1,1,1,2-Tetrafluoroethane (R-134a) from China

Investigation No. 731-TA-1313 (Review)

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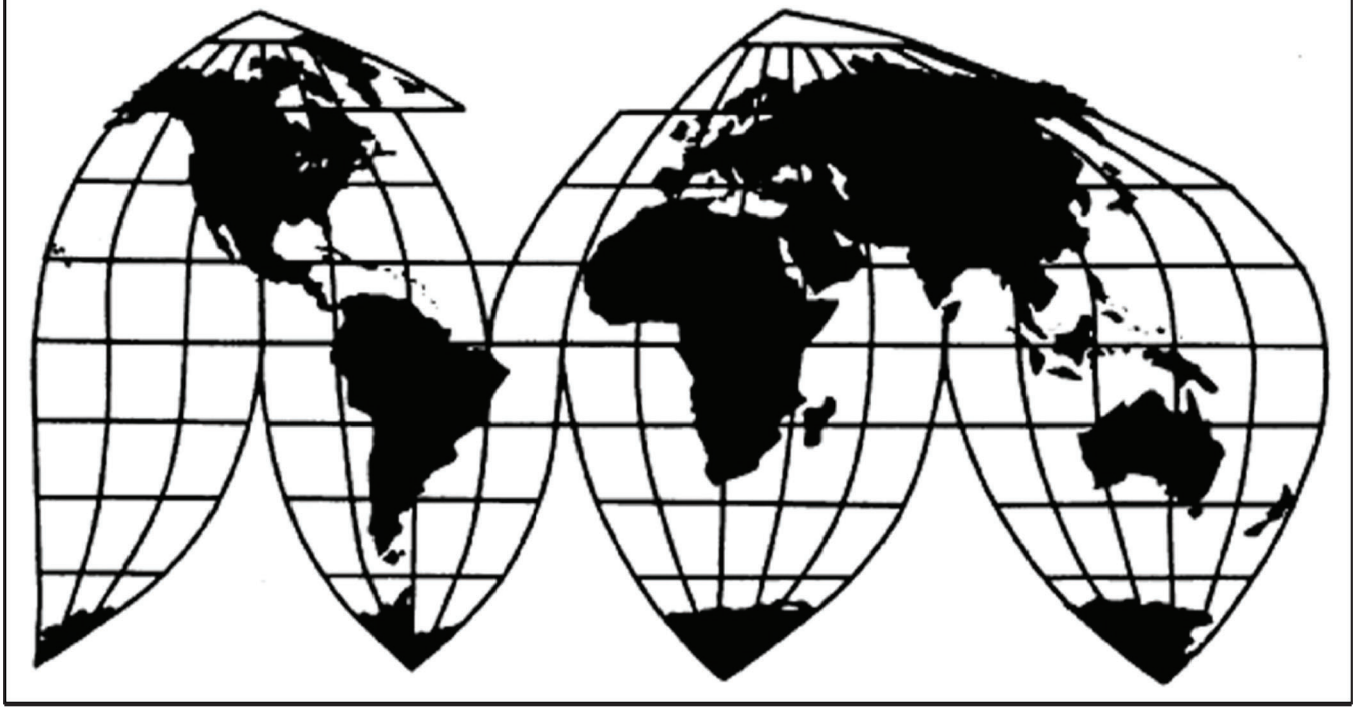
U.S. International Trade Commission



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UNITED STATES INTERNATIONAL TRADE COMMISSION

Investigation No. 731-TA-1313 (Review)

1,1,1,2-Tetrafluoroethane (R-134a) from China

DETERMINATION

On the basis of the record[1] developed in the subject five-year review, the United States International Trade Commission ("Commission") determines, pursuant to the Tariff Act of 1930 ("the Act"), that revocation of the antidumping duty order on 1,1,1,2-tetrafluoroethane (R-134a) from China would be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.

BACKGROUND

The Commission instituted this review on March 1, 2022 (87 FR 11475) and determined on June 6, 2022, that it would conduct an expedited review (87 FR 57517, September 20, 2022).

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

Views of the Commission

Based on the record in this five-year review, we determine under section 751(c) of the Tariff Act of 1930, as amended ("the Tariff Act"), that revocation of the antidumping duty order on 1, 1, 1, 2-Tetrafluoroethane ("R-134a") from China would be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.

I. Background

Original Investigation. In March 2016, the American HFC Coalition and its individual members (Amtrol, Inc. ("Amtrol"); Arkema Inc. ("Arkema"); The Chemours Company FC LLC ("Chemours"); Honeywell International Inc. ("Honeywell"); Hudson Technologies ("Hudson"); Mexichem Fluor Inc. ("Mexichem"); and Worthington Industries, Inc. ("Worthington")), as well as District Lodge 154 of the International Association of Machinists and Aerospace Workers, filed an antidumping duty petition regarding imports of R-134a from China.[1] The Commission determined in April 2017 that an industry in the United States was materially injured by reason of imports of R-134a from China that had been found by the U.S. Department of Commerce ("Commerce") to be sold in the United States at less-than-fair-value.[2] On April 19, 2017, Commerce issued an antidumping duty order on imports of R-134a from China.[3]

[1] *1, 1, 1, 2– Tetrafluoroethane (R-134a) from China*, Inv. No. 731-TA-1313 (Final), USITC Pub. 4679 (Apr. 2017) ("*Original Determination*") at I-1.

[2] *Original Determination*, USITC Pub. 4679 at 3 and 26.

[3] *1, 1, 1, 2 Tetrafluoroethane (R-134a) from the People's Republic of China: Antidumping Duty Order,* 82 Fed. Reg. 18422 (Apr. 19, 2017).

Current Review. The Commission instituted the current five-year review on March 1, 2022.[4] The American HFC Coalition and its current individual members ("Coalition") submitted a response to the notice of institution.[5] No respondent party responded to the notice of institution or participated in this review. On June 6, 2022, the Commission determined that the domestic interested party group response to the notice of institution was adequate and that the respondent interested party group response was inadequate. In the absence of any other circumstances that would warrant a full review, the Commission determined that it would conduct an expedited review of the order.[6] The Coalition submitted final comments pursuant to Commission rule 207.62(d)(1) on September 23, 2022.[7]

U.S. industry data for this review are based on the information that the Coalition and its members, which are estimated to have accounted for 100 percent of domestic production of R-134a in 2021, furnished in their response to the notice of institution.[8] U.S. import data and related information are based on Commerce's official import statistics.[9] Foreign industry data

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[4] *1, 1, 1, 2– Tetrafluoroethane (R-134a) From China; Institution of a Five-Year Review,* 87 Fed. Reg. 11475 (Mar. 1, 2022).

[5] American HFC Coalition Response, EDIS Doc. 767105 ("Coalition Response") (Mar. 31, 2022). The following Coalition members manufacture, produce, or wholesale the domestic like product: Arkema, Chemours, Honeywell, and Mexichem. *See* Coalition Response, at 1 and n.1. *** was also an importer of R-134a from China. *See* Confidential Report, INV-UU-054 (May 25, 2022) ("CR")/Public Report ("PR") at Table I-2 and note; *see also* Coalition Response at 31 and Exhibit 3, and Coalition Supplemental Response, EDIS Doc. 768705 (Apr. 19, 2022) at 3-4.

[6] *1, 1, 1, 2– Tetrafluoroethane (R-134a) From China; Scheduling of an Expedited Five-Year Review*, 87 Fed. Reg. 57517 (Sep. 20, 2022).

[7] Coalition Final Comments, EDIS Doc. 780973 (Sep. 23, 2022).

[8] CR/PR at Table I-2 and note; Coalition Response at 30.

[9] *See* CR/PR at Table I-6. From the original investigation through 2021, R-134a was imported under eo nomine statistical reporting number 2903.39.2020; however, the product was reclassified in the 2022 Basic edition of the HTS to 2903.45.1000, which includes both R-134a and HFC-134. CR/PR I-6 at n.14.

and related information are based on information from the original investigation, information furnished by the Coalition in this review, and publicly available information gathered by the Commission.[10] Four firms, ***, identified by the Coalition as leading U.S. R-134a purchasers, responded to the Commission's adequacy phase questionnaire.[11]

II. Domestic Like Product and Industry

A. Domestic Like Product

In making its determination under section 751(c) of the Tariff Act, the Commission defines the "domestic like product" and the "industry."[12] 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 under this subtitle."[13] The Commission's practice in five-year reviews is to examine the domestic like product definition from the original investigation and consider whether the record indicates any reason to revisit the prior findings.[14]

Commerce has defined the scope of the antidumping duty order in this five-year review as follows:

> 1,1,1,2-Tetrafluoroethane, R-134a, or its chemical equivalent, regardless of form, type, or purity level. The chemical formula for 1,1,1,2-

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[10] *See* CR/PR at I-18-21. *See also* Coalition Response at 12-14 and Table 1.

[11] CR/PR at D-3-4.

[12] 19 U.S.C. § 1677(4)(A).

