantity in short tons, index in percent

Date	Quantity	Index
December 31, 2020	***	***
January 31, 2021	***	***
February 28, 2021	***	***
March 31, 2021	***	***
April 30, 2021	***	***
May 31, 2021	***	***
June 30, 2021	***	***

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

Note: Compiled using U.S. importers' reported end of period inventory for full year 2020 (adjusted to exclude the proportion of monthly imports from Sanmei during January 2018-December 2020) and reported monthly U.S. imports and U.S. shipments data (adjusted to exclude the proportion from Sanmei, based on the monthly U.S. imports from China from suppliers other than Sanmei). Index based on end of period inventories on December 31, 2020, equal to 100.0 percent.

Apparent U.S. consumption for the total market

Table IV-6 and figure IV-3 present data on apparent U.S. consumption for R-125 in the total market.[20] The quantity of total market apparent U.S. consumption increased irregularly by *** percent during 2018-20, though it decreased by *** percent between 2019 and 2020, it was lower in January-June 2021 than in January-June 2020 by *** percent. In contrast, the value of apparent U.S. consumption in the total market decreased overall during 2018-20 by *** percent, but was *** percent higher in January-June 2021 than in January-June 2020.

Table IV-6
R-125: Apparent U.S. consumption for the total market, by source and period

Quantity in short tons; value in 1,000 dollars

Source	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
U.S. producers	Quantity	***	***	***	***	***
China	Quantity	18,008	25,411	20,099	13,427	11,141
Nonsubject sources	Quantity	***	***	***	***	***
All import sources	Quantity	***	***	***	***	***
All sources	Quantity	***	***	***	***	***
U.S. producers	Value	***	***	***	***	***
China	Value	111,151	86,917	42,439	27,644	33,180
Nonsubject sources	Value	***	***	***	***	***
All import sources	Value	***	***	***	***	***
All sources	Value	***	***	***	***	***

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

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

[20] Information on apparent U.S. consumption for the total market is also available in Appendix C.

Figure IV-3
R-125: Apparent U.S. consumption for the total market, by source and period

* * * * * * *

Source: Compiled from data submitted in response to Commission questionnaires

U.S. market shares for the total market

U.S. market share data are presented in table IV-7. Honeywell's share in the total market decreased overall during 2018-20 by *** percentage points by quantity, and while it decreased by *** percentage points from 2018 to 2019, it increased by *** percentage points in 2020. Honeywell's share of the total U.S. market by quantity was higher in January-June 2021 than in January-June 2020 by *** percentage points. Market share held by U.S. shipments of subject imports increased overall by *** percentage points during 2018-20 by quantity, and contrary to Honeywell, it increased by *** percentage points in 2019, before decreasing by *** percentage points in 2020. The total market share of U.S. shipments of subject imports was lower by *** percentage points in January-June 2021 than in January-June 2020. Market share held by U.S. shipments of nonsubject imports increased overall by *** percentage points during 2018-20 by quantity, decreasing minimally during 2018-19, before increasing slightly in 2020. The nonsubject total market share was higher by *** percentage points in January-June 2021 than in January-June 2020.

By value, Honeywell's share of the total U.S. market increased overall by *** percentage points during 2018-20, but was lower in interim 2021 than in interim 2020 by *** percentage points. In contrast, the value of the total market share of U.S. shipments of subject imports decreased by *** percentage points during 2018-20, and was *** percentage points higher in interim 2021 than interim 2020. During 2018-20, the market share held by U.S. shipments of nonsubject sources increased by *** percentage points by value and was higher by *** percentage points in interim 2021 than in 2020.

Table IV-7
R-125: Market shares for the total market, by source and period

Share of quantity is the share of apparent U.S. consumption by quantity in percent

Source	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
U.S. producers	Share of quantity	***	***	***	***	***
China	Share of quantity	***	***	***	***	***
Nonsubject sources	Share of quantity	***	***	***	***	***
All import sources	Share of quantity	***	***	***	***	***
All sources	Share of quantity	***	***	***	***	***
U.S. producers	Share of value	***	***	***	***	***
China	Share of value	***	***	***	***	***
Nonsubject sources	Share of value	***	***	***	***	***
All import sources	Share of value	***	***	***	***	***
All sources	Share of value	***	***	***	***	***

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

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

Apparent U.S. consumption for the merchant market (commercial and swap sales)

Table IV-8 and figure IV-4 present data on apparent U.S. consumption for R-125 in the merchant market, inclusive of U.S. producer's commercial U.S. shipments and swaps, but exclusive of transfers to related firms and internal consumption. Apparent consumption for the merchant market followed similar trends as in the total market by quantity, and increased *** percent by quantity during 2018-20, and was *** percent lower in January-June 2021 than in January-June 2020. The value of merchant market apparent U.S. consumption decreased during 2018-20 by *** percent, with the highest decrease year to year between 2019 to 2020, but was *** percent higher in January-June 2021 than in January-June 2020.

Table IV-8
R-125: Apparent U.S. consumption for the merchant market (commercial and swap sales), by source and period

Quantity in short tons; value in 1,000 dollars

Source	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
U.S. producers	Quantity	***	***	***	***	***
China	Quantity	18,008	25,411	20,099	13,427	11,141
Nonsubject sources	Quantity	***	***	***	***	***
All import sources	Quantity	***	***	***	***	***
All sources	Quantity	***	***	***	***	***
U.S. producers	Value	***	***	***	***	***
China	Value	111,151	86,917	42,439	27,644	33,180
Nonsubject sources	Value	***	***	***	***	***
All import sources	Value	***	***	***	***	***
All sources	Value	***	***	***	***	***

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

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Merchant market includes commercial U.S. shipments and swaps but do not include transfers to related firms and internal consumption.

Figure IV-4
R-125: Apparent U.S. consumption for the merchant market (commercial and swap sales), by source and period

* * * * * * *

Source: Compiled from data submitted in response to Commission questionnaires

U.S. market shares for the merchant market (commercial and swap sales)

U.S. market share data for the merchant market are presented in table IV-9, inclusive of U.S. producer's commercial U.S. shipments and swaps. Honeywell's market share decreased during 2018-20 by *** percentage points by quantity, and it was lower by *** percentage points in interim 2021 than in interim 2020. The quantity of market share held by U.S. shipments of subject imports in the merchant market decreased during 2018-20 by *** percentage points and was lower by *** percentage points in interim 2021 than in interim 2020. Unlike the trends for U.S. shipments from Honeywell and subject imports, the market share held by U.S. shipments of nonsubject sources increased during 2018-20 by *** percentage points by quantity and was higher by *** percentage points in interim 2021 than in 2020.

Honeywell's market share for the merchant market by value increased overall during 2018-20 by *** percentage points but was lower by *** percentage points in interim 2021 than in interim 2020. The value of market share held by U.S. shipments of subject imports in the merchant market decreased during 2018-20 by *** percentage points but was higher by *** percentage points in interim 2021 than in interim 2020. The market share held by U.S. shipments of nonsubject sources increased during 2018-20 by *** percentage points by value and was higher by *** percentage points in interim 2021 than in 2020.

Table IV-9
R-125: Market shares for the merchant market (commercial and swap sales), by source and period

Share of quantity is the share of apparent U.S. consumption by quantity in percent

Source	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
U.S. producers	Share of quantity	***	***	***	***	***
China	Share of quantity	***	***	***	***	***
Nonsubject sources	Share of quantity	***	***	***	***	***
All import sources	Share of quantity	***	***	***	***	***
All sources	Share of quantity	***	***	***	***	***
U.S. producers	Share of value	***	***	***	***	***
China	Share of value	***	***	***	***	***
Nonsubject sources	Share of value	***	***	***	***	***
All import sources	Share of value	***	***	***	***	***
All sources	Share of value	***	***	***	***	***

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

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

Monthly U.S. shipments for the total market

Table IV-10 and figure IV-5 present the U.S. producer's and U.S. importers' U.S. shipments of R-125 by month. U.S. producer's U.S. shipments are inclusive of commercial U.S. shipments, swaps, internal consumption, and internal transfers. During the period of data collection, the U.S. producer's U.S. shipments were highest in May of 2019. U.S. importers' U.S. shipments from China also reached its highest levels in May of 2019, followed closely by July of the same year. U.S. importers' U.S. shipments from nonsubject sources occurred during July through September in 2018, with no shipments in 2019 and January 2020, restarting in February 2020 through June 2021.

Table IV-10
R-125: U.S. producer's and U.S. importers' U.S. shipments, by month and source

Quantity in short tons

Year	Month	U.S. producer	China	Nonsubject sources	All import sources	All sources
2018	January	***	***	***	***	***
2018	February	***	***	***	***	***
2018	March	***	***	***	***	***
2018	April	***	***	***	***	***
2018	May	***	***	***	***	***
2018	June	***	***	***	***	***
2018	July	***	***	***	***	***
2018	August	***	***	***	***	***
2018	September	***	***	***	***	***
2018	October	***	***	***	***	***
2018	November	***	***	***	***	***
2018	December	***	***	***	***	***
2019	January	***	***	***	***	***
2019	February	***	***	***	***	***
2019	March	***	***	***	***	***
2019	April	***	***	***	***	***
2019	May	***	***	***	***	***
2019	June	***	***	***	***	***
2019	July	***	***	***	***	***
2019	August	***	***	***	***	***
2019	September	***	***	***	***	***
2019	October	***	***	***	***	***
2019	November	***	***	***	***	***
2019	December	***	***	***	***	***

Table continued.

Table IV-10 Continued
R-125: U.S. producer's and U.S. importers' U.S. shipments, by month and source

Quantity in short tons

Year	Month	U.S. producer	China	Nonsubject sources	All import sources	All sources
2020	January	***	***	***	***	***
2020	February	***	***	***	***	***
2020	March	***	***	***	***	***
2020	April	***	***	***	***	***
2020	May	***	***	***	***	***
2020	June	***	***	***	***	***
2020	July	***	***	***	***	***
2020	August	***	***	***	***	***
2020	September	***	***	***	***	***
2020	October	***	***	***	***	***
2020	November	***	***	***	***	***
2020	December	***	***	***	***	***
2021	January	***	***	***	***	***
2021	February	***	***	***	***	***
2021	March	***	***	***	***	***
2021	April	***	***	***	***	***
2021	May	***	***	***	***	***
2021	June	***	***	***	***	***

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

Figure IV-5
R-125: U.S. producer's and U.S. importers' U.S. shipments, by month and source

* * * * * * *

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

Note: "AC" stands for anti-circumvention.

Monthly U.S. shipments for the merchant market

Table IV-11 and figure IV-6 present the U.S. producer's commercial U.S. shipments and swaps and U.S. importers' U.S. shipments of R-125 by month. U.S. producer's U.S. shipments exclude internal consumption and internal transfers. During the period of data collection, the U.S. producer's commercial U.S. shipments were highest in December 2020 and swaps in February of 2020. As noted above, U.S. importers' U.S. shipments from China were highest in May of 2019, followed by July of the same year.

Table IV-11
R-125: U.S. producer's commercial and swap U.S. shipments and U.S. importers' U.S. shipments, by month

Quantity in short tons

Year	Month	Commercial U.S. shipments	Swaps	Merchant market total	China	Non-subject sources	All import sources	All sources
2018	January	***	***	***	***	***	***	***
2018	February	***	***	***	***	***	***	***
2018	March	***	***	***	***	***	***	***
2018	April	***	***	***	***	***	***	***
2018	May	***	***	***	***	***	***	***
2018	June	***	***	***	***	***	***	***
2018	July	***	***	***	***	***	***	***
2018	August	***	***	***	***	***	***	***
2018	September	***	***	***	***	***	***	***
2018	October	***	***	***	***	***	***	***
2018	November	***	***	***	***	***	***	***
2018	December	***	***	***	***	***	***	***
2019	January	***	***	***	***	***	***	***
2019	February	***	***	***	***	***	***	***
2019	March	***	***	***	***	***	***	***
2019	April	***	***	***	***	***	***	***
2019	May	***	***	***	***	***	***	***
2019	June	***	***	***	***	***	***	***
2019	July	***	***	***	***	***	***	***
2019	August	***	***	***	***	***	***	***
2019	September	***	***	***	***	***	***	***
2019	October	***	***	***	***	***	***	***
2019	November	***	***	***	***	***	***	***
2019	December	***	***	***	***	***	***	***

Table continued.

Table IV-11 Continued
R-125: U.S. producer's commercial and swap U.S. shipments and U.S. importers' U.S. shipments, by month

Quantity in short tons

Year	Month	Commercial U.S. shipments	Swaps	Merchant market total	China	Non-subject sources	All import sources	All sources
2020	January	***	***	***	***	***	***	***
2020	February	***	***	***	***	***	***	***
2020	March	***	***	***	***	***	***	***
2020	April	***	***	***	***	***	***	***
2020	May	***	***	***	***	***	***	***
2020	June	***	***	***	***	***	***	***
2020	July	***	***	***	***	***	***	***
2020	August	***	***	***	***	***	***	***
2020	September	***	***	***	***	***	***	***
2020	October	***	***	***	***	***	***	***
2020	November	***	***	***	***	***	***	***
2020	December	***	***	***	***	***	***	***
2021	January	***	***	***	***	***	***	***
2021	February	***	***	***	***	***	***	***
2021	March	***	***	***	***	***	***	***
2021	April	***	***	***	***	***	***	***
2021	May	***	***	***	***	***	***	***
2021	June	***	***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires and U.S. producer Honeywell's supplemental shipment data by channel breakout.