[13] 19 U.S.C. § 1677(10); *see*, *e.g., Cleo Inc. v. United States*, 501 F.3d 1291, 1299 (Fed. Cir. 2007); *NEC Corp. v. Dep't of Commerce*, 36 F. Supp. 2d 380, 383 (Ct. Int'l Trade 1998); *Nippon Steel Corp. v. United States*, 19 CIT 450, 455 (1995); *Timken Co. v. United States*, 913 F. Supp. 580, 584 (Ct. Int'l Trade 1996); *Torrington Co. v. United States*, 747 F. Supp. 744, 748-49 (Ct. Int'l Trade 1990), *aff'd*, 938 F.2d 1278 (Fed. Cir. 1991); *see also* S. Rep. No. 249, 96th Cong., 1st Sess. 90-91 (1979).

[14] *See*, *e.g.*, *Internal Combustion Industrial Forklift Trucks from Japan*, Inv. No. 731-TA-377 (Second Review), USITC Pub. 3831 at 8-9 (Dec. 2005); *Crawfish Tail Meat from China*, Inv. No. 731-TA-752 (Review), USITC Pub. 3614 at 4 (July 2003); *Steel Concrete Reinforcing Bar from Turkey*, Inv. No. 731-TA-745 (Review), USITC Pub. 3577 at 4 (Feb. 2003).

> Tetrafluoroethane is CF_3-CH_2F, and the Chemical Abstracts Service (CAS) registry number is CAS 811-97-2.
>
> Merchandise subject to the order is currently classified in the Harmonized Tariff Schedule of the United States (HTSUS) at subheading 2903.45.1000. Although the HTSUS subheading and CAS registry number are provided for convenience and customs purposes, the written description of the scope is dispositive.[15]

R-134a is a single component refrigerant that is a clear, colorless liquid or gas that is relatively nontoxic and nonflammable. It is used in various refrigerant applications, including automotive air conditioning systems and stationary commercial air conditioning and refrigeration, as well as various other applications such as foam expansion and propellants.[16] For some of these applications, such as vehicle air conditioning systems and propellants, R-134a is used as a standalone refrigerant or compound. However, for some air conditioning and refrigeration applications, R-134a is used as a component in a blended refrigerant.[17]

In the original investigation, the Commission found that all domestically produced R-134a shares the same physical characteristics and general uses and that all R-134a is made from the

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[15] *1, 1, 1, 2-Tetrafluoroethane (R-134a) From the People's Republic of China: Final Results of the Expedited First Sunset Review of the Antidumping* Order, 87 Fed. Reg. 40498 (Jul. 7, 2022) ("Commerce AD Sunset Determination"); *Issues and Decision Memorandum for the Expedited First Sunset Review of the Antidumping Duty Order on 1, 1, 1, 2-Tetrafluoroethane (R-134a) from the People's Republic of China* (Jun. 29, 2022) ("Commerce I&D Memo") at 2 (footnote omitted). 1,1,1,2-Tetrafluoroethane is sold under a number of trade names including Klea 134a and Zephex 134a (Mexichem Fluor); Genetron 134a (Honeywell); Freon™ 134a, Suva 134a, Dymel 134a, and Dymel P134a (Chemours); Solkane 134a (Solvay); and Forane 134a (Arkema). Generically, 1,1,1,2-Tetrafluoroethane has been sold as Fluorocarbon 134a, R-134a, HFC-134a, HF A-134a, Refrigerant 134a, and UN3159. Commerce I&D Memo at n.6.

[16] CR/PR at I-7-8.

[17] CR/PR at I-8. There is an antidumping duty order on hydrofluorocarbon blends, some of which include R-134a, from China. *See Hydrofluorocarbon Blends and Components from China*, Inv. No. 731-TA-1279 (Final), USITC Pub. 4629 (Aug. 2016) and *Hydrofluorocarbon Blends and Components from China*, Inv. No. 731-TA-1279 (Review), USITC Pub. 5278 (Feb. 2022).

same raw materials, is produced using similar chemical reactions, and is predominantly used for refrigeration purposes.[18] It also found that all R-134a is sold through similar channels of distribution.[19] Consequently, the Commission defined a single domestic like product consisting of R-134a that was coextensive with Commerce's scope.[20]

In this review, the record contains no new information suggesting that the characteristics of domestically produced R-134a have changed since the original investigation so as to warrant revisiting the Commission's domestic like product definition.[21] The Coalition agrees with the definition of the domestic like product adopted by the Commission in the original investigation.[22] Accordingly, we again define a single domestic like product consisting of all R-134a, coextensive with Commerce's scope.

B. Domestic Industry

Section 771(4)(A) of the Tariff Act defines the relevant industry 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."[23] In defining the domestic industry, the Commission's general practice has been to

[18] *Original Determination*, USITC Pub. 4679 at 6. *See also, 1, 1, 2 - Tetrafluoroethane (R-134a) from China*, Inv. No. 731-TA-1313 (Preliminary), USITC Pub. 4606 (Apr. 2016) ("*Preliminary Determination*") at 7.

[19] *Original Determination*, USITC Pub. 4679 at 5-6; *Preliminary Determination* at 7.

[20] *Original Determination*, USITC Pub. 4679 at 6; *Preliminary Determination* at 7.

[21] *See generally* CR/PR at I-6-10.

[22] Coalition Response at 31.

[23] 19 U.S.C. § 1677(4)(A). The definitions in 19 U.S.C. § 1677 are applicable to the entire subtitle containing the antidumping and countervailing duty laws, including 19 U.S.C. §§ 1675 and 1675a. *See* 19 U.S.C. § 1677.

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.

In the original investigation, the Commission defined a single domestic industry comprised of all domestic producers of R-134a.[24] There were no related party or other domestic industry issues.[25]

In the current review, 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.[26] Exclusion of such a producer is within the Commission's discretion based upon the facts presented in each investigation.[27]

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[24] *Original Determination*, USITC Pub. 4679 at 6.

[25] *Original Determination*, USITC Pub. 4679 at 6.

[26] *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).

[27] 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. U.S. Int'l Trade Comm'n*, 100 F. Supp. 3d 1314, 1326-31 (Ct. Int'l. Trade 2015); *see also Torrington Co. v. United States*, 790 F. Supp. at 1168.

Domestic producer *** is subject to the related party provision because it imported subject merchandise during the period of review.[28] The Coalition reported that *** imported subject merchandise in 2021[29] and did not address whether to exclude *** under the related parties provision. Rather, the Coalition stated that it agrees with the definition of the domestic industry that the Commission adopted in the original investigation that included all domestic producers of R-134a.[30]

*** reportedly imported *** short tons of R-134a in 2021,[31] and the ratio of its subject imports to domestic production in 2021 was *** percent.[32] It is one of the *** domestic producers of R-134a in the United States, accounting for *** percent of total reported U.S. production of R-134a in 2021.[33] It supports continuation of the order.[34]

In view of the fact that ***'s domestic production *** its volume of subject imports, its primary interest appears to be in domestic production. Given this, and the fact that *** accounted for the *** share of domestic production of R-134a in 2021 and that it supports continuation of the order, we find that appropriate circumstances do not exist to exclude it from the domestic industry pursuant to the related parties provision.

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[28] CR/PR at Table I-2 and note & Tables B-3, B-4; *see also* Coalition Response at 31 and Exhibit 3, and Coalition Supplemental Response at 3-4.

[29] Coalition Response at 31 and Exhibit 3, and Coalition Supplemental Response at 3-4.

[30] Coalition Response at 31.

[31] CR/PR at Table B-4. Because the Commission collected data only for 2021 in this expedited review, the record does not indicate whether *** imported additional subject merchandise during the rest of the period of review. Coalition Response at Exhibit 3; Coalition Supplemental Response at 3. There is no information on the record as to why *** imported subject merchandise during the period of review.

[32] *Calculated from* CR/PR Tables B-2, B-4.

[33] CR/PR at Table B-2.

[34] Coalition Response at 3.

Consistent with our definition of the domestic like product, we define the domestic industry as all U.S. producers of R-134a.

III. Revocation of the Antidumping Duty Order Would Likely Lead to Continuation or Recurrence of Material Injury Within a Reasonably Foreseeable Time

A. Legal Standards

In a five-year review conducted under section 751(c) of the Tariff Act, Commerce will revoke an antidumping or countervailing duty order unless: (1) it makes a determination that dumping or subsidization is likely to continue or recur and (2) the Commission makes a determination that revocation of the antidumping or countervailing duty order "would be likely to lead to continuation or recurrence of material injury within a reasonably foreseeable time."[35] The SAA states that "under the likelihood standard, the Commission will engage in a counterfactual analysis; it must decide the likely impact in the reasonably foreseeable future of an important change in the status quo – the revocation or termination of a proceeding and the elimination of its restraining effects on volumes and prices of imports."[36] Thus, the likelihood standard is prospective in nature.[37] The U.S. Court of International Trade ("CIT") has found that

[35] 19 U.S.C. § 1675a(a).