Note: Negative values (accounting for less than *** percent of merchant market shipments in the relevant period) that were reported in April, October, and November of 2020 were removed as they represent shipment returns in the relevant month. Email from ***, January 20, 2022.

Figure IV-6
R-125: U.S. producer's commercial U.S. shipments and swaps and U.S. importers' U.S. shipments, by month and source

* * * * * * *

Source: Compiled from data submitted in response to Commission questionnaires and U.S. producer Honeywell's supplemental shipment data by channel breakout.

Note: "AC" stands for anti-circumvention.

Part V: Pricing data

Factors affecting prices

Raw material costs

R-125 is produced through a reaction of perchloroethylene ("PCE") and hydrofluoric acid ("HF").[1] Between 2018 and 2020, Honeywell's[2] raw materials' share of the cost of goods sold ***, from *** percent in 2018 to *** percent in 2020. Honeywell reported ***.[3] ***.[4] According to Westlake, one of the primary global manufacturers of PCE, the price of PCE increased as of August 31, 2021 by $0.10 per pound due to a tightening supply and demand balance. This followed a price increase of $.035 per pound announced in November 2020 also attributed to a tightening supply and demand balance.[5] Prices for HF are also expected to increase as a result of the Infrastructure Investment and Jobs Act, which extends and modifies certain excise taxes that fund the Hazardous Substance Superfund.[6] By one estimate, HF prices would increase from $4.23 to $8.46 per ton when the taxes go into effect on July 1, 2022.[7]

[1] Petition, p. 7.

[2] ***.

[3] Conference transcript, p. 64 (Wood).

[4] Hearing transcript, p. 191 (Dougan) and Respondent National posthearing brief, p. 24.

[5] Kokowsky, David. Westlake Chemical. "RE: Perchloroethylene Price Increase Announcement", August 31, 2021, https://greenchemindustries.com/westlake-perchloroethylene-price-increase/ and Kokowsky, David. Westlake Chemical. "RE: Perchloroethylene and Trichloroethylene Price Increase Announcement". November 20, 2020. https://greenchemindustries.com/wp-content/uploads/2020/12/Perchloroethylene-and-Trichloroethylene-Price-Announcement-11.20.20.pdf. Fact.MR. "Perchloroethylene Market: Manufacturers". https://www.factmr.com/report/5102/perchloroethylene-market.

[6] Infrastructure Investment and Jobs Act, H.R. 3684, Sec. 80201, 117th Congress (2021). This was signed into law on November 15, 2021.

[7] Miranda, Janet. "Insight: Superfund tax revival to impact key 'building block' to chems, boost toxic site cleanup". November 9, 2021. https://www.icis.com/explore/resources/news/2021/11/09/10703543/insight-superfund-tax-revival-to-impact-key-building-block-chems-boost-toxic-site-cleanup.

Transportation costs to the U.S. market

Transportation costs for R-125 shipped from China to the United States averaged 10.6 percent during 2020. These estimates were derived from official import data and represent the transportation and other charges on imports.[8]

U.S. inland transportation costs

*** responding importers reported that they typically arrange transportation to their customers. *** reported that its U.S. inland transportation cost was 10 percent, while importers reported costs of 2 percent ***, 3 percent ***, 5 percent ***, and 8 percent ***.

Pricing practices

Pricing methods

***, while most U.S. importers reported setting prices transaction-by-transaction (table V-1).[9]

Table V-1
R-125: U.S. producers' and importers' reported price setting methods, by number of responding firms

Method	U.S. producers	U.S. importers
Transaction-by-transaction	***	***
Contract	***	***
Set price list	***	***
Other	***	***
Responding firms	1	8

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

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

***, while U.S. importers reported selling the vast majority of their R-125 in the spot market (table V-2).

[8] The estimated transportation costs were obtained by subtracting the customs value from the c.i.f. value of the imports for 2020 and then dividing by the customs value based on the HTS statistical reporting numbers 2903.39.2035 and 2903.39.2038.

[9] The one importer, ***, that reported "other" price setting methods reported that ***.

Table V-2
R-125: U.S. producers' and importers' shares of U.S. commercial shipments by type of sale, 2020

Shares in percent

Item	U.S. producers	Subject U.S. importers
Long-term contracts	***	***
Annual contract	***	***
Short-term contracts	***	***
Spot sales	***	***
Total	100.0	100.0

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

Note: Because of rounding, figures may not add to the totals shown.

Note: ***.

Honeywell stated that long-term contracts result in a different pricing structure than spot sales; spot sales are more volatile. Honeywell stated that OEMs tend to use long-term contracts, while aftermarket customers purchase on a spot basis.[10] Honeywell stated that it will renegotiate contract prices to keep customers.[11] Honeywell stated that its long-term contracts typically last between two and three years,[12] and ***. Honeywell reported *** indexed to raw material costs.[13]

***. Almost all importers *** reported that they did not fix to price or quantity, index to raw materials, or renegotiate price.

Five purchasers reported that they purchase product monthly, four purchase weekly, one purchased annually, and three reported "other"; ***. Eight of 12 responding purchasers reported that their purchasing frequency had not changed since 2018. Half (6 of 12) responding purchasers contact 1 to 3 suppliers before making a purchase.

[10] Conference transcript, p. 65 (LaPietra).
[11] Conference transcript, p. 91 (LaPietra).
[12] Conference transcript, p. 91 (Wood).
[13] Honeywell ***. For more information, see the section titled Net Sales in part VI.

Sales terms and discounts

***, and U.S. importers typically quote prices on a delivered basis. ***. No importers reported a discount policy.

Price leadership

Five purchasers reported that Honeywell was a price leader in the R-125 market, one purchaser *** reported that Juhua (China) was a price leader, and two purchasers (***) reported that "Chinese firms" were price leaders. Purchasers reported that price leaders led by initiating price adjustments which were followed by other firms and making regular price adjustments based on market conditions. Four purchasers did not report a price leader.

Price and purchase cost data

The Commission requested U.S. producers and importers to provide quarterly data for the total quantity and f.o.b. value of the following R-125 product shipped to unrelated U.S. customers during January 2018–June 2021. Firms that imported this product from China for internal consumption or transfers to related firms were requested to provide import purchase cost data.

> **Product 1.**-- Pentafluoroethane, more commonly referred to as R-125, with a chemical composition of CF3CHF2, sold in bulk.

Price data

*** and seven importers provided usable pricing data for sales of the requested product, although not all firms reported pricing for all quarters.[14] [15] Pricing data reported by these firms accounted for *** of the U.S. producer's commercial U.S. shipments of R-

[14] 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.

[15] ***.

125[16] and *** percent of reported U.S. commercial shipments of imports from China in 2020.[17] Price data for product 1 are presented in table V-3 and figure V-1.

Twelve importers reported useable import purchase cost data for product 1. Purchase cost data reported by these firms accounted for *** percent of imports from China in 2020. *** were the largest firms reporting purchase cost data in 2020. Landed duty paid purchase cost data for imports from China are presented in table V-3, along with importer and Honeywell's sales prices.[18]

[16] Staff did not incorporate price data for *** in table V-3 and figure V-1. See Part VI for information on how ***.

[17] Chinese price data was *** percent of all imports of r-125 from China in 2020.

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

Table V-3
R-125: Weighted-average f.o.b. prices, unit LDP values, and quantities of domestic and imported product 1, and margins of underselling/(overselling) and price-cost differentials, by quarter

Price in dollars per short ton, quantity in short tons, margin in percent.

Period	US price	US quantity	China price	China price quantity	China margin	China cost	China cost quantity	China price-cost differential
2018 Q1	***	***	***	***	***	***	***	***
2018 Q2	***	***	***	***	***	***	***	***
2018 Q3	***	***	***	***	***	***	***	***
2018 Q4	***	***	***	***	***	***	***	***
2019 Q1	***	***	***	***	***	***	***	***
2019 Q2	***	***	***	***	***	***	***	***
2019 Q3	***	***	***	***	***	***	***	***
2019 Q4	***	***	***	***	***	***	***	***
2020 Q1	***	***	***	***	***	***	***	***
2020 Q2	***	***	***	***	***	***	***	***
2020 Q3	***	***	***	***	***	***	***	***
2020 Q4	***	***	***	***	***	***	***	***
2021 Q1	***	***	***	***	***	***	***	***
2021 Q2	***	***	***	***	***	***	***	***

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

Note: Product 1: Pentafluoroethane, more commonly referred to as R-125, with a chemical composition of CF3CHF2, sold in bulk.

Note: Pricing product data for R-125 imported from China in the second quarter of 2018 ***.

Figure V-1
R-125: U.S. producer prices and import purchase costs, and quantities, of product 1, by quarter

* * * * * * *

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

Note: Product 1: Pentafluoroethane, more commonly referred to as R-125, with a chemical composition of CF3CHF2, sold in bulk.

Import purchase cost data

Twelve importers reported useable import purchase cost data for product 1. Purchase cost data reported by these firms accounted for *** percent of reported imports from China in 2020. *** were the largest firms reporting purchase cost data in 2020. Landed duty paid purchase cost data for imports from China are presented in table V-3, along with importer and Honeywell's sales prices.[19]

Importers reporting import purchase cost data were asked to provide additional information regarding the costs and benefits of directly importing R-125.

Seven of 14 responding importers reported that they incurred additional costs beyond landed duty-paid costs by importing R-125 directly rather than purchasing from a U.S. producer or U.S. importer. All of these seven importers estimated the total additional cost incurred; estimates ranged from 2.0 to 10.0 percent of the landed-duty paid value. Firms were also asked to identify specific additional costs they incurred as a result of importing R-125. Reported costs include chassis rental, drayage (transportation to and from port of unlading), inland freight, and terminal transloading.[20]

Firms were also asked to describe how these additional costs incurred by importing R-125 directly compare with additional costs incurred when purchasing from a U.S. producer or U.S. importer. Importers/purchasers *** reported that importing R-125 results in additional transloading costs/inland freight from ISO containers to railcar transportation. *** also added that ***, when imported, railcar freight is higher during inland transportation. Similarly, importer *** reported that when they purchase domestically produced R-125, it does not have to pay for ISO container, chassis rental, or freight, and that the U.S. manufacturer offers a "live offload." Importer/purchaser *** reported that domestically produced R-125 has lower logistics costs due to materials being delivered via rail. Importer/purchaser *** reported that domestic suppliers do not require drayage or chassis rental, and that freight is included in the final negotiated price. Importer/purchaser *** reported that there are no additional

[19] LDP import value does not include any potential additional costs that a purchaser may incur by importing rather than purchasing from another importer or U.S. producer. Price-cost differences are based on LDP import values whereas margins of underselling/overselling are based on importer sales prices. Since prices are reported on an f.o.b. basis rather than a delivered basis, these costs are not included in the f.o.b. prices reported.

[20] ***.

domestic costs from importing directly, but that the cost of R-125 produced domestically is historically higher than R-125 sourced from China.

Seven of 18 responding importers reported that they compare costs of importing to the cost of purchasing from a U.S. producer in determining whether to import R-125, five importers compare costs to purchasing from a U.S. importer, and six importers do not compare costs of purchasing from either U.S. producers or importers.

Nine importers identified benefits from importing R-125 directly instead of purchasing from U.S. producers or importers, including lower delivered cost/pricing, product availability, and reliability of supply.

Firms were also asked whether the import cost (both excluding and including additional costs) of R-125 they imported are lower than the price of purchasing R-125 from a U.S. producer or importer. Three importers reported that the import cost of importing R-125 were lower than the purchase price when excluding additional costs, and four reported that the import cost was lower when including additional costs. *** reported that it saved *** percent excluding additional costs, *** reported that it saved *** percent excluding additional costs and *** percent including additional costs, and *** estimated that it saved *** percent including additional costs of the purchase price by importing R-125 itself rather than purchasing from a U.S. importer.[21]

Price and purchase cost trends

In general, domestic prices decreased overall, and import prices and landed duty-paid costs decreased during January 2018–June 2021. Table V-4 summarizes the price trends by country. As shown in the table, domestic prices decreased by *** percent during January 2018–June 2021. Import prices were not available for the entire period but decreased by *** percent between the fourth quarter of 2018 and the third quarter of 2020. They then increased by *** percent between the first and second quarter of 2021. Import purchase costs varied much more than U.S. prices during January 2018-June 2021. Import purchase costs generally decreased from the first quarter of 2018 until they reached their lowest level in the first quarter of 2020; overall import purchase costs declined *** percent during January 2018-June 2021. Several importers reported that threats of section 301 tariffs caused R-125 prices from Chinese manufacturers to decrease.

[21] *** reported that it based its estimates on previous company transactions.

Table V-4
R-125: Summary of price and cost data, by source

Volume in short tons, price and cost in dollars per short ton

Source	Number of quarters	Quantity	Low price/cost	High price/cost	First quarter price	Last quarter price	Change over period
United States	***	***	***	***	***	***	***
China price	***	***	***	***	***	***	***
China cost	***	***	***	***	***	***	***

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

Note: U.S. pricing data and purchase cost data percentage change from the first quarter in which data were available in 2018 to the last quarter in which data were available in 2021.

Price and purchase cost comparisons

Price comparisons

As shown in table V-5, prices for product imported from China were below those for U.S.-produced product in 9 of 11 instances (*** short tons); margins of underselling ranged from *** percent. In the remaining 2 instances (*** short tons), prices for product from China were between *** percent above prices for the domestic product.

Table V-5
R-125: Instances of underselling and overselling and the range and average of margins, by product

Quantity in short tons; margin in percent

Type	Number of quarters	Quantity	Average margin	Minimum margin	Maximum margin
Underselling	9	***	***	5.1	62.4
Overselling	2	***	***	(12.1)	(35.2)

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

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

Price-cost comparisons

As shown in table V-6, landed duty-paid costs for R-125 imported from China were below the sales price for U.S.-produced product in 12 of 14 instances (*** short tons); price-cost differentials ranged from *** percent. In the remaining 2 instances (*** short tons), landed duty-paid costs for R-125 from China were between *** percent above sales prices for the domestic product.

Table V-6
R-125: Instances of lower and higher import purchase costs and the range and average of price-cost differentials, by product

Quantity in short tons; price-cost differential in percent

Type	Number of quarters	Quantity	Average differential	Minimum differential	Maximum differential
Lower	12	***	***	14.5	51.7
Higher	2	***	***	(28.1)	(34.6)

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

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

Lost sales and lost revenue

In the preliminary phase of these investigations, the Commission requested that U.S. producers of R-125 report purchasers with which they experienced instances of lost sales or revenue due to competition from imports of R-125 from China during January 2017–September 2020. Honeywell identified *** firms with which it lost sales or revenue (*** consisting of lost sales allegations, *** consisting of lost revenue allegations, and *** consisting of both types of allegations). Honeywell reported that it had lost sales of R-125 to *** in 2020 due to Chinese imports. Honeywell reported that ***. Honeywell reported ***. Honeywell also reported ***.[22]

In the final phase of these investigations, Honeywell reported that it ***.

Staff contacted 22 purchasers and received responses from 12 purchasers.[23] Responding purchasers reported purchasing or importing *** short tons of R-125 during January 2018–June 2021 (table V-7).

Of the 12 responding purchasers, 9 reported that, since 2018, they had purchased imported R-125 from China instead of U.S.-produced product. Three of these purchasers

[22] In the preliminary phase of these investigations, lost sales and lost revenue information was collected from both purchasers and importers, eight firms provided lost sales and lost revenue information.

[23] All purchasers that submitted lost sales lost revenue survey responses in the preliminary phase, also submitted purchaser questionnaire responses in the final phase. In addition, the Commission received purchaser questionnaire responses in the final phase from the following purchasers who did not respond to the Commission's lost sales lost revenue survey in the preliminary phase: ***.

reported that subject import prices were lower than U.S.-produced product, and these three purchasers reported that price was a primary reason for the decision to purchase imported product rather than U.S.-produced product. Three purchasers estimated the quantity of R-125 from China purchased instead of domestic product; reported quantities were *** short tons (table V-8). Purchasers identified ***, needing to maintain multiple sources (***), inability to receive quotes from domestic sources (***), and already having an existing supplier and availability/delivery (***), as non-price reasons for purchasing imported rather than U.S.-produced product.

Of the 12 responding purchasers, eight reported that Honeywell had not reduced prices in order to compete with lower-priced imports from China, one (***) reported that Honeywell had reduced prices, and three reported that they did not know. *** estimated that Honeywell reduced prices by *** percent.

Table V-7
R-125: Purchasers' reported purchases

Quantity in short tons, share in percent

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

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

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

Table V-8
R-125: Purchasers' responses to purchasing subject imports instead of domestic product

Quantity in short tons

Firm	Purchased subject imports instead of domestic	Imports priced lower	Choice based on price	Quantity	Explanation
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
All firms	Yes--9; No--3	Yes--3; No--6	Yes--3; No--4	***	

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

In responding to the lost sales lost revenue survey during the preliminary phase of these investigations, some purchasers provided additional information on purchases and market dynamics. *** reported that ***. *** reported that ***. *** reported that ***, while *** reported that ***. *** reported that ***.

*** reported that ***.

Honeywell stated that ***.[24] [25] Honeywell reported ***.[26] [27] Honeywell also reported ***.[28] [29] Respondent National argued that ***.[30] [31]

[24] Petition, p. 19.

[25] Honeywell also reported that ***. For example, Honeywell reported ***. Honeywell ***. Petition, pp, 19-20 and exhibit I-10

[26] Petition, p. 19.

[27] ***.

202https://aeenewengland.org/images/downloads/Past_Meeting_Presentations/ron_burke___steam_metering_basics.pdf. Petitioner did not define the ordinal name when using "Mlbs." See petition, pp. 19-20. See also petitioner's postconference brief, pp. 25-26.

[28] Petitioner's postconference brief, p. 26. However, *** reported ***. *** reported ***.

[29] In the final phase investigations, a response was received from ***.

[30] Respondent National's postconference brief, p. 6.

[31] Respondent National reported ***. National reported ***. National's postconference brief, p. 19.

Part VI: Financial experience of U.S. producers

Background[1]

The petitioner, Honeywell, is the sole U.S. producer of R-125 and reported its financial results on R-125 operations on a calendar year basis and on the basis of GAAP.[2] [3] Merchant market sales (commercial sales inclusive of swaps) accounted for the majority of Honeywell's revenue, while transfers to related firms accounted for *** to *** percent of revenue from January 2018 to June 2021 ("POI").[4]

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

[2] Honeywell's R-125 operations are part of Honeywell International, Inc.'s Performance Materials and Technologies operating segment. In 2020, net sales of R-125 accounted for *** percent of Performance Materials and Technologies segment's net sales of $9.4 billion and *** percent of Honeywell International, Inc.'s 2019 total net sales of $32.6 billion. Staff notes, EDIS Doc. 757520 (November 30, 2021) and Honeywell's 2020 Form 10-K, pp. 16 and 20 (as filed).

[3] R-125 is produced at one facility (referred to as the Geismar plant), located in Carville, Louisiana. Net sales of R-125 accounted for *** percent of total sales at Geismar in 2020. Honeywell's U.S. producer questionnaire, III-5a.

***. Staff notes, EDIS Doc. 757520 (November 30, 2021).

[4] Commission staff conducted a verification of Honeywell's U.S. producer questionnaire response. ***.

The value of internal consumption and transfers were ***.

Costs were ***.

Pricing data were ***. Data changes as a result of verification are reflected in this report. Staff verification report, Honeywell, January 7, 2022.

Operations on R-125

Table VI-1 presents overall R-125 financial results, while table VI-2 presents corresponding changes in AUVs from 2018 to 2020, January to June 2020 ("interim 2020"), and January to June 2021 ("interim 2021"). Tables VI-3 and VI-4 present financial results specific to merchant market operations (commercial sales to "non-swap entities" and swaps) and corresponding changes in AUVs, respectively.[5]

[5] Honeywell reported ***. Honeywell's U.S. producer questionnaire, III-18 and IV-14a.

Table VI-1
R-125: Results of total market operations of U.S. producer Honeywell, by item and period

Quantity in short tons; value in 1,000 dollars

Item	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Commercial sales to non-swap entities	Quantity	***	***	***	***	***
Swap sales	Quantity	***	***	***	***	***
All commercial sales	Quantity	***	***	***	***	***
Internal consumption	Quantity	***	***	***	***	***
Transfers to related firms	Quantity	***	***	***	***	***
Total net sales	Quantity	***	***	***	***	***
Commercial sales to non-swap entities	Value	***	***	***	***	***
Swap sales	Value	***	***	***	***	***
All commercial sales	Value	***	***	***	***	***
Internal consumption	Value	***	***	***	***	***
Transfers to related firms	Value	***	***	***	***	***
Total net sales	Value	***	***	***	***	***
Hydrofluoric acid	Value	***	***	***	***	***
Perchloroethylene	Value	***	***	***	***	***
Other raw materials	Value	***	***	***	***	***
All raw material costs	Value	***	***	***	***	***
Direct labor costs	Value	***	***	***	***	***
Other factory costs	Value	***	***	***	***	***
Cost of goods sold	Value	***	***	***	***	***
Gross profit or (loss)	Value	***	***	***	***	***
SG&A expenses	Value	***	***	***	***	***
Operating income or (loss)	Value	***	***	***	***	***
Net other expense / (income)	Value	***	***	***	***	***
Net income or (loss)	Value	***	***	***	***	***
Depreciation/amortization	Value	***	***	***	***	***
Cash flow	Value	***	***	***	***	***

Table continued.

Table VI-1 Continued
R-125: Results of total market operations of U.S. producer Honeywell, by item and period

Ratios in percent and represent ratios to net sales value; shares in percent and represent share of cost of goods sold

Item	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Hydrofluoric acid	Ratio	***	***	***	***	***
Perchloroethylene	Ratio	***	***	***	***	***
Other raw materials	Ratio	***	***	***	***	***
All raw material costs	Ratio	***	***	***	***	***
Direct labor costs	Ratio	***	***	***	***	***
Other factory costs	Ratio	***	***	***	***	***
Cost of goods sold	Ratio	***	***	***	***	***
Gross profit	Ratio	***	***	***	***	***
SG&A expense	Ratio	***	***	***	***	***
Operating income or (loss)	Ratio	***	***	***	***	***
Net income or (loss)	Ratio	***	***	***	***	***
Hydrofluoric acid	Share	***	***	***	***	***
Perchloroethylene	Share	***	***	***	***	***
Other raw materials	Share	***	***	***	***	***
All raw material costs	Share	***	***	***	***	***
Direct labor costs	Share	***	***	***	***	***
Other factory costs	Share	***	***	***	***	***
Cost of goods sold	Share	***	***	***	***	***

Table continued.

Table VI-1 Continued
R-125: Results of total market operations of U.S. producer Honeywell, by item and period

Unit values in dollars per short ton; count in number of firms reporting

Item	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Commercial sales to non-swap entities	Unit value	***	***	***	***	***
Swap sales	Unit value	***	***	***	***	***
All commercial sales	Unit value	***	***	***	***	***
Internal consumption	Unit value	***	***	***	***	***
Transfers to related firms	Unit value	***	***	***	***	***
Total net sales	Unit value	***	***	***	***	***
Hydrofluoric acid	Unit value	***	***	***	***	***
Perchloroethylene	Unit value	***	***	***	***	***
Other raw materials	Unit value	***	***	***	***	***
All raw material costs	Unit value	***	***	***	***	***
Direct labor costs	Unit value	***	***	***	***	***
Other factory costs	Unit value	***	***	***	***	***
Cost of goods sold	Unit value	***	***	***	***	***
Gross profit or (loss)	Unit value	***	***	***	***	***
SG&A expenses	Unit value	***	***	***	***	***
Operating income or (loss)	Unit value	***	***	***	***	***
Net income or (loss)	Unit value	***	***	***	***	***
Operating losses	Count	***	***	***	***	***
Net losses	Count	***	***	***	***	***
Data	Count	***	***	***	***	***

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

Table VI-2
R-125: Changes in AUVs for the total market between comparison periods

Changes in percent

Item	2018-20	2018-19	2019-20	Jan-Jun 2020-21
Commercial sales to non-swap entities	▼***	▼***	▲***	▼***
Swap sales	▲***	▲***	▼***	▲***
All commercial sales	▼***	▼***	▲***	▲***
Internal consumption	▼***	▼***	▲***	▲***
Transfers to related firms	▼***	▼***	▲***	▲***
Total net sales	▼***	▼***	▲***	▲***
Hydrofluoric acid	▲***	▲***	▲***	▲***
Perchloroethylene	▼***	▼***	▲***	▲***
Other raw materials	▼***	▲***	▼***	▲***
All raw material costs	▲***	▲***	▲***	▲***
Direct labor costs	▼***	▼***	▲***	▲***
Other factory costs	▼***	▼***	▼***	▼***
Cost of goods sold	▼***	▲***	▼***	▲***

Table continued.

Table VI-2 Continued
R-125: Changes in AUVs for the total market between comparison periods

Changes in dollars per short ton

Item	2018-20	2018-19	2019-20	Jan-Jun 2020-21
Commercial sales to non-swap entities	▼***	▼***	▲***	▼***
Swap sales	▲***	▲***	▼***	▲***
All commercial sales	▼***	▼***	▲***	▲***
Internal consumption	▼***	▼***	▲***	▲***
Transfers to related firms	▼***	▼***	▲***	▲***
Total net sales	▼***	▼***	▲***	▲***
Hydrofluoric acid	▲***	▲***	▲***	▲***
Perchloroethylene	▼***	▼***	▲***	▲***
Other raw materials	▼***	▲***	▼***	▲***
All raw material costs	▲***	▲***	▲***	▲***
Direct labor costs	▼***	▼***	▲***	▲***
Other factory costs	▼***	▼***	▼***	▼***
Cost of goods sold	▼***	▲***	▼***	▲***
Gross profit or (loss)	▲***	▼***	▲***	▼***
SG&A expense	▼***	▼***	▲***	▲***
Operating income or (loss)	▲***	▼***	▲***	▼***
Net income or (loss)	▼***	▼***	▼***	▼***

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

Table VI-3
R-125: Results of merchant market operations (commercial sales and swaps combined) of U.S. producer Honeywell, by item and period

Quantity in short tons; value in 1,000 dollars; ratios in percent and represent ratios to all commerical sales value

Item	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Commercial sales to non-swap entities	Quantity	***	***	***	***	***
Swap sales	Quantity	***	***	***	***	***
All commercial sales	Quantity	***	***	***	***	***
Commercial sales to non-swap entities	Value	***	***	***	***	***
Swap sales	Value	***	***	***	***	***
All commercial sales	Value	***	***	***	***	***
Hydrofluoric acid	Value	***	***	***	***	***
Perchloroethylene	Value	***	***	***	***	***
Other raw materials	Value	***	***	***	***	***
All raw material costs	Value	***	***	***	***	***
Direct labor cost	Value	***	***	***	***	***
Other factory costs	Value	***	***	***	***	***
Total COGS	Value	***	***	***	***	***
Gross profit or (loss)	Value	***	***	***	***	***
SG&A expenses	Value	***	***	***	***	***
Operating income or (loss)	Value	***	***	***	***	***
Other expense / (income), net	Value	***	***	***	***	***
Net income or (loss)	Value	***	***	***	***	***
Depreciation/ amortization	Value	***	***	***	***	***
Cash flow	Value	***	***	***	***	***
Hydrofluoric acid	Ratio	***	***	***	***	***
Perchloroethylene	Ratio	***	***	***	***	***
Other raw materials	Ratio	***	***	***	***	***
All raw material costs	Ratio	***	***	***	***	***
Direct labor costs	Ratio	***	***	***	***	***
Other factory costs	Ratio	***	***	***	***	***
Cost of goods sold	Ratio	***	***	***	***	***
Gross profit	Ratio	***	***	***	***	***
SG&A expense	Ratio	***	***	***	***	***
Operating income or (loss)	Ratio	***	***	***	***	***
Net income or (loss)	Ratio	***	***	***	***	***

Table continued.