[36] SAA at 883-84. The SAA states that "{t}he likelihood of injury standard applies regardless of the nature of the Commission's original determination (material injury, threat of material injury, or material retardation of an industry). Likewise, the standard applies to suspended investigations that were never completed." *Id*. at 883.

[37] While the SAA states that "a separate determination regarding current material injury is not necessary," it indicates that "the Commission may consider relevant factors such as current and likely continued depressed shipment levels and current and likely continued {sic} prices for the domestic like product in the U.S. market in making its determination of the likelihood of continuation or recurrence of material injury if the order is revoked." SAA at 884.

"likely," as used in the five-year review provisions of the Act, means "probable," and the Commission applies that standard in five-year reviews.[38]

The statute states that "the Commission shall consider that the effects of revocation or termination may not be imminent, but may manifest themselves only over a longer period of time."[39] According to the SAA, a "'reasonably foreseeable time' will vary from case-to-case, but normally will exceed the 'imminent' timeframe applicable in a threat of injury analysis in original investigations."[40]

Although the standard in a five-year review is not the same as the standard applied in an original investigation, it contains some of the same fundamental elements. The statute provides that the Commission is to "consider the likely volume, price effect, and impact of imports of the subject merchandise on the industry if the orders are revoked or the suspended investigation is terminated."[41] It directs the Commission to take into account its prior injury determination, whether any improvement in the state of the industry is related to the order or the suspension

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[38] *See NMB Singapore Ltd. v. United States*, 288 F. Supp. 2d 1306, 1352 (Ct. Int'l Trade 2003) ("'likely' means probable within the context of 19 U.S.C. § 1675(c) and 19 U.S.C. § 1675a(a)"), *aff'd mem.*, 140 Fed. Appx. 268 (Fed. Cir. 2005); *Nippon Steel Corp. v. United States*, 26 CIT 1416, 1419 (2002) (same); *Usinor Industeel, S.A. v. United States*, 26 CIT 1402, 1404 nn.3, 6 (2002) ("more likely than not" standard is "consistent with the court's opinion;" "the court has not interpreted 'likely' to imply any particular degree of 'certainty'"); *Indorama Chemicals (Thailand) Ltd. v. United States*, 26 CIT 1059, 1070 (2002) ("standard is based on a likelihood of continuation or recurrence of injury, not a certainty"); *Usinor v. United States*, 26 CIT 767, 794 (2002) ("'likely' is tantamount to 'probable,' not merely 'possible'").

[39] 19 U.S.C. § 1675a(a)(5).

[40] SAA at 887. Among the factors that the Commission should consider in this regard are "the fungibility or differentiation within the product in question, the level of substitutability between the imported and domestic products, the channels of distribution used, the methods of contracting (such as spot sales or long-term contracts), and lead times for delivery of goods, as well as other factors that may only manifest themselves in the longer term, such as planned investment and the shifting of production facilities." *Id*.

[41] 19 U.S.C. § 1675a(a)(1).

agreement under review, whether the industry is vulnerable to material injury if an order is revoked or a suspension agreement is terminated, and any findings by Commerce regarding duty absorption pursuant to 19 U.S.C. § 1675(a)(4).[42] The statute further provides that the presence or absence of any factor that the Commission is required to consider shall not necessarily give decisive guidance with respect to the Commission's determination.[43]

In evaluating the likely volume of imports of subject merchandise if an order under review is revoked and/or a suspended investigation is terminated, the Commission is directed to consider whether the likely volume of imports would be significant either in absolute terms or relative to production or consumption in the United States.[44] In doing so, the Commission must consider "all relevant economic factors," including four enumerated factors: (1) any likely increase in production capacity or existing unused production capacity in the exporting country; (2) existing inventories of the subject merchandise, or likely increases in inventories; (3) the existence of barriers to the importation of the subject merchandise into countries other than the United States; and (4) 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.[45]

In evaluating the likely price effects of subject imports if an order under review is revoked and/or a suspended investigation is terminated, the Commission is directed to consider whether

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[42] 19 U.S.C. § 1675a(a)(1). Commerce has not made any duty absorption findings with respect to the order under review. Commerce I&D Memorandum at 4.

[43] 19 U.S.C. § 1675a(a)(5). Although the Commission must consider all factors, no one factor is necessarily dispositive. SAA at 886.

[44] 19 U.S.C. § 1675a(a)(2).

[45] 19 U.S.C. § 1675a(a)(2)(A-D).

there is likely to be significant underselling by the subject imports as compared to the domestic like product and whether the subject imports are likely to enter the United States at prices that otherwise would have a significant depressing or suppressing effect on the price of the domestic like product.[46]

In evaluating the likely impact of imports of subject merchandise if an order under review is revoked and/or a suspended investigation is terminated, the Commission is directed to consider all relevant economic factors that are likely to have a bearing on the state of the industry in the United States, including but not limited to the following: (1) likely declines in output, sales, market share, profits, productivity, return on investments, and utilization of capacity; (2) likely negative effects on cash flow, inventories, employment, wages, growth, ability to raise capital, and investment; and (3) likely negative effects on the existing development and production efforts of the industry, including efforts to develop a derivative or more advanced version of the domestic like product.[47] All relevant economic factors are to be considered within the context of the business cycle and the conditions of competition that are distinctive to the industry. As instructed by the statute, we have considered the extent to which any improvement in the state of the domestic industry is related to the orders under review and whether the industry is vulnerable to material injury upon revocation.[48]

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[46] *See* 19 U.S.C. § 1675a(a)(3). The SAA states that "{c}onsistent with its practice in investigations, in considering the likely price effects of imports in the event of revocation and termination, the Commission may rely on circumstantial, as well as direct, evidence of the adverse effects of unfairly traded imports on domestic prices." SAA at 886.

[47] 19 U.S.C. § 1675a(a)(4).

[48] The SAA states that in assessing whether the domestic industry is vulnerable to injury if the order is revoked, the Commission "considers, in addition to imports, other factors that may be (Continued…)

No respondent interested party participated in this expedited review. The record, therefore, contains limited new information with respect to the R-134a industry in China. There also is limited information about the market for R-134a in the United States during the period of review. Accordingly, for our determination, we rely as appropriate on the facts available from the original investigation and the limited new information in the record of this review.

B. Conditions of Competition and the Business Cycle

In evaluating the likely impact of the subject imports on the domestic industry if an order is revoked, the statute directs the Commission to consider all relevant economic factors "within the context of the business cycle and conditions of competition that are distinctive to the affected industry."[49] The following conditions of competition inform our determination.

1. Demand Conditions

Original Investigation. The Commission determined that demand for R-134a was derived from demand for products in which it is incorporated. These include air conditioning systems, particularly automotive air conditioning systems, as well as propellant in aerosol cans, foam expansion agents and pharmaceutical applications such as asthma inhalers.[50] The Commission also found that demand for R-134a was seasonal and highest during the spring and summer, with R-134a producers increasing shipments during the first half of the year and purchasers building inventory levels in preparation for the warmer summer months.[51]

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contributing to overall injury. While these factors, in some cases, may account for the injury to the domestic industry, they may also demonstrate that an industry is facing difficulties from a variety of sources and is vulnerable to dumped or subsidized imports." SAA at 885.

[49] 19 U.S.C. § 1675a(a)(4).

[50] *Original Determination*, USITC 4679 at 11.

[51] *Original Determination*, USITC 4679 at 11.

The Commission observed that of the end-use applications, automotive air conditioning accounted for approximately one-half of the U.S. market for R-134a, with sales to automotive original equipment manufacturers ("OEMS") accounting for 12 percent of the domestic market and sales to the automotive aftermarket accounting for 35 percent of the domestic market.[52] It also stated that while U.S. Environmental Protection Agency ("EPA") regulations require that all automotive OEMs shift from R-134a to the next generation of refrigerants by 2021, eliminating much of the automotive OEM market for R-134a, the parties agreed that the automotive aftermarket for R-134a would continue to be a significant source of demand for the product in the foreseeable future.[53]

The Commission found that apparent U.S. consumption of R-134a increased from 82,215 short tons in 2013 to 84,348 short tons in 2014 and then fell to 70,454 short tons in 2015.[54] Apparent U.S. consumption was 56,718 short tons in January-September ("interim") 2015 and 82,303 short tons in interim 2016.[55]

Current Review. The information available indicates that the drivers of demand remain largely unchanged from the prior proceedings. In 2021, apparent U.S. consumption of R-134a was 77,466 short tons, which is higher than apparent U.S. consumption in the final full year of the original period of investigation ("POI").[56]

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[52] *Original Determination*, USITC 4679 at 11.
[53] *Original Determination*, USITC 4679 at 11.
[54] *Original Determination*, USITC 4679 at 11.
[55] *Original Determination*, USITC 4679 at 12.
[56] CR/PR at Table I-7.