Table VI-3 Continued
R-125: Results of merchant market operations (commercial sales and swaps combined) of U.S. producer Honeywell, by item and period

Shares in percent and represent share of cost of goods sold; unit values in dollars per short ton; count in number of firms reporting

Item	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Hydrofluoric acid	Share	***	***	***	***	***
Perchloroethylene	Share	***	***	***	***	***
Other raw materials	Share	***	***	***	***	***
All raw material costs	Share	***	***	***	***	***
Direct labor costs	Share	***	***	***	***	***
Other factory costs	Share	***	***	***	***	***
Cost of goods sold	Share	***	***	***	***	***
Commercial sales to non-swap entities	Unit value	***	***	***	***	***
Swap sales	Unit value	***	***	***	***	***
All commercial sales	Unit value	***	***	***	***	***
Hydrofluoric acid	Unit value	***	***	***	***	***
Perchloroethylene	Unit value	***	***	***	***	***
Other raw materials	Unit value	***	***	***	***	***
All raw material costs	Unit value	***	***	***	***	***
Direct labor cost	Unit value	***	***	***	***	***
Other factory costs	Unit value	***	***	***	***	***
Total COGS	Unit value	***	***	***	***	***
Gross profit or (loss)	Unit value	***	***	***	***	***
SG&A expenses	Unit value	***	***	***	***	***
Operating income or (loss)	Unit value	***	***	***	***	***
Net income or (loss)	Unit value	***	***	***	***	***
Operating losses	Count	***	***	***	***	***
Net losses	Count	***	***	***	***	***
Data	Count	***	***	***	***	***

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

Table VI-4
R-125: Changes in AUVs for merchant market operations (commercial sales and swaps combined) between comparison periods

Changes in percent

Item	2018-20	2018-19	2019-20	Jan-Jun 2020-21
Commercial sales to non-swap entities	▼***	▼***	▲***	▼***
Swap sales	▲***	▲***	▼***	▲***
All commercial sales	▼***	▼***	▲***	▲***
Hydrofluoric acid	▲***	▲***	▲***	▲***
Perchloroethylene	▲***	▼***	▲***	▲***
Other raw materials	▼***	▲***	▼***	▲***
Raw material costs	▲***	▲***	▲***	▲***
Direct labor costs	▼***	▼***	▲***	▲***
Other factory costs	▼***	▼***	▼***	▼***
Cost of goods sold	▼***	▼***	▼***	▼***

Table continued.

Table VI-4 Continued
R-125: Changes in AUVs for merchant market operations (commercial sales and swaps combined) between comparison periods

Changes in dollars per short ton

Item	2018-20	2018-19	2019-20	Jan-Jun 2020-21
Commercial sales to non-swap entities	▼***	▼***	▲***	▼***
Swap sales	▲***	▲***	▼***	▲***
All commercial sales	▼***	▼***	▲***	▲***
Hydrofluoric acid	▲***	▲***	▲***	▲***
Perchloroethylene	▲***	▼***	▲***	▲***
Other raw materials	▼***	▲***	▼***	▲***
Raw material costs	▲***	▲***	▲***	▲***
Direct labor costs	▼***	▼***	▲***	▲***
Other factory costs	▼***	▼***	▼***	▼***
Cost of goods sold	▼***	▼***	▼***	▼***
Gross profit or (loss)	▲***	▼***	▲***	▲***
SG&A expense	▼***	▼***	▲***	▲***
Operating income or (loss)	▲***	▲***	▲***	▲***
Net income or (loss)	▼***	▲***	▼***	▲***

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

Net sales

As shown in table VI-1, total net sales include internal consumption, transfers to related firms, and commercial sales (open market sales to "non-swap entities" and swap sales).[6] Tables VI-1 and VI-3 show that R-125 sales volume and value increased in both categories of operations (total and merchant market) from 2018 to 2020; net sales quantity and value were lower in interim 2021 than in interim 2020 in both markets.[7] The swap subcategory of net sales irregularly decreased in quantity and value, offset by the irregular increases in open market sales to "non-swap entities" in quantity from 2018 to 2020; this trend continued when comparing the two interim periods.[8] [9] Internal consumption and transfers to related firms quantity and value stayed relatively steady from 2018 to 2020 and both were higher in interim

[6] On a quantity basis, internal consumption accounted for *** percent; transfers to related firms accounted for *** percent; and commercial sales (inclusive of swaps) accounted for *** percent of total R-125 sales in 2020. Within the merchant market, commercial sales to "non-swap entities" accounted for *** percent on a quantity basis while *** accounted for *** percent of R-125 sales in 2020.

[7] The rate at which sales volume and value increased were higher in the merchant market than in the total market, reflecting the relatively more stable changes from period to period for non-commercial sales. R-125 sales volume and value increased *** and *** percent, respectively, in the total market and *** and *** percent, respectively, in the merchant market.

[8] ***. Honeywell's agreements with both Arkema and Chemours include ***. Honeywell's U.S. producer questionnaire, III-8a, III-8b, email from Counsel for Honeywell, October 28, 2021, and staff verification report, Honeywell, January 7, 2022..

[9] Honeywell's sales of R-125 ***. Its sales of R-125 ***. Staff notes, EDIS Doc. 757520 (November 30, 2021); staff verification report, Honeywell, January 7, 2022; and, Honeywell's posthearing brief, exh. 1, p. 9-10.

2021 than in interim 2020.[10] [11] Physical differences in R-125 product mix are limited to the type of packaging and volume of R-125 sold.[12]

AUVs per short ton in both categories of operations (total and merchant market) fluctuated in each calendar year, decreasing overall from 2018 to 2020; AUVs were higher in interim 2021 than in interim 2020 for both markets. The commercial sales to "non-swap entities" accounted for the highest AUV in all five periods for which data were collected. The AUVs for internal consumption and transfers to related firms matched those of the merchant market sales as result of estimating the FMV of these transactions using the weighted average of merchant market sales.[13] [14]

Cost of goods sold and gross profit or loss

As shown in table VI-1, total raw material cost accounts for the largest share of COGS in total market operations, ranging from *** percent to *** of total COGS from 2018 to interim 2021. As a ratio to net sales, total raw material cost increased irregularly from *** percent in 2018 to *** percent in 2020. As shown in table VI-3, total raw material cost in the merchant market had a similar trend, accounting for similar share of COGS, with a somewhat different variation of ratios to net sales (*** to *** percent) from 2018 to 2020. Raw

[10] As discussed in footnote 4 in this section of the report, the value of internal consumption and transfers were ***.

[11] Honeywell's transfers of R-125 to related firms are for downstream refrigerant blends production, with ***. Email from Counsel for Honeywell, February 9, 2021, pp. 3 and 5 and staff notes, EDIS Doc. 757520 (November 30, 2021).

[12] R-125 is a chemical formula and not a differentiated product. It is a highly interchangeable commodity-like product. R-125 is delivered to large bulk customers via railcars or to aftermarket customers as a packaged product (jugs usually sold as 40 jugs per pallet, called a "skid"). Conference transcript, p. 28 (Cannistra) and p. 66 (Wood). Honeywell ***. Staff verification report, Honeywell, January 7, 2022.

[13] See footnote 4 in this section of the report.

[14] ***. Staff verification report, Honeywell, January 7, 2022.

material cost as a share of net sales were higher in interim 2021 than in interim 2020 in both markets.

Production of R-125 primarily consists of two material inputs, hydrofluoric acid ("HF") and perchloroethylene ("PCE").[15] [16] Table VI-1 shows that total raw material AUVs increased in the total market from $*** per-short ton in 2018 to $*** per-short ton in 2019 then to $*** in 2020, and were higher in interim 2021 than in interim 2020. The AUVs of raw materials for the merchant market (table VI-3) were higher than those in the total market operations.[17] Honeywell explained that the fluctuations in HF and PCE input prices ***.[18]

Other factory costs account for the second largest share of total COGS, ranging from *** to *** percent of total COGS from 2018 to June 2021 in the total market (table VI-1). As a ratio to net sales in the total market, other factory costs declined from *** percent in 2018 to *** percent in 2020 and was lower in interim 2021 than in interim 2020. Other factory cost AUVs decreased each year from 2018 to 2020 (from $*** to $***) and were lower in interim 2021 than in interim 2020 in the total market. As shown in table VI-3, other factory costs in the merchant market had a similar trend, with a slightly higher ratio to net sales (*** percent in 2018 to *** percent in 2020) and was also lower in interim 2021 than in interim 2020. Honeywell explained that its R-125 facility was commissioned in 2002 and fully

[15] HF made up the majority of raw material costs (*** percent in 2020), followed by PCE (*** percent in 2020) in the total market. Honeywell ***. Staff notes, EDIS Doc. 757520 (November 30, 2021).

[16] Honeywell ***. Email from Counsel for Honeywell, February 10, 2021.

[17] The differences in the total and merchant market AUVs for COGS items are the result of ***. Staff verification report, Honeywell, January 7, 2022.

[18] Email from Counsel for Honeywell, February 9, 2021, p. 6.

depreciated over 15 years (ending in 2018) ***.[19]

In both overall and merchant market operations, direct labor was the smallest component of COGS, ranging from *** to *** percent as a share of total COGS from 2018 to June 2021 (tables VI-1 and VI-3). As a ratio to net sales, direct labor decreased inconsistently from *** percent in 2018 to *** percent in 2020 in the total market (table VI-1), and also decreased irregularly in the merchant market from *** during the three full year periods (table VI-3). Direct labor AUVs fluctuated but decreased from 2018 to 2020, from $*** to $*** and $*** to $*** for the total and merchant markets, respectively. Direct labor AUVs were higher in interim 2021 than in interim 2020 for both markets (tables VI-1 and VI-3).[20]

As presented in tables VI-1, the COGS to sales ratio fluctuated from *** percent in 2018 to *** percent in 2019 and then to *** percent in 2020 for the total market; the COGS to sales ratio was higher in interim 2021 than in interim 2020. The directional trends for the individual components of COGS in the merchant market were similar to those of the total market for the annual periods, with the COGS to sales ratios increasing from *** to *** percent from 2018 to 2019 before declining to *** percent in 2020. The COGS to sales ratio was lower in interim 2021 than in interim 2020 for the merchant market. COGS AUVs fluctuated year-to-year from $*** in 2018 up to $*** in 2019 before decreasing to $*** in 2020 for the total market while COGS AUVs declined each year from $*** to $*** for the merchant market. COGS AUVs in interim 2021 was higher than interim 2020 for the total market but lower for the merchant market.[21]

For the total market, gross profit *** from $*** in 2018 to $*** in 2019 before increasing to $*** in 2020; gross profit was lower between the comparable interim periods. In the merchant market, gross profit had the same directional trend, starting at $*** in 2018 then declining to $*** in 2019 before increasing to $*** in 2020) (table VI-3). Gross profit was *** lower between the comparable

[19] Conference transcript, p. 20 (Wood). Honeywell further explained that ***. Email from Counsel for Honeywell, February 9, 2021, p. 7. Other factory costs ***. Staff verification report, Honeywell, January 7, 2022.

[20] As noted earlier, Honeywell ***. See footnote 17 in this section of the report.

[21] Ibid.

interim periods. Gross margins (total gross profit divided by total net sales) showed the same irregularly increasing trends for both the total and merchant markets from 2018 to 2020; gross margins were lower in interim 2021 than in interim 2020 for the total market but higher in the merchant market.[22]

SG&A expenses and operating income or loss

As shown in tables VI-1 and VI-3, total selling, general, and administrative ("SG&A") expenses *** decreased from 2018 to 2020 for both total and merchant market operations; SG&A expenses were higher in interim 2021 than in interim 2020 for the total market but lower for the merchant market. SG&A expense ratios (i.e., total SG&A expenses divided by net sales) followed the same trends for both markets, irregularly decreasing from 2018 to 2020; the SG&A expense ratio was higher in interim 2021 than in interim 2020 for both markets.[23]

As presented in table VI-1, Honeywell's operating results worsened from *** in 2019 before improving to *** in 2020 for the total market; the operating results were worse in interim 2021 than in interim 2020. Operating results were better for the merchant market, with smaller amounts of *** and improvements on these ***; from *** in 2018 to *** in 2019 and then to *** in 2020; operating results were better in interim 2021 than in interim 2020 (table VI-3). Operating margins (i.e. operating income divided by net sales) fluctuated from 2018 to 2020, with 2019 having the lowest operating margins for both markets. Operating margins were worse in interim 2021 than in interim 2020 for the total market while operating margins were better for the merchant market (tables VI-1 and VI-3).

[22] The *** gross profits between total and merchant markets is *** reported by Honeywell throughout the POI. Internal consumption and transfers to related firms were valued ***. Using the merchant market sales values to estimate the internal consumption and transfers results for the total market profitability measures being generally *** than those for the merchant market as well as ***.

[23] Honeywell's SG&A expenses ***. Staff verification report, Honeywell, January 7, 2022.

All other expenses and net income or loss

Classified below the operating income level are interest expense, other expense and other income. Honeywell reported interest expenses allocated to its R-125 operations of *** from 2018 to interim 2021. *** other expenses were reported. Over the period examined, Honeywell reported large fluctuations of "all other income" from ***.[24]

For the total market, net income or loss *** declined from *** in 2018 to *** in 2019, and further to *** in 2020. Net profitability was lower in interim 2021 than in interim 2020. Net income or loss for the merchant market *** declined from 2018 to 2020 (at lower net losses than the total market) but was higher in interim 2021 than in interim 2020. The ratio of net income or loss to total net sales and the per short ton value of net income or loss followed the directional trends of actual net income for both markets.

[24] All other income from sales of *** were *** in 2018, *** in 2019, and *** in 2020. Data for 2020 ***. Staff verification report, Honeywell, January 7, 2022.

Variance analysis

Variance analyses of overall and merchant market operations are presented in tables VI-5 and VI-6.[25] The information for these variance analyses are derived from tables VI-1 (total market) and VI-3 (merchant market).

Table VI-5
R-125: Variance analysis for the total market operations of U.S. producer Honeywell between comparison periods

Value in 1,000 dollars; unfavorable variances are shown in parentheses and in red

Item	2018-20	2018-19	2019-20	Jan-Jun 2020-21
Net sales price variance	***	***	***	***
Net sales volume variance	***	***	***	***
Net sales total variance	***	***	***	***
COGS cost variance	***	***	***	***
COGS volume variance	***	***	***	***
COGS total variance	***	***	***	***
Gross profit variance	***	***	***	***
SG&A cost variance	***	***	***	***
SG&A volume variance	***	***	***	***
SG&A total variance	***	***	***	***
Operating income price variance	***	***	***	***
Operating income cost variance	***	***	***	***
Operating income volume variance	***	***	***	***
Operating income total variance	***	***	***	***

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

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

Table VI-6
R-125: Variance analysis for the merchant market operations of U.S. producer Honeywell between comparison periods

Value in 1,000 dollars; unfavorable variances are shown in parentheses and in red

Item	2018-20	2018-19	2019-20	Jan-Jun 2020-21
Net sales price variance	***	***	***	***
Net sales volume variance	***	***	***	***
Net sales total variance	***	***	***	***
COGS cost variance	***	***	***	***
COGS volume variance	***	***	***	***
COGS total variance	***	***	***	***
Gross profit variance	***	***	***	***
SG&A cost variance	***	***	***	***
SG&A volume variance	***	***	***	***
SG&A total variance	***	***	***	***
Operating income price variance	***	***	***	***
Operating income cost variance	***	***	***	***
Operating income volume variance	***	***	***	***
Operating income total variance	***	***	***	***

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

Capital expenditures, assets, and return on assets

Table VI-7 presents Honeywell's capital expenditures, net assets, and operating return on assets.[26] [27] Table VI-8 presents Honeywell's narrative explanations of the nature, focus, and significance of its capital expenditures and any significant changes in asset levels over time.[28] Operating return on assets improved from 2018 to 2020, driven by a larger increase in sales than costs.

Table VI-7
R-125: U.S. producer Honeywell's capital expenditures, net assets, and operating return on assets for the total market, by period

Values in 1,000 dollars; ratio in percent

Item	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Capital expenditures	Value	***	***	***	***	***
Net assets	Value	***	***	***		
Operating return on assets for the total market	Ratio	***	***	***		

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

Table VI-8
R-125: Narrative descriptions of U.S. producer Honeywell's capital expenditures and assets

Narrative type	Narrative explanation
Nature, focus, and significance of capital expenditures	***
Asset descriptions	***

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

[26] The operating ROA is calculated as operating income divided by total assets. With respect to a firm's overall operations, the total asset value reflects an aggregation of a number of assets which are generally not product specific. Thus, high-level allocations are generally required in order to report a total asset value for R-125.

[27] Honeywell *** related to R-125, explaining that ***. Staff notes, EDIS Doc. 757520 (November 30, 2021).

[28] Honeywell stated that the R-125 plant was started in the early 2000s, ***. Staff notes, EDIS Doc. 757520 (November 30, 2021).

Capital and investment

The Commission requested the U.S. producer of R-125 to describe any actual or potential negative effects of imports of R-125 from China on its growth, investment, ability to raise capital, development and production efforts, or the scale of capital investments. Table VI-9 presents Honeywell's reported actual and anticipated negative impact in each category and table VI-10 provides Honeywell's narrative responses.

Table VI-9
R-125: U.S. producer Honeywell's actual and anticipated negative effects of imports from China on investment, growth, and development since January 1, 2018, by effect

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

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

Table VI-10
R-125: U.S. producer Honeywell's narratives relating to actual and anticipated negative effects of imports on investment, growth, and development, since January 1, 2018

Item	Firm name and accompanying narrative response
Cancellation, postponement, or rejection of expansion projects	***
Return on specific investments negatively impacted	***
Other effects on growth and development	***
Anticipated effects of imports	***

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

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. Also presented in this section of the report is information obtained for consideration by the Commission on nonsubject countries.

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

The industry in China

The Commission issued foreign producers' or exporters' questionnaires to nine firms believed to produce and/or export R-125 from China.[3] Usable responses to the Commission's questionnaire were received from 3 firms: Zhejiang Quzhou Juxin Fluorine Chemical Co., Ltd ("Juxin"), Zhejiang Sanmei Chemical Ind. Co., Ltd ("Sanmei"), and Sinochem Environmental Protection Chemicals (Taicang) Co., Ltd ("Sinochem").[4] These firms' exports to the United States accounted for approximately *** percent of reported U.S. imports of R-125 from China in 2020.[5] According to estimates requested of the responding producers in China, the production of R-125 in China reported in questionnaires accounts for approximately 50.0 percent of overall production of R-125 in China. Table VII-1 presents information on the R-125 operations of the responding producers and exporters in China.

Table VII-1
R-125: Summary data on firms in China, 2020

Firm	Production (short tons)	Share of reported production (percent)	Exports to the United States (short tons)	Share of reported exports to the United States (percent)	Total shipments (short tons)	Share of firm's total shipments exported to the United States (percent)
Juxin	***	***	***	***	***	***
Sanmei	***	***	***	***	***	***
Sinochem	***	***	***	***	***	***
All firms	***	100.0	***	100.0	***	***

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

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

[4] Chinese exporter T.T. International Co., Ltd., provided a partial questionnaire response that included reported subject exports to the United States of *** short tons in 2018, *** short tons in 2019, *** short tons in 2020, *** short tons for Jan-Jun 2020, *** short tons for Jan-Jun 2021, and projected *** short tons for calendar 2021 and *** short tons for calendar 2022. Commission staff contacted *** and confirmed that these exports were already included in *** U.S. exports reported in their foreign producer questionnaire response. T.T. International Co., Ltd., response to foreign producer questionnaire, II-9. ***

[5] Juxin, Sanmei, and Sinochem responses to foreign producer questionnaire, II-6b.

Changes in operations

As presented in table VII-2, producers in China reported several operational and organizational changes since January 1, 2018.

Table VII-2
R-125: Reported changes in operations by producers in China

Item	Firm name and accompanying narrative response
Expansions	***
Expansions	***

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

Operations on R-125

Table VII-3 presents information on the R-125 operations of the responding producers and exporters in China. Producers in China reported an 18.6 percent increase in capacity from 2018 to 2020, from 124,300 short tons in 2018 to 147,400 short tons in 2020.[6] For projected years 2021-22, respondents reported no expected changes to total R-125 capacity. Aggregate production increased irregularly by 8.2 percent from 2018 to 2020, with a 10.8 percent decline in production in 2019.[7] While capacity is projected to remain flat in 2021-22, production levels are projected to decline 2.0 percent in 2022 compared with 2020.

Chinese producers' capacity utilization declined from 82.5 percent in 2018 to 75.3 percent in 2020. This decline in capacity utilization was due to capacity increases in 2018-20 outpacing increases in production. Capacity utilization in years 2021-22 is projected to decline irregularly, with projected 73.8 percent capacity utilization in 2022 representing a 1.5 percent decrease from the 75.3 percent utilization rate reported in 2020. The producers in China ratio of inventory to production declined by 2.4 percent between 2018 and 2020, as a result of rising production levels in the period for which data were collected with simultaneous decreases in inventory levels.

Home market shipments, primarily commercial home market shipments, were the majority of shipments throughout the period for which data were collected. Responding Chinese producers' exports as a share of total shipments declined irregularly during 2018-20 by 3.0 percentage points, but was 10.7 percentage points higher in interim 2021 than in interim 2020. During 2018-20, the United States was the primary export market for responding Chinese producers, never accounting for less than *** percent of total exports. However, for years 2021-22, the responding firms project a year-over-year decline in U.S. exports of *** percent and *** percent, respectively.[8] With the drop in projected U.S. exports and the projected increase of *** short tons, or *** percent, in exports to all other markets between 2021 and 2022, exports to markets other than the United States will have a *** share of total exports for the first time in the period for which data were collected.

---

[6] *** Sinochem response to foreign producer questionnaire II-2a. *** Juxin response to foreign producer questionnaire, II-2a.

[7] *** experienced production declines in 2019, due to ***. While production declined in 2019 for ***, two producers (***) increased production in 2020; and *** had higher production in interim 2021 compared with interim 2020 (with the largest gain reported by the third producer ***). *** responses to foreign producer questionnaire, II-3a.

[8] *** *** response to foreign producer questionnaire, II-8. *** response to foreign producer questionnaire, II-8.

Table VII-3
R-125: Data for producers in China, by period

Quantity in short tons

Item	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021	Projection 2021	Projection 2022
Capacity	124,300	124,300	147,400	73,700	73,700	147,400	147,400
Production	102,569	91,522	110,983	52,512	60,728	112,268	108,777
End-of-period inventories	4,599	4,045	2,260	2,817	4,698	2,085	***
Internal consumption	***	***	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***	***	***
Home market shipments	73,899	71,366	86,076	39,615	36,755	85,215	85,215
Exports to the United States	***	***	***	***	***	***	***
Exports to all other markets	***	***	***	***	***	***	***
Export shipments	26,810	20,710	26,692	14,125	21,535	27,228	23,343
Total shipments	100,709	92,076	112,768	53,740	58,290	112,443	108,558

Table continued.

Table VII-3 Continued
R-125: Data on industry in China, by period

Shares and ratios in percent

Item	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021	Projection 2021	Projection 2022
Capacity utilization ratio	82.5	73.6	75.3	71.3	82.4	76.2	73.8
Inventory ratio to production	4.5	4.4	2.0	2.7	3.9	1.9	***
Inventory ratio to total shipments	4.6	4.4	2.0	2.6	4.0	1.9	***
Internal consumption share	***	***	***	***	***	***	***
Commercial home market shipments share	***	***	***	***	***	***	***
Home market shipments share	73.4	77.5	76.3	73.7	63.1	75.8	78.5
Exports to the United States share	***	***	***	***	***	***	***
Exports to all other markets share	***	***	***	***	***	***	***
Export shipments share	26.6	22.5	23.7	26.3	36.9	24.2	21.5
Total shipments share	100.0	100.0	100.0	100.0	100.0	100.0	100.0

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

Alternative products

Responding firms in China do not produce other products on the same equipment and machinery used to produce R-125.[9]

Exports

According to GTA, the leading export markets for fluorinated, brominated or iodinated derivatives of acyclic hydrocarbons, a basket category including R-125, from China are the United States, the Netherlands, and Japan (Table IV-4). During 2020, the United States was the top export market for fluorinated, brominated or iodinated derivatives of acyclic hydrocarbons from China, accounting for 24.1 percent, followed by the Netherlands, accounting for 6.7 percent, and Japan, accounting for 5.9 percent.

[9] Explaining why it does not produce other products on the same equipment used for in-scope, R-125 production, foreign producer *** *** response to foreign producer questionnaire, II-4b.