According to the Coalition, demand for R-134a continues to be dependent on the products in which it is incorporated and is seasonal, with demand peaking in spring and summer.[57] The Coalition notes that EPA regulations required that all automotive OEMs shift from R-134a to next-generation refrigerants such as hydrofluoroolefins ("HFOs") by 2021. The Coalition claims nevertheless that demand for R-134a for aftermarket automotive applications will continue to be significant, along with OEM and aftermarket sales for stationary air conditioning and sales for foam expansion and propellant applications.[58]

The Coalition also notes that the EPA published rules recently pursuant to the American Invocation and Manufacturing ("AIM") Act that require the phase down of all production and consumption of hydrofluorocarbons ("HFCs") in the coming years.[59] The AIM Act, enacted on December 27, 2020, intends to reduce production and use of HFCs by lowering the allowable annual sums of the global warming potentials ("GWPs") for all HFCs consumed, produced, and imported each year. [60] The EPA will publish annual GWP allowances for firms, which will apply to all of their HFC products, rather than being on a product-by-product basis.[61] The Coalition asserts that the EPA's annual allocations make it difficult to forecast future production and consumption with much certainty. For the first-year allowances in 2022, it claims importers of HFC blends and

[57] Coalition Response at 11. *See also* Coalition Final Comments at 5.

[58] Coalition Response, at 12.

[59] Coalition Response, at 12.

[60] CR/PR at I-11. The AIM Act was enacted in alignment with the Kigali Amendment of the Montreal Protocol. CR/PR at I-10. The Kigali Amendment commits signatory countries to phase down their production and consumption of HFCs, including R-134a, by more than 80 percent over the next 30 years. *Id*.

[61] CR/PR at I-10-11.

components from China obtained high allocations from EPA, due to their historic presence in the U.S. market.[62]

Among the purchasers responding to the adequacy phase questionnaires, *** addressed demand conditions. *** reported that there had been *** in the supply and demand conditions since April 20, 2017, but also reported that *** in the reasonably foreseeable future.[63]

2. Supply Conditions

Original Investigation. The Commission found that the domestic industry supplied the majority of R-134a to the U.S. market but lost market share over the POI in all applications for which data were collected.[64] U.S. producers' share of apparent U.S. consumption declined from 2013 to 2015, and was lower in interim 2016 compared to interim 2015.[65] The Commission observed that the domestic industry's shipments were concentrated in the automotive aftermarket, the foam expansion and propellant market, and "other" portions of the market.[66] It also noted that one domestic producer experienced a scheduled shutdown for maintenance followed by a subsequent unplanned shutdown during the POI.[67]

The Commission found that subject imports supplied most of the remainder of the U.S. market and gained market share over the POI.[68] It stated that subject imports had some presence in markets for all applications, and were concentrated in the automotive aftermarket,

[62] Coalition Response, at 12-13.
[63] CR/PR at D-4.
[64] *Original Determination*, USITC 4679 at 12.
[65] *Original Determination*, USITC 4679 at 12.
[66] *Original Determination*, USITC 4679 at 12.
[67] *Original Determination*, USITC 4679 at 12.
[68] *Original Determination*, USITC 4679 at 12.

the stationary aftermarket, and the "other" segment.[69] The Commission also observed that R-134a from China was subject to earlier antidumping and countervailing duty investigations from 2013 to 2014.[70] It noted that, as a result of those investigations, imports of R-134a from China were subject to provisional countervailing duties from April 18, 2014, through December 9, 2014,[71] and to provisional antidumping duties from May 29, 2014, through December 9, 2014.[72] The provisional duties were no longer collected after December 9, 2014, when the Commission issued negative determinations in those investigations.[73]

The Commission found that nonsubject imports had a minimal presence in the U.S. market throughout the POI.[74] It observed that the primary sources of nonsubject imports were the United Kingdom and India.[75]

Current Review. The domestic industry was the largest source of supply to the U.S. market in 2021, with its U.S. shipments of 69,583 short tons accounting for 89.8 percent of apparent U.S. consumption, higher than its share of apparent U.S. consumption during the

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[69] Original Determination, USITC 4679 at 12; *see also* 1, 1, 1, 2-Tetrafluoroethane from China, Inv. Nos. 701-TA-509 and 731-TA-1244 (Final), USITC Pub. 4503 (Dec. 2014) ("2014 R-134a Determinations").

[70] *Original Determination*, USITC 4679 at 12; *see also 2014 R-134a Determinations*.

[71] *Original Determination*, USITC 4679 at 12; *see also Countervailing Duty Investigation of 1, 1, 1, 2-Tetrafluoroethane From the People's Republic of China: Preliminary Affirmative Determination and Alignment of Final Determination with Final Antidumping Determination*, 79 Fed. Reg. 21895 (Apr. 18, 2014); *1, 1, 1, 2-Tetrafluoroethane from China*, 79 Fed. Reg. 73102 (Dec. 9, 2014).

[72] *Original Determination*, USITC 4679 at 12-13; *see also 1, 1, 1, 2-Tetrafluoroethane From the People's Republic of China: Antidumping Duty Investigation, Preliminary Determination of Sales at Less Than Fair Value, Affirmative Preliminary Determination of Critical Circumstances, in Part, and Postponement of Final Determination*, 79 Fed. Reg. 30817 (May 29, 2014); *1, 1, 1, 2-Tetrafluoroethane from China*, 79 Fed. Reg. 73102 (Dec. 9, 2014).

[73] *Original Determination*, USITC 4679 at 13; *see also 1, 1, 1, 2-Tetrafluoroethane from China*, 79 Fed. Reg. 73102 (Dec. 9, 2014); *2014 R-134a Determinations*, USITC Pub. 4503 at 5-6.

[74] *Original Determination*, USITC 4679 at 13.

[75] *Original Determination*, USITC 4679 at 13.

original POI.[76] Subject imports were the smallest source of supply to the U.S. market in 2021, totaling 1,859 short tons and accounting for 2.4 percent of apparent U.S. consumption that year, lower than their share of apparent U.S. consumption during the original POI.[77] Nonsubject imports were the second largest source of supply in 2021, totaling 6,024 short tons and accounting for 7.8 percent of apparent U.S. consumption that year, higher than their share during the POI.[78] The largest nonsubject sources during the review period were India, Germany, and the United Kingdom.[79]

With respect to changes in supply since April 20, 2017, responding purchasers *** reported that the ***.[80] With respect to anticipated changes in supply conditions in the reasonably foreseeable future, *** reported that ***.[81]

3. Substitutability and Other Conditions

Original Investigation. The Commission found a high degree of substitutability between domestically produced R-134a and subject imports,[82] and that price was an important factor in purchasing decisions.[83]

Current Review. The record in this review contains no new information to indicate that the degree of substitutability between the domestic like product and subject imports or the

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[76] CR/PR at Table I-7. The domestic industry's market share was 79.6 percent in 2013, 81.3 percent in 2014, and 76.5 percent in 2015. *Id.*

[77] CR/PR at Table I-7. Subject import market share was 19.3 percent in 2013, 14.1 percent in 2014, and 21.9 percent in 2015. *Id.*

[78] CR/PR at Table I-7. Nonsubject import market share was 1.0 percent in 2013, 4.5 percent in 2014, and 1.6 percent in 2015. *Id.*

[79] CR/PR at Table I-6.

[80] CR/PR at D-4.

[81] CR/PR at D-4.

[82] *Original Determination*, USITC Pub. 4679 at 13.

[83] *Original Determination*, USITC Pub. 4679 at 13.

importance of price in purchasing decisions has changed since the original investigation.[84] Accordingly, we again find a high degree of substitutability between the domestic like product and subject imports and that price continues to be an important factor in purchasing decisions.

An additional 15 percent *ad valorem* duty on imports of R-134a produced in China was scheduled to go into effect on December 15, 2019, under section 301 of the Trade Act of 1974;[85] however, negotiations led to a suspension of the implementation of these additional duties. There are currently no section 301 duties in effect for subheading 2903.45.10.[86]

C. Likely Volume of Subject Imports

1. Original Investigation

The Commission observed that subject import volume declined from 2013 to 2014, when imports of R-134a from China were subject to a prior investigation and provisional duties for almost eight months, and that in 2015, when subject imports from China were no longer subject to investigation, they increased to a level comparable to that of 2013.[87] The volume of subject imports was more than twice as high in interim 2016 compared to interim 2015.[88]

The Commission also found that despite the small decrease in the volume of subject imports between 2013 and 2014, the market share held by subject imports increased overall

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[84] *See* Coalition Response at 15. Coalition Final Comments at 4.

[85] 19 U.S.C. § 2411.

[86] CR/PR at I-6; Harmonized Tariff Schedule of the United States (2022), 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 Fed. Reg. 69447), *Notice of Modification of Section 301 Action: China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation*. CR/PR at I-6 n.15.

[87] *Original Determination*, USITC Pub. 4679 at 14.

[88] *Original Determination*, USITC Pub. 4679 at 14.

during the full three-years of the POI. Subject imports' market share was higher in interim 2016 as compared to interim 2015.[89]

The Commission found that subject imports gained market share over the entire POI at the expense of domestic industry, observing that although over 80 percent of subject imports were sold in the automotive aftermarket, they increased their share in all end-use applications.[90]

Based on the foregoing, the Commission found that the volume of subject imports was significant on an absolute basis and relative to consumption and also found that the increase in volume was significant in absolute terms and relative to consumption in the United States. [91]

2. Current Review

Subject imports maintained a continuous presence in the U.S. market throughout the period of review, although the order has had a disciplining effect on subject import volumes. Subject import volumes totaled 25,451 short tons in 2016, 5,879 short tons in 2017, 129 short tons in 2018, 144 short tons in 2019, 143 short tons in 2020, and 1,859 short tons in 2021.[92] Their market share by quantity was 2.4 percent in 2021.[93]

The record in this expedited review contains limited information on the R-134a industry in China. The information available indicates that subject producers in China have the means to increase exports of subject merchandise to the U.S. market within a reasonably foreseeable time if the order were revoked. In the original investigation, the Commission issued foreign producer

[89] *Original Determination*, USITC Pub. 4679 at 14.
[90] *Original Determination*, USITC Pub. 4679 at 14.
[91] *Original Determination*, USITC Pub. 4679 at 14.
[92] CR/PR at Table I-6.
[93] CR/PR at Table I-7.

questionnaires to 28 firms believed to produce and/or export subject merchandise;[94] in the current review, the Coalition provided a list of 30 possible current producers of R-134a in China.[95] Based on the data reported in the original investigation regarding subject producers' capacity, inventories, and product-shifting ability, the Coalition argues that producers in China have the capacity to resume significant exports of subject merchandise to the United States if the order were revoked.[96] There is no information in the current review suggesting a decline in capacity or ability of producers in China to increase production since the original investigation. Additionally, pursuant to the Kigali Amendment of the Montreal Protocol, signatory developing economies like China are not required to cap their production and use of HFCs until at least 2024 or begin reducing these levels before 2029.[97] Thus, the available information indicates that the subject industry in China remains large with considerable capacity.

Moreover, the available information indicates that exports from producers in China are substantial and increasing, further demonstrating the large size of the industry in China as well as indicating that subject producers are export oriented. Global Trade Atlas ("GTA") data indicates that China is the world's largest exporter of fluorinated, brominated, or iodinated derivatives of acyclic hydrocarbons, a product category which includes R-134a and out-of-scope merchandise,

[94] *Original Determination*, USITC Pub. at VII-3.
[95] Coalition Response at I-28 and Ex. 5.
[96] Coalition Response at 16 and 22; Coalition Final Comments at 9-11 (citing *Original Determination*, USITC Pub. 4674 at VII-4 and Tables VII-3, VII-5).
[97] CR/PR at I-18. *See also* Coalition Final Comments at 8.

with exports from China increasing steadily from 238,730 short tons in 2016 to 327,460 short tons in 2021.[98]

Furthermore, R-134a producers in China are likely to direct additional exports to the United States upon revocation, as they did following the conclusion of prior antidumping and countervailing duty investigations and provisional duties ended. As discussed above, subject import volume declined from 2013 to 2014 when they were subject to investigations and provisional duties, but thereafter increased to a level comparable to that of 2013 after those investigations and provisional duties.[99] Although subject imports declined after imposition of the antidumping duty order in 2017, they maintained a presence in the U.S. market, demonstrating the Chinese producers' continued interest in supplying the United States.[100] Indeed, according to GTA data, the United States was the largest destination for Chinese exports of fluorinated, brominated or iodinated derivatives of acyclic hydrocarbons, a category including R-134a and out-of-scope merchandise, in 2021.[101]

Moreover, while there are no trade remedy actions on standalone R-134a from China in third country markets, Argentina, the European Union ("EU"), and India have enacted trade measures on HFC blends containing R-134a.[102] The record also indicates that the EU has regulatory restrictions on fluorinated greenhouse gases that could act as non-tariff barriers to

[98] CR/PR at Table I-9. These numbers may be overstated as HS subheading 2903.39 may contain products outside the scope of this review. *Id*. at note.

[99] *Original Determination*, USITC Pub. 4679 at 14.

[100] CR/PR at Table I-6.

[101] CR/PR at Table I-8. *See also* Coalition Response at 19-20 and Coalition Final Comments at 11.

[102] CR/PR at I-19-20.

R-134a and the blends that contain it.[103] These restrictions provide further incentive for subject producers to direct exports to the U.S. market if the order is revoked. The Coalition cites recent anticircumvention proceedings regarding HFC blends, some of which contain R-134a, as further evidence of the attractiveness of the U.S. market for subject producers. The Coalition highlights the subject producers' ability to shift production among different products and the current U.S. antidumping duty order on HFC blends as evidence that subject imports will increase if the order were revoked.[104]

Based on the above, in particular the behavior of subject imports in the original investigation, the continued presence of subject imports in the U.S. market while under the discipline of the order, the size and export orientation of the subject industry, and the attractiveness of the U.S. market, we find that subject producers would likely direct additional volumes of R-134a to the United States if the order were revoked. Accordingly, we find that the volume of subject imports would likely be significant, both in absolute terms and relative to consumption in the United States, should the order be revoked.[105]

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[103] CR/PR at I-19-20.

[104] Coalition Response at 8-10, 15-16, 20-22 (citing *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 Fed. Reg. 15428, 15429 (Mar. 18, 2020); *Hydrofluorocarbon Blends from the People's Republic of China: Final Scope Ruling on Unpatented R-421A; Affirmative Final Determination of Circumvention of the Antidumping Duty Order for Unpatented R-421A*, 85 Fed. Reg. 34416, 34417-18 (Jun. 4, 2020); *Hydrofluorocarbon Blends from the People's Republic of China: Final Negative Scope Ruling on Gujarat Fluorochemicals Ltd.'s R-410A Blend; Affirmative Final Determination of Circumvention of the Antidumping Duty Order by Indian Blends Containing Chinese Components*, 85 Fed. Reg. 61930, 61932 (Oct. 1, 2020)); Coalition Final Comments at 9-12.

[105] We observe that the record in this expedited review contains no new information concerning inventories of the subject merchandise or the potential for product shifting, aside from the Coalition's arguments. No responding purchaser reported ***. *See* CR/PR at D-3-4.

D. Likely Price Effects

1. Original Investigation

The Commission found that subject imports undersold the domestic like product in 47 of 73 (or 64.4 percent of) quarterly price comparisons at margins averaging 12.9 percent.[106] On a volume basis, 46.0 million short tons of subject imports were in pricing comparisons with underselling, compared to 14.2 million tons in comparisons with overselling.[107] The Commission also examined purchase cost data for subject imports that were imported for direct use and were not resold in the market, accounting for almost *** percent of subject imports in 2015.[108] R-134a was priced lower than domestically produced bulk R-134a in all 12 quarters for which import purchase cost data were reported.[109] Even taking into account the additional costs assumed with direct importing, the record indicated that the reported purchase costs were generally lower than prices for domestically produced bulk R-134a.[110] Based on the high frequency of underselling and the importance of price in purchasing decisions, the Commission found that there was significant underselling.[111]

The Commission also found that subject imports depressed U.S. producers' prices to a significant degree. The pricing data showed declining prices over the POI, with prices for domestically produced R-134a declining for four of the five pricing products.[112] For all five pricing

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[106] *Original Determination*, USITC Pub. 4679 at 15.
[107] *Original Determination*, USITC Pub. 4679 at 15.
[108] *Original Determination*, USITC Pub. 4679 at 16. *Confidential Original Determination*, EDIS Doc. 769472 at 22.
[109] *Original Determination*, USITC Pub. 4679 at 16.
[110] *Original Determination*, USITC Pub. 4679 at 16.
[111] *Original Determination*, USITC Pub. 4679 at 16.
[112] *Original Determination*, USITC Pub. 4679 at 16.

products, subject import prices declined to a greater extent than prices for domestically produced R-134a, suggesting that subject imports were driving domestic prices lower.[113]

Accordingly, the Commission found that subject imports significantly undersold the domestic like product and, that as a result of this underselling, the subject imports gained market share at the expense of the domestic like product and depressed prices to a significant degree.[114]

2. Current Review

As previously discussed in Section III.B.3., we continue to find a high degree of substitutability between the domestic like product and subject imports and that price is an important factor in purchasing decisions. The record in this expedited review does not contain new product-specific pricing information. Based on the available information, we find that if the antidumping duty order were revoked, subject imports would likely undersell the domestic like product to gain sales and market share, as they did during the original investigation. Because price is an important factor in purchasing decisions and R-134a is highly substitutable regardless of source, the increased volume of low-priced subject imports after revocation would likely force domestic producers to either reduce their prices and/or forgo necessary price increases or risk losing sales and market share to subject imports.

Accordingly, we find that if the order were revoked, significant volumes of subject imports would likely undersell the domestic like product to a significant degree to gain market share and/or have a significant depressing or suppressing effect on prices for the domestic like product.

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[113] *Original Determination*, USITC Pub. 4679 at 16.
[114] *Original Determination*, USITC Pub. 4679 at 18.