Table VII-4
Fluorinated, brominated or iodinated derivatives of acyclic hydrocarbons: Exports from China, by destination market and by period

Quantity in short tons; value in 1,000 dollars

Destination Market	Measure	2018	2019	2020
United States	Quantity	74,571	73,245	70,143
Netherlands	Quantity	34,476	16,405	19,354
Japan	Quantity	20,551	20,177	17,213
Korea	Quantity	16,235	15,218	17,014
Thailand	Quantity	9,686	13,602	15,433
Brazil	Quantity	9,719	15,634	12,944
India	Quantity	9,083	9,180	10,933
Taiwan	Quantity	6,328	7,479	9,421
Mexico	Quantity	8,333	8,277	8,836
All other destination markets	Quantity	98,945	109,699	109,264
All destination markets	Quantity	287,927	288,916	290,555
United States	Value	361,196	266,881	172,985
Netherlands	Value	235,795	104,283	58,754
Japan	Value	99,758	92,857	63,372
Korea	Value	79,393	86,260	74,293
Thailand	Value	32,611	38,105	30,287
Brazil	Value	38,412	47,041	27,160
India	Value	39,647	29,845	25,800
Taiwan	Value	24,497	24,098	23,911
Mexico	Value	26,653	25,222	19,091
All other destination markets	Value	430,691	406,366	293,086
All destination markets	Value	1,368,654	1,120,958	788,738

Table continued.

Table VII-4 Continued
Fluorinated, brominated or iodinated derivatives of acyclic hydrocarbons: Exports from China, by destination market and by period

Unit values in dollars per short ton; shares in percent

Destination Market	Measure	2018	2019	2020
United States	Unit value	4,844	3,644	2,466
Netherlands	Unit value	6,839	6,357	3,036
Japan	Unit value	4,854	4,602	3,682
Korea	Unit value	4,890	5,668	4,367
Thailand	Unit value	3,367	2,802	1,962
Brazil	Unit value	3,952	3,009	2,098
India	Unit value	4,365	3,251	2,360
Taiwan	Unit value	3,871	3,222	2,538
Mexico	Unit value	3,198	3,047	2,161
All other destination markets	Unit value	4,353	3,704	2,682
All destination markets	Unit value	4,753	3,880	2,715
United States	Share of quantity	25.9	25.4	24.1
Netherlands	Share of quantity	12.0	5.7	6.7
Japan	Share of quantity	7.1	7.0	5.9
Korea	Share of quantity	5.6	5.3	5.9
Thailand	Share of quantity	3.4	4.7	5.3
Brazil	Share of quantity	3.4	5.4	4.5
India	Share of quantity	3.2	3.2	3.8
Taiwan	Share of quantity	2.2	2.6	3.2
Mexico	Share of quantity	2.9	2.9	3.0
All other destination markets	Share of quantity	34.4	38.0	37.6
All destination markets	Share of quantity	100.0	100.0	100.0

Source: Official exports statistics under HS subheading 2903.39 as reported by China Customs in the Global Trade Atlas database, accessed October 5, 2021.

Note: Top export destinations are shown in descending order of 2020 data.

U.S. inventories of imported merchandise

Table VII-5 presents data on U.S. importers' reported inventories of R-125. U.S. importers' inventories of R-125 from China decreased *** percent between 2018 and 2020, but were *** percent higher in interim 2021 than in interim 2020.[1] The ratio of inventories to imports declined by 28.2 percentage points in 2019 but increased *** percentage points in 2020, ending *** percentage points lower than in 2018. This ratio was *** percentage points higher in interim 2021 than in interim 2020. *** of 18 importers reported end-of-period inventories in at least one year during 2018-20, with the largest reported by ***.[2]

[1] ***

[2] ***

Table VII-5
R-125: U.S. importers' end-of-period inventories of imports, by source and by period

Quantity in short tons; ratios in percent

Measure	Source	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Inventories quantity	China	10,303	2,298	***	***	***
Ratio to imports	China	41.4	13.2	***	***	***
Ratio to U.S. shipments of imports	China	57.2	9.0	***	***	***
Ratio to total shipments of imports	China	57.2	9.0	***	***	***
Inventories quantity	Nonsubject	***	***	***	***	***
Ratio to imports	Nonsubject	***	***	***	***	***
Ratio to U.S. shipments of imports	Nonsubject	***	***	***	***	***
Ratio to total shipments of imports	Nonsubject	***	***	***	***	***
Inventories quantity	All	***	***	***	***	***
Ratio to imports	All	***	***	***	***	***
Ratio to U.S. shipments of imports	All	***	***	***	***	***
Ratio to total shipments of imports	All	***	***	***	***	***

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

U.S. importers' outstanding orders

The Commission requested importers to indicate whether they imported or arranged for the importation of R-125 after June 30, 2021. *** of 18 responding firms indicated they imported or arranged for the importation of R-125 from China after June 30, 2021 (Table VII-6). Subject imports account for *** percent of all reported outstanding orders.

Table VII-6
R-125: Arranged imports, by source and by period

Quantity in short tons

Source of arranged imports	Jul-Sep 2021	Oct-Dec 2021	Jan-Mar 2022	Apr-Jun 2022	Total
China	***	***	***	***	***
Nonsubject sources	***	***	***	***	***
All import sources	***	***	***	***	***

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

Third-country trade actions

There are no trade remedy actions on standalone R-125 in third-country markets. However, HFC blends containing R-125 are subject to actions in Argentina and India. Also, the EU has regulatory restrictions on fluorinated GHGs that act as a non-tariff barrier to R-125 and blends that contain it.

On August 19, 2020, Argentina imposed antidumping duties of 7 percent ad valorem on mixtures containing tetrafluoroethane (R-134) and pentafluoroethane (R-125) from China, and 23 percent ad valorem on mixtures containing difluoromethane (R-32) and pentafluoroethane (R-125) from China.[3] These imports were deemed to cause material injury to the Argentine domestic industries that produce R-22 and R-410, respectively.

[3] WTO Semi-annual report of antidumping actions for Argentina, https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S009-Html.aspx?Id=272048&BoxNumber=3&DocumentPartNumber=1&Language=E&HasEnglishRecord=True&HasFrenchRecord=True&HasSpanishRecord=True&Window=L&PreviewContext=DP&FullTextHash=371857150 (accessed November 10, 2021). Notice of Argentina's final determination of antidumping investigation, Legislative Information, Resolution 422/2020, RESOL-2020-422-APN-MDP, http://servicios.infoleg.gob.ar/infolegInternet/anexos/340000-344999/341248/norma.htm (accessed November 10, 2021).

India imposed an antidumping duty order on HFC blends 407 and 410 from China, effective September 27, 2021.[4] The antidumping duty rates range from 50 percent to 110 percent ad valorem.[5] All variants of HFC blends 407 and 410 contain R-125.

The European Union (EU), in an effort to reduce its emissions of fluorinated GHGs, has established regulatory restrictions on products that contribute to global warming, which includes R-125 and all blends that contain it.[6] The European Union has adopted two legislative acts to control emissions from fluorinated greenhouse gases (F-gases), including hydrofluorocarbons (HFCs): the F-gas Regulation and the MAC Directive. The current F-gas Regulation has limited the total amount of the most important F-gases, including R-125, that can be sold in the EU since January 1, 2015, and phases them down in steps to one-fifth of 2014 sales in 2030. The MAC Directive prohibits the use of F-gases with a global warming potential of more than 150 times greater than carbon dioxide (CO_2) in new types of cars and vans introduced from 2011, and in all new cars and vans produced from 2017.[7] These regulatory restrictions could act as a non-tariff barrier on imports of the subject products.

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[4] Anti-Dumping Investigation concerning imports of "Hydrofluorocarbon (HFC) Blends" from China. https://www.dgtr.gov.in/anti-dumping-cases/anti-dumping-investigation-concerning-importshydrofluorocarbon-hfc-blends-china, accessed November 10, 2021. The notice states that "all blends other than 407 and 410 are excluded" from the investigation. Although the scope language in the notice does not specify which variants of the 407 and 410 blends are under investigation, a table under paragraph D.3. specifies R-407C and R-410A when discussing the market share of domestic producers. R-407C, R-407A, and R-410A are covered under the Blends Order, but other variants of 407 and 410 blends are not.

[5] Paragraph 49. under G.7 Determination of the dumping margin of the Notification, Final Findings, Case No. (AD) (OI)-29/2020), Subject: Final Findings in anti-dumping investigation concerning imports of Hydrofluorocarbon (HFC) Blends, originating in or exported from China PR, September 27, 2021, https://www.dgtr.gov.in/anti-dumping-cases/anti-dumping-investigation-concerning-importshydrofluorocarbon-hfc-blends-china, accessed November 10, 2021.

[6] *REGULATION (EU) No 517/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 April 2014 on fluorinated greenhouse gases and repealing Regulation (EC) No 842/2006.* https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2014.150.01.0195.01.ENG

[7] EU legislation to control F-gases, https://ec.europa.eu/clima/eu-action/fluorinated-greenhouse-gases/eu-legislation-control-f-gases_en (accessed January 19, 2022). The MAC Directive has primarily affected R-134a, the main refrigerant used in car air conditioning units prior to this legislation. Respondents have argued that these two acts have caused a spike in HFC prices. A study by Oko-Recherche, on behalf of the European Commission, determined in 2018 that HFC prices had increased substantially since the implementation of the F-Gas Regulation in 2015. "Average purchase prices of R134a, R410A and R404A, were under 2€ ($2.4)/t$CO_2$e (tonne of CO_2equivalent) in 2014, but jumped to between 7€ ($8.3)/t$CO_2$eand 23€ ($27.2)/tCO_2e in the first quarter of 2018," Ammonia21, "EU's HFC prices skyrocketing since start of F-Gas Regulation," Marie Battesti, June 6, 2018, https://ammonia21.com/articles/8339/eu_s_hfc_prices_skyrocketing_since_start_of_f_gas_regulation.

In addition to any bilateral action, more than 190 countries are party to the Kigali Amendment, including China and the EU, which commits these countries to phase down their production and consumption of HFCs, including R-125, by more than 80 percent over the next 30 years.[8]

[8] U.S. EPA, Recent International Developments under the Montreal Protocol, https://www.epa.gov/ozone-layer-protection/recent-international-developments-under-montreal-protocol (accessed November 29, 2021).

Information on nonsubject countries

The global R-125 industry is relatively concentrated. Outside of the United States, there are only a few countries where companies produce R-125: China, India, Japan, Russia, and South Korea. Table VII-7 presents information on nonsubject producers of R-125. Among the nonsubject countries, only *** recently increased capacity. *** began producing R-125 in *** and ***.[9] Halopolymer started producing R-125 in Russia in 2020, although volume information is not available.[10] Of the three producers in Japan, ***. The other *** plants that are capable of making R-125.[11] As a developed country under the Kigali Amendment, Japan was required to start reducing its production and use of HFCs in 2019.[12] There is one identified R-125 producer in South Korea: Foosung Co., Ltd.[13]

[9] The information available is for the product group and does not provide a breakout by product. IHS Markit, *Chemical Economics Handbook, Fluorocarbons,* June 17, 2020, p. 105. SRF Limited, Fluorochemicals, https://www.srf.com/our-businesses/fluorochemicals.html (accessed January 11, 2021).

[10] Halopolymer, HFCs, https://halopolymer.com/product/khladony-i-gazy/refrigerants/hfc/ (accessed February 18, 2021). IHS Markit, *Chemical Economics Handbook, Fluorocarbons,* June 17, 2020, p. 100.

[11] IHS Markit, *Chemical Economics Handbook, Fluorocarbons,* June 17, 2020, pp. 131-134, 136.

[12] United Nations Treaty Collection, Environment, 2. f Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XXVII-2-f&chapter=27&clang=_en#3 (accessed February 18, 2021). United Nations Environment Economy Division, "The Kigali Amendment to the Montreal Protocol: HFC Phasedown," https://multimedia.3m.com/mws/media/1365924O/unep-fact-sheet-kigali-amendment-to-mp.pdf (accessed January 25, 2021).

[13] Foosung Co., Ltd., Refrigerants, http://www.foosungchem.com/eng/pro/product_ref_view03_2.asp (accessed February 18, 2021).

Table VII-7
R-125: Nonsubject production and capacity, by country

Quantity in short tons; n.a. = not available.

Country	Capacity (2020)	Production (2019)
India	***	***
Japan	***	***
Russia	***	***
South Korea	***	***

Source: IHS Markit, *Chemical Economics Handbook, Fluorocarbons,* June 17, 2020, pp. 100, 105, 131-136.

Table VII-8 presents data on global exporters of fluorinated, brominated or iodinated derivatives of acyclic hydrocarbons, a basket category including R-125. The largest global exporter is China, with a 61.5 percent share of quantity in 2020, followed by the United States with a share of 13.2 percent, the Netherlands with a share of 6.5, and Japan with a share of 3.2 percent.

Table VII-8
Fluorinated, brominated, or iodinated derivatives of acyclic hydrocarbons: Global exports, by country and period

Quantity in short tons, value in 1,000 dollars

Exporting country	Measure	2018	2019	2020
United States	Quantity	73,178	61,107	62,265
China	Quantity	287,927	288,916	290,555
Netherlands	Quantity	38,761	35,160	30,795
Japan	Quantity	17,053	17,129	14,957
United Kingdom	Quantity	15,455	12,934	14,626
India	Quantity	8,537	9,990	9,648
France	Quantity	10,111	9,653	9,539
Belgium	Quantity	7,765	8,944	9,476
Germany	Quantity	12,375	10,307	6,559
Italy	Quantity	4,031	3,965	3,581
Czech Republic	Quantity	304	820	3,168
Singapore	Quantity	2,792	2,880	3,107
All other exporters	Quantity	27,197	17,846	13,814
All reporting exporters	Quantity	505,485	479,652	472,090
United States	Value	767,235	796,849	838,147
China	Value	1,368,654	1,120,958	788,738
Netherlands	Value	875,570	676,402	482,045
Japan	Value	268,017	264,261	256,900
United Kingdom	Value	133,528	98,322	103,958
India	Value	54,215	60,443	46,951
France	Value	77,963	76,467	63,958
Belgium	Value	59,309	62,485	62,193
Germany	Value	149,526	108,234	77,565
Italy	Value	61,182	55,688	37,072
Czech Republic	Value	8,194	26,611	33,917
Singapore	Value	18,200	25,976	27,604
All other exporters	Value	215,572	199,134	215,507
All reporting exporters	Value	4,057,165	3,571,832	3,034,555

Table continued.