E. Likely Impact

1. Original Investigation

The Commission found that the widespread underselling by subject imports resulted in the domestic industry losing market share, causing the domestic industry's output to be lower than it would have been otherwise.[115] It further found that most indicators of the domestic industry's performance declined over the POI, with declines most apparent during 2015 and interim 2016.[116] The Commission observed that capacity and production decreased over the period, while capacity utilization, U.S. shipments, and market share initially increased from 2013 to 2014 before decreasing in 2015.[117] The number of production workers showed small declines over the POI while other employment-related indicators fluctuated. [118] The Commission also found that the domestic industry's sales quantities, net unit sales values, and sales revenues decreased from 2013 to 2015.[119] It found that gross profit, operating income, and net income all declined in each full year of the POI, with the industry experiencing net losses in 2014 and 2015 and an operating loss in 2015. The Commission observed that capital expenditures increased irregularly from 2013 to 2015.[120]

The Commission found that due to subject imports taking market share from the domestic industry, resulting in a loss of output for the industry, and the significant price depression caused by the subject imports, the industry obtained lower revenues than it would have otherwise,

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[115] *Original Determination*, USITC Pub. 4679 at 22.
[116] *Original Determination*, USITC Pub. 4679 at 19.
[117] *Original Determination*, USITC Pub. 4679 at 19.
[118] *Original Determination*, USITC Pub. 4679 at 19.
[119] *Original Determination*, USITC Pub. 4679 at 20.
[120] *Original Determination,* USITC Pub. 4679 at 20.

resulting in its poor financial performance in 2015 and interim 2016.[121] It thus concluded that subject imports, which depressed domestic prices and gained market share at the expense of the domestic industry through significant underselling, had a significant impact on the domestic industry.[122]

The Commission also considered whether there were other factors that may have affected the domestic industry to ensure that it did not attribute injury from those other factors to subject imports. While acknowledging that the shutdown at domestic producer Chemours contributed to the difficulties faced by the domestic industry, the Commission found that the shutdown could not explain the lost sales by the domestic industry to lower-priced subject imports or the domestic industry's price declines in 2015, notwithstanding that the shutdown during that year reduced the domestic industry's available capacity.[123]

Additionally, the Commission considered whether changes in apparent U.S. consumption over the POI affected the domestic industry's performance and observed that fluctuations in apparent U.S. consumption did not appear to fully reflect changes in underlying demand or explain the timing of price declines that the domestic industry experienced.[124] The Commission also found changes in demand could not explain the magnitude of the domestic industry's decline in output and shipments or its depressed prices, and thus could not explain its loss in market share, output, and revenues that the Commission attributed to the subject imports.[125]

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[121] *Original Determination*, USITC Pub. 4679 at 22.
[122] *Original Determination*, USITC Pub. 4679 at 22.
[123] *Original Determination*, USITC Pub. 4679 at 22.
[124] *Original Determination*, USITC Pub. 4679 at 22.
[125] *Original Determination*, USITC Pub. 4679 at 22-23.

In considering the role of nonsubject imports, the Commission found that the extremely small presence of nonsubject imports could not explain the magnitude of the domestic industry's loss of market share and revenues that it had attributed to the significant and increasing volumes of low-priced subject imports.[126]

2. Current Review

The record in this expedited review contains limited new information on the domestic industry's condition, consisting of data provided by the Coalition in its response to the notice of institution.

The information available indicates that most of the indicators of the domestic industry's performance were better in 2021 than in 2015, the last full year of the POI. In 2021, the domestic industry's production capacity was 110,574 short tons, its production was 80,079 short tons, and its capacity utilization was 72.4 percent.[127] The industry's U.S. shipments were 69,583 short tons,

[126] *Original Determination*, USITC Pub. 4679 at 22. The Commission also considered and rejected a number of other arguments raised by Respondents. It considered the Respondents' argument that the industry's difficulties were limited to Chemours, but found that the other producers' trend in profitability was consistent with the poor performance of the industry as a whole, which resulted from the impact of subject imports during the POI. *Id*. at n.138. Respondents also argued that the increase in subject imports stemmed from purchasers' desire to ensure that they had a reliable source of supply; the Commission found this contention was not supported by the record, which indicated that subject imports consistently entered the U.S. market at low prices in order to increase market share, not in response to a perceived shortage or supply problems. *Id.* at 21 and n.139. The Commission was also not persuaded by Respondents' argument that there was a lack of correlation between trends in subject import volume and the domestic industry's condition during the POI, noting that the overall improvement in the domestic industry in interim 2016 was related to the resumption of normal operations by Chemours and that other producers performed worse in interim 2016 compared to interim 2015. *Id*. at 22 and n.140.

[127] CR/PR at Table I-5. In 2015, the domestic industry's production capacity was 88,078 short tons, its production was 72,223 short tons, and its capacity utilization rate was 82.0 percent. *Id*.

with a value of $355.6 million.[128] In 2021, the domestic industry had net sales of $383.1 million[129] and its gross profits were $57.1 million.[130] The domestic industry's operating income totaled $13.9 million, equivalent to 3.6 percent of net sales.[131] This limited information is insufficient for us to make a finding as to whether the domestic industry is vulnerable to the continuation or recurrence of material injury in the event of revocation of the order.

Based on the information available in this review, we find that revocation of the order would likely lead to a significant volume of subject imports that would likely significantly undersell the domestic like product. Given the high degree of substitutability between domestically produced R-134a and subject imports and the importance of price to purchasers, increasing volumes of low-priced subject imports would likely capture sales and market share from the domestic industry and/or force domestic producers to lower their prices or forgo necessary price increases to maintain their sales, thereby depressing or suppressing prices for the domestic like product to a significant degree. Consequently, subject imports would likely have a significant impact on the production, shipments, sales, market share, and revenue of the domestic industry. These declines would likely impact the domestic industry's profitability and employment, and its ability to raise capital and to make and maintain capital investments.

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[128] CR/PR at Table I-5. In 2015, the domestic industry's domestic shipments were 53,890 short tons with a value of $221.0 million. *Id.*

[129] CR/PR at Table I-5. In 2015, the domestic industry's net sales revenues were $299.2 million. *Id*.

[130] Cr/PR at Table I-5. In 2015, the domestic industry's gross profits were $16.1 million. *Id*.

[131] CR/PR at Table I-5. In 2015, the domestic industry's operating income was negative $7.3 million, equivalent to negative 2.4 percent of net sales. *Id.*

We have also considered the role of factors other than subject imports, including the presence of nonsubject imports, so as not to attribute injury from other factors to subject imports. Although nonsubject imports increased their presence in the U.S. market since the original investigation,[132] and their market share was higher, at 7.8 percent, in 2021 than during the original POI,[133] the record provides no indication that the presence of nonsubject imports would prevent subject imports from entering the U.S. market in significant volumes through significant underselling upon revocation of the order. Given the fact that the domestic industry supplies a majority of the U.S. market, the high degree of substitutability between subject imports and the domestic like product, and the importance of price in purchasing decisions, we find it likely that the increase in low-priced subject imports would come at least in part at the expense of the domestic industry. Consequently, we find that subject imports would likely cause adverse effects on the domestic industry that are distinct from any by nonsubject imports in the event of revocation.

Accordingly, we conclude that if the order were revoked, subject imports from China would likely have a significant impact on the domestic industry within a reasonably foreseeable time.

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[132] During the original POI, the volume of nonsubject imports (based on official import statistics adjusted with data submitted to the Commission) increased overall from 2013 to 2015 (it was 838 short tons in 2013, 3,820 short tons in 2014, and 1,135 short tons in 2015). CR/PR at Table I-7 and note. The information available in this review (based on official import statistics) indicates that the volume of nonsubject imports fluctuated but was consistently higher than in the original investigation, at 2,013 short tons in 2016, 7,465 short tons in 2017, 9,317 short tons in 2018, 9,011 short tons in 2019, 5,547 short tons in 2020, and 6,024 short tons in 2021. CR/PR at Table I-6 and note.

[133] CR/PR at Table I-7. During the original POI, nonsubject import market share was 1.0 percent in 2013, 4.5 percent in 2014, and 1.6 percent in 2015. *Id.*

IV. Conclusion

For the reasons discussed above, we determine that revocation of the antidumping duty order on R-134a from China would be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.

Information obtained in this review

Background

On March 1, 2022, the U.S. International Trade Commission ("Commission") gave notice, pursuant to section 751(c) of the Tariff Act of 1930, as amended ("the Act"),[1] that it had instituted a review to determine whether revocation of the antidumping duty order on 1,1,1,2-tetrafluoroethane ("R-134a") from China would likely lead to the continuation or recurrence of material injury to a domestic industry.[2] All interested parties were requested to respond to this notice by submitting certain information requested by the Commission.[3] [4] Table I-1 presents information relating to the background and schedule of this proceeding:

Table I-1
R-134a: Information relating to the background and schedule of this proceeding

Effective date	Action
March 1, 2022	Notice of initiation by Commerce (87 FR 11416, March 1, 2022)
March 1, 2022	Notice of institution by Commission (87 FR 11475, March 1, 2022)
June 6, 2022	Commission's vote on adequacy
July 7, 2022	Commerce's results of its expedited review
October 20, 2022	Commission's determination and views

[1] 19 U.S.C. 1675(c).

[2] 87 FR 11475, March 1, 2022. In accordance with section 751(c) of the Act, the U.S. Department of Commerce ("Commerce") published a notice of initiation of a five-year review of the subject antidumping duty order. 87 FR 11416, March 1, 2022. Pertinent Federal Register notices are referenced in app. A, and may be found at the Commission's website (www.usitc.gov).

[3] As part of their response to the notice of institution, interested parties were requested to provide company-specific information. That information is presented in app. B. Summary data compiled in the original investigation are presented in app. C.

[4] Interested parties were also requested to provide a list of three to five leading purchasers in the U.S. market for the domestic like product and the subject merchandise. Presented in app. D are the responses received from purchaser surveys transmitted to the purchasers identified in this proceeding.

Responses to the Commission's notice of institution

Individual responses

The Commission received one submission in response to its notice of institution in the subject review. It was filed on behalf of the following entities (collectively referred to herein as "domestic interested parties"):

1. American HFC Coalition, a trade association that a majority of its members manufacture, produce, or wholesale R-134a, and its individual members
2. Arkema Inc. ("Arkema"), domestic producer of R-134a,
3. The Chemours Company FC LLC ("Chemours"), domestic producer of R-134a,
4. Honeywell International Inc. ("Honeywell"), U.S. wholesaler of R-134a,[5] and
5. Mexichem Fluor Inc. ("Mexichem"), domestic producer of R-134a ***[6]

A complete response to the Commission's notice of institution requires that the responding interested party submit to the Commission all the information listed in the notice. Responding firms are given an opportunity to remedy and explain any deficiencies in their responses. A summary of the number of responses and estimates of coverage for each is shown in table I-2.

[5] During 2021, Honeywell ***. Domestic interested parties' supplemental response to the notice of institution, April 19, 2022, p. 2.

[6] *** supports the continuation of the order covering imports of R-134a from China. Domestic interested parties' response to the notice of institution March 31, 2022, p. 3.

Table I-2
R-134a: Summary of completed responses to the Commission's notice of institution

Interested party	Type	Number of firms	Coverage
U.S. producers	Domestic	3	100%
U.S. wholesaler	Domestic	1	N/A
U.S. trade association	Domestic	4	100%
U.S. importer	Respondent	1	***%

Note: The U.S. producer coverage figure presented is the domestic interested parties' estimate of their share of total U.S. production of U.S. producers of R-134a during 2021. Domestic interested parties' response to the notice of institution, March 31, 2022, p. 30.

Note: The U.S. trade association coverage figure presented is the domestic interested parties' estimate of their share of total U.S. production of R-134a during 2021. Domestic interested parties' response to the notice of institution, March 31, 2022, pp. 1-3, 28-29.

Note: Honeywell wholesales R-134a in the U.S. market. Domestic interested parties' response to the notice of institution, March 31, 2022, p. 1 fn. 2.

Note: The U.S. importer coverage figure represents ***'s share of the quantity of total U.S. imports of R-134a from China during 2021. The estimate was calculated as the quantity of reported imports (*** short tons) divided by the quantity of total U.S. imports from China reported for 2021 in Commerce's official import statistics (1,859 short tons).

Party comments on adequacy

The Commission received party comments on the adequacy of responses to the notice of institution and whether the Commission should conduct expedited or full reviews from the American HFC Coalition and its individual members (Arkema, Chemours, Honeywell, and Mexichem). The American HFC Coalition requests that the Commission conduct an expedited review of the antidumping duty order on R-134a.[7]

The original investigation

The original investigation resulted from a petition filed on March 3, 2016 with Commerce and the Commission by the American HFC Coalition and its individual members (Amtrol, Inc., West Warwick, Rhode Island; Arkema, King of Prussia, Pennsylvania; Chemours, Wilmington, Delaware; Honeywell, Morristown, New Jersey; Hudson Technologies, Pearl River, New York; Mexichem, St. Gabriel, Louisiana; Worthington Industries, Inc., Columbus, Ohio), as well as District Lodge 154 of the International Association of Machinists and Aerospace Workers.[8] On March 1, 2017, Commerce determined that imports of R-134a from China were

[7] Domestic interested parties' comments on adequacy, May 13, 2022, pp. 1-2.

[8] 1,1,1,2-Tetrafluoroethane (R-134a) from China, Inv. No. 731-TA-1313 (Final), USITC Publication 4679, April 2017 ("Original publication"), p. I-1.

being sold at less than fair value ("LTFV").[9] The Commission determined on April 5, 2017 that the domestic industry was materially injured by reason of imports of R-134a from China.[10] On April 19, 2017, Commerce issued its antidumping duty order with the final weighted-average dumping margins ranging from 148.79 to 167.02 percent. [11]

Previous and related proceedings

The Commission has conducted three proceedings on R-134a or similar merchandise. Table I-3 presents information on previous proceedings.

Table I-3
R-134a: Previous and related Commission proceedings and status of orders

Date	Number(s)	Country	Determination	Current Status of Order
2007	337-TA-623	China	Terminated	N/A
2013	701-TA-509 and 731-TA-1244	China	Negative	N/A
2015	731-TA-1279	China	Affirmative	Order in place

Source: U.S. International Trade Commission publications and Federal Register notices.

Note: On June 6, 2016, the Court of International Trade affirmed the Commission's 2014 final negative material injury determinations and negative threat of injury determinations concerning imports of R-134a from China, Inv. Nos. 701-TA-509 and 731-TA-1244 (Final). Mexichem Fluor Inc. v. United States, 179 F.Supp.3d 1238 (2016).

Note: Investigation No. 731-TA-1279 covered Hydrofluorocarbon Blends and Components Thereof ("HFC blends"). The scope of the HFC blends investigation did not include R-134a when imported as a stand-alone component (i.e., unblended), but it did include R-134a that is incorporated within three of the five HFC blends prior to importation.

Note: "Date" refers to the year in which the investigation or review was instituted by the Commission.

[9] 82 FR 12192, March 1, 2017. Commerce found that critical circumstances exist with respect to imports of R-134a from China produced or exported by the China-wide entity and non-individually reviewed producers/exporters entitled to a separate rate.

[10] 82 FR 17280, April 10, 2017. The Commission found that imports of R-134a from China are not likely to undermine seriously the remedial effect of the antidumping duty order on China. However, Chair Schmidtlein and Commissioner Williamson found affirmative critical circumstances with respect to dumped imports of R-134a from China. *See* Original publication, p. 27.

[11] 82 FR 18422, April 19, 2017.

Commerce's five-year review

Commerce announced that it would conduct an expedited review with respect to the order on imports of R-134a from China with the intent of issuing the final results of this review based on the facts available not later than June 29, 2022.[12] Commerce publishes its Issues and Decision Memorandum and its final results concurrently, accessible upon publication at http://enforcement.trade.gov/frn/. The Issues and Decision Memorandum contains complete and up-to-date information regarding the background and history of the order, including scope rulings, duty absorption, changed circumstances reviews, and anticircumvention, as well as any decisions that may have been pending at the issuance of this report. Any foreign producers/exporters that are not currently subject to the antidumping duty order on imports of R-134a from China are noted in the sections titled "The original investigation" and "U.S. imports," if applicable.

The product

Commerce's scope

Commerce has defined the scope as follows:

> *1,1,1,2-Tetrafluoroethane, R-134a, or its chemical equivalent, regardless of form, type, or purity level. The chemical formula for 1,1,1,2-Tetrafluoroethane is CF_3-CH_2 F, and the Chemical Abstracts Service registry number is CAS 811-97-2.*[13]

[12] Letter from Alex Villanueva, Senior Director, Office I, AD/CVD Operations, Enforcement and Compliance, U.S. Department of Commerce to Nannette Christ, Director of Investigations, April 20, 2022.

[13] 82 FR 18422, April 19, 2017. 1,1,1,2-Tetrafluoroethane is sold under a number of trade names including Klea 134a and Zephex 134a (Mexichem Fluor); Genetron 134a (Honeywell); Freon™ 134a, Suva 134a, Dymel 134a, and Dymel P134a (Chemours); Solkane 134a (Solvay); and Forane 134a (Arkema). Generically, 1,1,1,2-Tetrafluoroethane has been sold as Fluorocarbon 134a, R-134a, HFC-134a, HF A-134a, Refrigerant 134a, and UN3159. Ibid.

U.S. tariff treatment

R-134a is provided for by name in the Harmonized Tariff Schedule of the United States ("HTS") subheading 2903.45.10.[14] R-134a produced in China is imported into the U.S. market at a column 1-general duty rate of 3.7 percent ad valorem. An additional 15 percent ad valorem duty on imports of R-134a 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 2903.45.10.[15] Decisions on the tariff classification and treatment of imported goods are within the authority of U.S. Customs and Border Protection.