Table VII-8 Continued
Fluorinated, brominated, or iodinated derivatives of acyclic hydrocarbons: Global exports, by country and period

Unit values in dollars per short ton; shares in percent

Exporting country	Measure	2018	2019	2020
United States	Unit value	10,484	13,040	13,461
China	Unit value	4,753	3,880	2,715
Netherlands	Unit value	22,589	19,238	15,653
Japan	Unit value	15,717	15,428	17,176
United Kingdom	Unit value	8,640	7,602	7,108
India	Unit value	6,350	6,050	4,866
France	Unit value	7,711	7,921	6,705
Belgium	Unit value	7,638	6,987	6,563
Germany	Unit value	12,083	10,501	11,826
Italy	Unit value	15,178	14,046	10,353
Czech Republic	Unit value	26,955	32,454	10,707
Singapore	Unit value	6,519	9,018	8,883
All other exporters	Unit value	7,926	11,159	15,601
All reporting exporters	Unit value	8,026	7,447	6,428
United States	Share of quantity	14.5	12.7	13.2
China	Share of quantity	57.0	60.2	61.5
Netherlands	Share of quantity	7.7	7.3	6.5
Japan	Share of quantity	3.4	3.6	3.2
United Kingdom	Share of quantity	3.1	2.7	3.1
India	Share of quantity	1.7	2.1	2.0
France	Share of quantity	2.0	2.0	2.0
Belgium	Share of quantity	1.5	1.9	2.0
Germany	Share of quantity	2.4	2.1	1.4
Italy	Share of quantity	0.8	0.8	0.8
Czech Republic	Share of quantity	0.1	0.2	0.7
Singapore	Share of quantity	0.6	0.6	0.7
All other exporters	Share of quantity	5.4	3.7	2.9
All reporting exporters	Share of quantity	100.0	100.0	100.0

Source: Official exports statistics under HS subheading 2903.39 as reported by various national statistics authorities in the Global Trade Atlas database, accessed October 5, 2021.

Note: 2020 quantity data is slightly understated because Jordan reported only value, not quantity. Jordan's exports in 2020 are valued at $93,875, which is 0.003 percent of total global trade value.

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
86 FR 5247 January 19, 2021	*R-125 (Pentafluoroethane) From China; Institution of Anti-Dumping and Countervailing Duty Investigations and Scheduling of Preliminary Phase Investigations*	https://www.govinfo.gov/content/pkg/FR-2021-01-19/pdf/2021-01055.pdf
86 FR 8583 February 08, 2021	*Pentafluoroethane (R-125) From the People's Republic of China: Initiation of Less-Than-Fair-Value Investigation*	https://www.govinfo.gov/content/pkg/FR-2021-02-08/pdf/2021-02529.pdf
86 FR 8589 February 08, 2021	*Pentafluoroethane (R-125) From the People's Republic of China: Initiation of Countervailing Duty Investigation*	https://www.govinfo.gov/content/pkg/FR-2021-02-08/pdf/2021-02530.pdf
86 FR 12712 March 4, 2021	*Pentafluoroethane (R-125) From China; Determinations*	https://www.govinfo.gov/content/pkg/FR-2021-03-04/pdf/2021-04432.pdf
86 FR 14406 March 16, 2021	*Pentafluoroethane (R-125) from the People's Republic of China: Postponement of Preliminary Determination in the Countervailing Duty Investigation*	https://www.govinfo.gov/content/pkg/FR-2021-03-16/pdf/2021-05400.pdf

Citation	Title	Link
86 FR 29752 June 3, 2021	*Pentafluoroethane (R-125) From the People's Republic of China: Postponement of Preliminary Determination in the Less-Than-Fair-Value Investigation*	https://www.govinfo.gov/content/pkg/FR-2021-06-03/pdf/2021-11672.pdf
86 FR 33648 June 25, 2021	*Pentafluoroethane (R-125) From the People's Republic of China: Preliminary Affirmative Countervailing Duty Determination and Alignment of Final Determination With Final Antidumping Duty Determination*	https://www.govinfo.gov/content/pkg/FR-2021-06-25/pdf/2021-13582.pdf
86 FR 36526 July 12, 2021	*Pentafluoroethane (R-125) From the People's Republic of China: Preliminary Affirmative Determination of Critical Circumstances, in Part, in the Countervailing Duty Investigation*	https://www.govinfo.gov/content/pkg/FR-2021-07-12/pdf/2021-14755.pdf
86 FR 45959 August 17, 2021	*Pentafluoroethane (R-125) From the People's Republic of China: Preliminary Affirmative Determination of Sales at Less Than Fair Value, Preliminary Affirmative Determination of Critical Circumstances, in Part, Postponement of Final Determination, and Extension of Provisional Measures*	https://www.govinfo.gov/content/pkg/FR-2021-08-17/pdf/2021-17524.pdf

Citation	Title	Link
86 FR 48398 August 30, 2021	*Pentafluoroethane (R-125) From the People's Republic of China: Amended Preliminary Countervailing Duty Determination*	https://www.govinfo.gov/content/pkg/FR-2021-08-30/pdf/2021-18597.pdf
86 FR 50171 September 7, 2021	*Pentafluoroethane (R-125) From China; Scheduling of the Final Phase of Countervailing Duty and Anti-Dumping Duty Investigations*	https://www.govinfo.gov/content/pkg/FR-2021-09-07/pdf/2021-19316.pdf
86 FR 72619 December 22, 2021	*Pentafluoroethane (R-125) From China; Revised Schedule for the Subject Investigations*	https://www.govinfo.gov/content/pkg/FR-2021-12-22/pdf/2021-27759.pdf
87 FR 1110 January 10, 2022	*Pentafluoroethane (R-125) From the People's Republic of China: Final Affirmative Countervailing Duty Determination*	https://www.govinfo.gov/content/pkg/FR-2022-01-10/pdf/2022-00180.pdf
87 FR 1117 January 10, 2022	*Pentafluoroethane (R-125) From the People's Republic of China: Final Affirmative Determination of Sales at Less Than Fair Value and Final Affirmative Determination of Critical Circumstances, in Part*	https://www.govinfo.gov/content/pkg/FR-2022-01-10/pdf/2022-00178.pdf

APPENDIX B

LIST OF HEARING WITNESSES

CALENDAR OF PUBLIC HEARING

Those listed below appeared in the United States International Trade Commission's hearing via videoconference:

Subject: Pentafluoroethane (R-125) from China

Inv. Nos.: 701-TA-662 and 731-TA-1554 (Final)

Date and Time: December 14, 2021 - 9:30 a.m.

OPENING REMARKS:

Petitioner (**Daniel J. Cannistra**, Crowell & Moring LLP)
Respondents (**Andrew T. Schutz**, Grunfeld, Desiderio, Lebowitz, Silverman & Klestadt LLP)

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

Crowell & Moring LLP
Washington, DC
on behalf of

Honeywell International Inc. ("Honeywell")

George Koutsaftes, President of Advanced Materials, Honeywell

Jim Wilson, Sr., Sales Manager, Honeywell

Gustavo Cerri, Engineering Fellow, Honeywell

Jessica Wood, General Manager and Global Stationary Aftermarket, Honeywell

Daniel J. Cannistra)
Michael Bowen) – OF COUNSEL
Simeon Yerokun)

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

Trade Pacific PLLC
Washington, DC
on behalf of

National Refrigerants, Inc. ("National")

Maureen Beatty, Executive Vice President, National

Jarrod Goldfeder)
) – OF COUNSEL
Jon Freed)

Grunfeld, Desiderio, Lebowitz, Silverman & Klestadt LLP
Washington, DC
on behalf of

Zhejiang Quzhou Juxin Fluorine Chemical Co., Ltd.
Zhejiang Sanmei Chemical Ind. Co., Ltd.
Sinochem Environmental Protection Chemicals (Taicang) Co., Ltd.

James P. Dougan, Partner, ION Economics, LLC

Susannah Perkins, Economic Consultant, ION Economics, LLC

Ned H. Marshak)
Andrew T. Schutz) – OF COUNSEL
Jordan C. Kahn)

REBUTTAL/CLOSING REMARKS:

Petitioner (**Daniel J. Cannistra**, Crowell & Moring LLP)
Respondents (**Ned H. Marshak**, Grunfeld, Desiderio, Lebowitz, Silverman & Klestadt LLP and **Jon Freed**, Trade Pacific PLLC)

-END-

APPENDIX C

SUMMARY DATA

Total market

Table C-1

R-125: Summary data concerning the U.S. total market, 2018-20, January to June 2020, and January to June 2021

Quantity=short tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per short ton; Period changes=percent--exceptions noted

	Reported data					Period changes			
	Calendar year			Jan-Jun		Comparison years			Jan-Jun
	2018	2019	2020	2020	2021	2018-20	2018-19	2019-20	2020-21
U.S. total market consumption quantity:									
Amount	***	***	***	***	***	▲***	▲***	▼***	▼***
Producers' share (fn1)	***	***	***	***	***	▼***	▼***	▲***	▲***
Importers' share (fn1):									
China	***	***	***	***	***	▲***	▲***	▼***	▼***
Nonsubject sources	***	***	***	***	***	▲***	▼***	▲***	▲***
All import sources	***	***	***	***	***	▲***	▲***	▼***	▼***
U.S. total market consumption value:									
Amount	***	***	***	***	***	▼***	▼***	▼***	▲***
Producers' share (fn1)	***	***	***	***	***	▲***	▲***	▲***	▼***
Importers' share (fn1):									
China	***	***	***	***	***	▼***	▼***	▼***	▲***
Nonsubject sources	***	***	***	***	***	▲***	▼***	▲***	▲***
All import sources	***	***	***	***	***	▼***	▼***	▼***	▲***
U.S. importers' U.S. shipments of imports from:									
China:									
Quantity	18,008	25,411	20,099	13,427	11,141	▲11.6	▲41.1	▼(20.9)	▼(17.0)
Value	111,151	86,917	42,439	27,644	33,180	▼(61.8)	▼(21.8)	▼(51.2)	▲20.0
Unit value	$6,172	$3,420	$2,111	$2,059	$2,978	▼(65.8)	▼(44.6)	▼(38.3)	▲44.7
Ending inventory quantity	***	***	***	***	***	▼***	▼***	▲***	▲***
Nonsubject sources:									
Quantity	***	***	***	***	***	▲***	▼***	▲***	▲***
Value	***	***	***	***	***	▲***	▼***	▲***	▲***
Unit value	***	***	***	***	***	▼***	▼***	▲***	▲***
Ending inventory quantity	***	***	***	***	***	▲***	***	▲***	▲***
All import sources:									
Quantity	***	***	***	***	***	▲***	▲***	▼***	▼***
Value	***	***	***	***	***	▼***	▼***	▼***	▲***
Unit value	***	***	***	***	***	▼***	▼***	▼***	▲***
Ending inventory quantity	***	***	***	***	***	▼***	▼***	▲***	▲***
U.S. producers':									
Average capacity quantity	***	***	***	***	***	***	***	***	***
Production quantity	***	***	***	***	***	▲***	▲***	▼***	▲***
Capacity utilization (fn1)	***	***	***	***	***	▲***	▲***	▼***	▲***
U.S. shipments:									
Quantity	***	***	***	***	***	▲***	▲***	▼***	▼***
Value	***	***	***	***	***	▲***	▲***	▲***	▼***
Unit value	***	***	***	***	***	▼***	▼***	▲***	▲***
Export shipments:									
Quantity	***	***	***	***	***	***	***	***	***
Value	***	***	***	***	***	***	***	***	***
Unit value	***	***	***	***	***	***	***	***	***
Ending inventory quantity	***	***	***	***	***	▼***	▲***	▼***	▲***
Inventories/total shipments (fn1)	***	***	***	***	***	▼***	▲***	▼***	▲***
Production workers	***	***	***	***	***	▼***	▼***	***	***
Hours worked (1,000s)	***	***	***	***	***	▼***	▼***	***	***
Wages paid ($1,000)	***	***	***	***	***	▼***	▼***	▲***	▲***
Hourly wages (dollars per hour)	***	***	***	***	***	▲***	▲***	▲***	▲***
Productivity (short tons per 1,000 hours)	***	***	***	***	***	▲***	▲***	▼***	▲***
Unit labor costs	***	***	***	***	***	▼***	▼***	▲***	▲***

Table continued.

Table C-1 Continued
R-125: Summary data concerning the U.S. total market, 2018-20, January to June 2020, and January to June 2021
Quantity=short tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per short ton; Period changes=percent--exceptions noted

	Reported data					Period changes			
	Calendar year			Jan-Jun		Comparison years			Jan-Jun
	2018	2019	2020	2020	2021	2018-20	2018-19	2019-20	2020-21
U.S. producers'--Continued:									
Net sales:									
Quantity	***	***	***	***	***	▲***	▲***	▼***	▼***
Value	***	***	***	***	***	▲***	▲***	▲***	▼***
Unit value	***	***	***	***	***	▼***	▼***	▲***	▲***
Cost of goods sold (COGS)	***	***	***	***	***	▼***	▲***	▼***	▲***
Gross profit or (loss) (fn2)	***	***	***	***	***	▲***	▼***	▲***	▼***
SG&A expenses	***	***	***	***	***	▼***	▼***	▲***	▲***
Operating income or (loss) (fn2)	***	***	***	***	***	▲***	▼***	▲***	▼***
Net income or (loss) (fn2)	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit COGS	***	***	***	***	***	▼***	▲***	▼***	▲***
Unit SG&A expenses	***	***	***	***	***	▼***	▼***	▲***	▲***
Unit operating income or (loss) (fn2)	***	***	***	***	***	▲***	▼***	▲***	▼***
Unit net income or (loss) (fn2)	***	***	***	***	***	▼***	▼***	▼***	▼***
COGS/sales (fn1)	***	***	***	***	***	▼***	▲***	▼***	▲***
Operating income or (loss)/sales (fn1)	***	***	***	***	***	▲***	▼***	▲***	▼***
Net income or (loss)/sales (fn1)	***	***	***	***	***	▼***	▼***	▼***	▼***
Capital expenditures	***	***	***	***	***	▲***	▼***	▲***	▲***
Research and development expenses	***	***	***	***	***	***	***	***	***
Net assets	***	***	***	***	***	▲***	▲***	▲***	***

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

fn1.--Reported data are in percent and period changes are in percentage points.
fn2.--Percent changes only calculated when both comparison values represent profits; The directional change in profitability provided when one or both comparison values represent a loss.

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

Merchant market (commercial and swap sales)

Table C-2
R-125: Summary data concerning the U.S. merchant market, 2018-20, January to June 2020, and January to June 2021
Quantity=short tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per short ton; Period changes=percent--exceptions noted

	Reported data					Period changes			
	Calendar year			Jan-Jun		Comparison years			Jan-Jun
	2018	2019	2020	2020	2021	2018-20	2018-19	2019-20	2020-21
U.S. merchant market consumption quantity:									
Amount	***	***	***	***	***	▲***	▲***	▼***	▼***
Producers' share (fn1)	***	***	***	***	***	▼***	▼***	▲***	▼***
Importers' share (fn1):									
China	***	***	***	***	***	▼***	▲***	▼***	▼***
Nonsubject sources	***	***	***	***	***	▲***	▼***	▲***	▲***
All import sources	***	***	***	***	***	▲***	▲***	▼***	▲***
U.S. merchant market consumption value:									
Amount	***	***	***	***	***	▼***	▼***	▼***	▲***
Producers' share (fn1)	***	***	***	***	***	▲***	▲***	▲***	▼***
Importers' share (fn1):									
China	***	***	***	***	***	▼***	▼***	▼***	▲***
Nonsubject sources	***	***	***	***	***	▲***	▼***	▲***	▲***
All import sources	***	***	***	***	***	▼***	▼***	▼***	▲***
U.S. importers' U.S. shipments of imports from:									
China:									
Quantity	18,008	25,411	20,099	13,427	11,141	▲11.6	▲41.1	▼(20.9)	▼(17.0)
Value	111,151	86,917	42,439	27,644	33,180	▼(61.8)	▼(21.8)	▼(51.2)	▲20.0
Unit value	$6,172	$3,420	$2,111	$2,059	$2,978	▼(65.8)	▼(44.6)	▼(38.3)	▲44.7
Ending inventory quantity	***	***	***	***	***	▼***	▼***	▲***	▲***
Nonsubject sources:									
Quantity	***	***	***	***	***	▲***	▼***	▲***	▲***
Value	***	***	***	***	***	▲***	▼***	▲***	▲***
Unit value	***	***	***	***	***	▼***	▼***	▲***	▲***
Ending inventory quantity	***	***	***	***	***	▲***	***	▲***	▲***
All import sources:									
Quantity	***	***	***	***	***	▲***	▲***	▼***	▼***
Value	***	***	***	***	***	▼***	▼***	▼***	▲***
Unit value	***	***	***	***	***	▼***	▼***	▼***	▲***
Ending inventory quantity	***	***	***	***	***	▼***	▼***	▲***	▲***
U.S. producers':									
Commercial and swap U.S. shipments:									
Quantity	***	***	***	***	***	▲***	▲***	▲***	▼***
Value	***	***	***	***	***	▲***	▲***	▲***	▼***
Unit value	***	***	***	***	***	▼***	▼***	▲***	▼***
Commercial and swap sales:									
Quantity	***	***	***	***	***	▲***	▲***	▲***	▼***
Value	***	***	***	***	***	▲***	▲***	▲***	▼***
Unit value	***	***	***	***	***	▼***	▼***	▲***	▲***
Cost of goods sold (COGS)	***	***	***	***	***	▲***	▲***	▲***	▼***
Gross profit or (loss) (fn2)	***	***	***	***	***	▲***	▼***	▲***	▼***
SG&A expenses	***	***	***	***	***	▼***	▼***	▲***	▼***
Operating income or (loss) (fn2)	***	***	***	***	***	▲***	▲***	▲***	▲***
Net income or (loss) (fn2)	***	***	***	***	***	▼***	▲***	▼***	▲***
Unit COGS	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit SG&A expenses	***	***	***	***	***	▼***	▼***	▲***	▲***
Unit operating income or (loss) (fn2)	***	***	***	***	***	▲***	▲***	▲***	▲***
Unit net income or (loss) (fn2)	***	***	***	***	***	▼***	▲***	▼***	▲***
COGS/sales (fn1)	***	***	***	***	***	▼***	▲***	▼***	▼***
Operating income or (loss)/sales (fn1)	***	***	***	***	***	▲***	▲***	▲***	▲***
Net income or (loss)/sales (fn1)	***	***	***	***	***	▼***	▲***	▼***	▲***

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

fn1.--Reported data are in percent and period changes are in percentage points.
fn2.--Percent changes only calculated when both comparison values represent profits; The directional change in profitability provided when one or both comparison values represent a loss.

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

APPENDIX D

DEMAND TREND DATA

Table D-1

Housing starts: Seasonally adjusted annual rate for housing units started, United States, January 2018–November 2021

Thousands of units

Year	Month	Total units
2018	Jan.	1,309
2018	Feb.	1,289
2018	Mar.	1,327
2018	Apr.	1,285
2018	May	1,354
2018	Jun.	1,199
2018	Jul.	1,193
2018	Aug.	1,288
2018	Sep.	1,238
2018	Oct.	1,208
2018	Nov.	1,183
2018	Dec.	1,095
2019	Jan.	1,244
2019	Feb.	1,142
2019	Mar.	1,203
2019	Apr.	1,282
2019	May	1,303
2019	Jun.	1,237
2019	Jul.	1,224
2019	Aug.	1,371
2019	Sep.	1,285
2019	Oct.	1,318
2019	Nov.	1,350
2019	Dec.	1,547
2020	Jan.	1,589
2020	Feb.	1,589
2020	Mar.	1,277
2020	Apr.	938
2020	May	1,046
2020	Jun.	1,273
2020	Jul.	1,497
2020	Aug.	1,376
2020	Sep.	1,448
2020	Oct.	1,514
2020	Nov.	1,551
2020	Dec.	1,661

Table continued.

Table D-1 Continued

Housing starts: Seasonally adjusted annual rate for housing units started, United States, January 2018–November 2021

Thousands of units

Year	Month	Total units
2021	Jan.	1,625
2021	Feb.	1,447
2021	Mar.	1,725
2021	Apr.	1,514
2021	May	1,594
2021	Jun.	1,657
2021	Jul.	1,562
2021	Aug.	1,573
2021	Sep.	1,530
2021	Oct.	1,520
2021	Nov.	1,679

Source: U.S. Census Bureau, New Residential Construction, Annual Rate for Housing Units Started, United States, Seasonally Adjusted Total Units (Thousands of Units), (retrieved November 18, 2021), https://www.census.gov/econ/currentdata/dbsearch.

Table D-2
Dodge Momentum Index, by year and by month

Year	Month	Index (2000=100) seasonally adjusted
2018	Jan.	141.7
2018	Feb.	144.4
2018	Mar.	140.9
2018	Apr.	133.7
2018	May	139.6
2018	Jun.	139.6
2018	Jul.	132.2
2018	Aug.	127.1
2018	Sep.	115.6
2018	Oct.	131.3
2018	Nov.	148.6
2018	Dec.	151.5
2019	Jan.	146.2
2019	Feb.	146.0
2019	Mar.	153.7
2019	Apr.	164.9
2019	May	164.2
2019	Jun.	167.3
2019	Jul.	169.0
2019	Aug.	163.7
2019	Sep.	157.0
2019	Oct.	151.7
2019	Nov.	159.7
2019	Dec.	150.6
2020	Jan.	153.6
2020	Feb.	144.8
2020	Mar.	145.1
2020	Apr.	142.4
2020	May	140.5
2020	Jun.	145.6
2020	Jul.	139.6
2020	Aug.	137.9
2020	Sep.	142.7
2020	Oct.	150.9
2020	Nov.	153.9
2020	Dec.	156.7

Table continued.

Table D-2 Continued

Dodge Momentum Index, by year and by month

Year	Month	Index (2000=100) seasonally adjusted
2021	Jan.	151.4
2021	Feb.	148.8
2021	Mar.	149.5
2021	Apr.	149.5
2021	May	175.1
2021	Jun.	164.9
2021	Jul.	154
2021	Aug.	148.7
2021	Sep.	164.6
2021	Oct.	181.2
2021	Nov.	170.7

Source: Compiled from data from Dodge Data & Analytics, Dodge Momentum Index, January 2018–November 2021. https://www.construction.com/news.

Note: The Dodge Momentum Index is a seasonally adjusted monthly measure of the first or initial report for nonresidential building projects in planning, which have been shown to lead construction spending for nonresidential buildings by a full year. Dodge Analytics, “Dodge Momentum Index Pulls Back in July”, August 6, 2021, https://www.construction.com/news/Dodge-Momentum-Index-Pulls-Back-In-July.

Table D-3

GDP: Real gross domestic product, percent change from preceding quarter, seasonally adjusted at annual rates, by period

Quarter	GDP percent change
2018 Q1	3.1
2018 Q2	3.4
2018 Q3	1.9
2018 Q4	0.9
2019 Q1	2.4
2019 Q2	3.2
2019 Q3	2.8
2019 Q4	1.9
2020 Q1	(5.1)
2020 Q2	(31.2)
2020 Q3	33.8
2020 Q4	4.5
2021 Q1	6.3
2021 Q2	6.7
2021 Q3	2.0

Source: U.S. Bureau of Economic Analysis, National Data, National Income and Product Accounts, https://www.bea.gov/data/gdp/gross-domestic-product, accessed November 18, 2021.

Table D-4

U.S. Manufacturers' Monthly Shipments of Central Air Conditioners and Contiguous U.S. Average Monthly Temperature, by year and by month

Quantity in units, average temperature in degrees Fahrenheit

Year	Month	Quantity (units)	Average temperature
2018	Jan.	266,857	32
2018	Feb.	307,522	36
2018	Mar.	528,041	43
2018	Apr.	489,558	49
2018	May	673,010	66
2018	Jun.	783,705	72
2018	Jul.	597,786	75
2018	Aug.	494,177	74
2018	Sep.	379,698	68
2018	Oct.	311,728	54
2018	Nov.	274,586	40
2018	Dec.	292,320	36
2019	Jan.	283,498	33
2019	Feb.	315,183	32
2019	Mar.	515,353	40
2019	Apr.	488,907	53
2019	May	659,423	59
2019	Jun.	716,424	69
2019	Jul.	613,974	75
2019	Aug.	499,252	74
2019	Sep.	380,581	68
2019	Oct.	315,498	52
2019	Nov.	267,994	41
2019	Dec.	303,688	36
2020	Jan.	308,311	36
2020	Feb.	325,697	36
2020	Mar.	546,992	46
2020	Apr.	398,040	51
2020	May	522,624	61
2020	Jun.	754,433	70
2020	Jul.	675,373	76
2020	Aug.	639,349	75
2020	Sep.	573,565	66
2020	Oct.	497,986	54
2020	Nov.	346,023	46
2020	Dec.	321,891	36

Table continued.

Table D-4 Continued

U.S. Manufacturers' Monthly Shipments of Central Air Conditioners and Contiguous U.S. Average Monthly Temperature, by year and by month

Quantity in units, average temperature in degrees Fahrenheit

Year	Month	(Quantity) units	Average temperature
2021	Jan.	408,831	35
2021	Feb.	363,045	31
2021	Mar.	576,646	46
2021	Apr.	602,723	52
2021	May	642,306	60
2021	Jun.	682,825	73
2021	Jul.	615,860	75
2021	Aug.	588,595	74
2021	Sep.	578,553	68

Source: Compiled from data from the Air-Conditioning, Heating, and Refrigeration Institute, U.S. Heating and Cooling Equipment Shipment Data, January 2018–September 2021, (retrieved November 18, 2021), https://www.ahrinet.org/statistics and the National Oceanic and Atmospheric Administration (NOAA) National Centers for Environmental Information, Climate at a Glance: National Time Series, published November 2021, (retrieved on November 18, 2021), https://www.ncdc.noaa.gov/cag/national/time-series/110/tavg/1/2/2021-2021.