Description and uses[16]

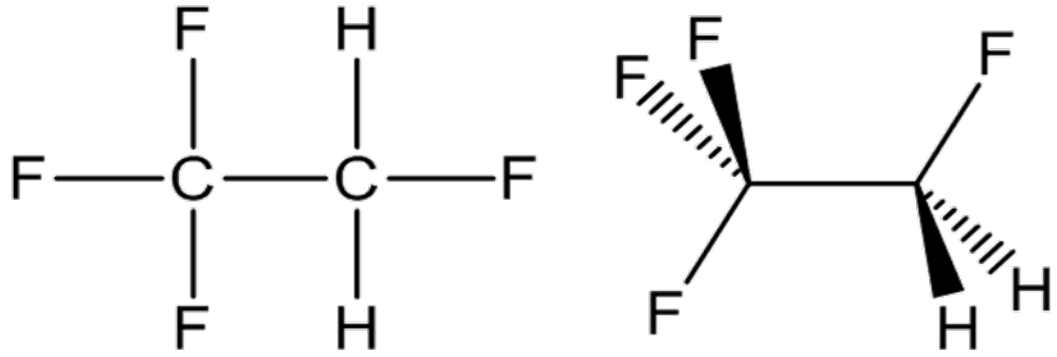
The subject product is 1,1,1,2-tetrafluoroethane (a.k.a. HFC-134a or R-134a). It is a clear, colorless liquid or gas, which is gaseous at normal atmospheric conditions. It has a boiling point of -15°F and a freezing point of -153°F. It is relatively nontoxic and nonflammable. As can be seen in figure I-1 below, it is composed of two carbon atoms, two hydrogen atoms, and four fluorine atoms.

[14] From the original investigation through 2021, R-134a was imported under eo nomine statistical reporting number 2903.39.2020. However, the product was reclassified in the 2022 Basic edition of the HTS to 2903.45.1000, which includes both R-134a and HFC-134. Trade in HFC-134 is believed to be minimal.

[15] Harmonized Tariff Schedule of the United States (2022), 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."

[16] Unless otherwise noted, this information is based on the Original publication, pp. I-11 – I-18.

Figure I-1
R-134a: Molecular structure



Source: http://www.chm.bris.ac.uk/motm/hfc134/hfch.htm, accessed April 29, 2022.

R-134a is used in various refrigerant and propellant applications. Refrigerant applications including automotive air conditioning, household appliances, small stationary equipment, medium temperature supermarket cases, and industrial and commercial chillers. Multiple refrigerants could potentially be used for each of these applications; however, cost effectiveness appears to be the primary factor in determining the refrigerant used in each application.

Generally, the refrigerant and system are chosen together. Using a different refrigerant than what the system is designed for will either reduce the unit's efficiency or render it non-functional. In general, it is not possible to put a different refrigerant into a machine and have that machine work effectively. Any number of components would have to be changed to accommodate the new refrigerant in order to make the system as effective as with the intended refrigerant.

R-134a has been used primarily in mobile air conditioning systems. While it is no longer installed as an OEM component in new vehicles, R-134a will continue to service the automotive aftermarket for many years.[17] Most vehicles sold after 1993 used R-134a as the refrigerant in their air conditioning systems. As these vehicles' A/C systems experience some leakage, they will need to be recharged with R-134a.

[17] The EPA SNAP Rules 20 and 21 had listed R-134a as unacceptable in new U.S. vehicles as of model year 2021. Even though the courts vacated those rules in 2017, many U.S. manufacturers continued to transition away from R-134a in mobile air conditioning units. It is estimated that approximately *** percent of model year 2019 U.S. manufactured vehicles used HFO-1234yf. IHS Markit, Chemical Economics Handbook, Fluorocarbons, June 2020, p. 33. The EU banned, effective January 2017, the sale and registration of new vehicles that use air conditioning refrigerants with a global warming potential (GWP) of greater than 150, including R-134a.

In addition to its use in vehicle A/C systems, R-134a has been used in household appliances such as refrigerators, freezers, and dehumidifiers. Residential central air conditioning systems, however, generally do not use R-134a as a standalone refrigerant.

Commercial applications include supermarket display cases and freezers as well as large air conditioning systems in office buildings, stores, and airports. R-134a may also be used in refrigeration systems for commercial food storage as well as in transport refrigeration systems in trucks, trains, or ships.

Propellant applications for R-134a include aerosol cans, foam-blowing of building insulation, and pharmaceutical uses like asthma inhalers. R-134a is preferred to alternatives in these applications because it is nontoxic and nonflammable.

For some of these applications, such as vehicle air conditioning systems and propellants, R-134a is used as a standalone refrigerant or compound. However, for other air conditioning and refrigeration applications, R-134a is used as a component in a blended refrigerant. R-134a is a component in three of the five blends included in the antidumping duty order on imports of HFC blends from China.[18]

Manufacturing process[19]

There are multiple methods used to produce R-134a. Generally, they involve reacting hydrogen fluoride (HF) with a compound containing carbon and chlorine. The fluorine replaces the chlorine. The reaction with hydrogen fluoride may have to be repeated multiple times to reach the desired end product. Generally, a fluorocarbon plant is designed to make one compound and cannot be used to make a different compound in response to changing market conditions.

Mexichem uses a two-stage process. Its first stage involves an exothermic, vapor phase reaction of trichloroethylene (TCE) with hydrogen fluoride (HF) over a chromium-based catalyst to produce 1-chloro-2,2,2-trifluoroethane (R-133a). The second stage is an endothermic, vapor phase reaction of R-133a with HF over a chromium-based catalyst again to produce R-134a.[20] R-

[18] HFC blends R-404A, R-407A, and R-407C are included in the antidumping duty order and contain R-134a. 81 FR 55436, August 19, 2016, and 87 FR 11044, February 28, 2022.

[19] Unless otherwise noted, this information is based on the original publication, pp. I-9–I-11.

[20] In an exothermic reaction, heat is given off when the inputs combine to make the resultant molecule. By contrast, an endothermic reaction requires heat (energy) as an input for the reaction to occur, i.e., the inputs absorb heat (energy) when producing the resultant molecule.

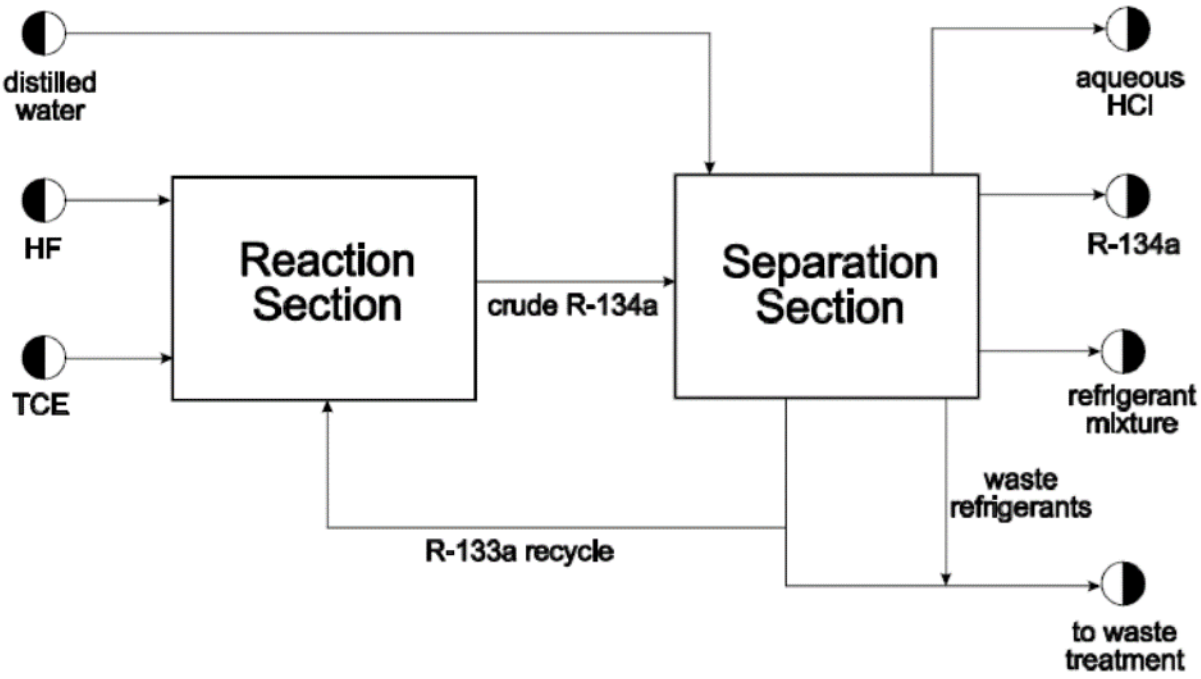
134a is separated out of the recycle stream by distillation. Hydrochloric acid (HCl), the byproduct of the reactions, has to be either disposed of or sold on the market.[21]

Mexichem's production process is expressed by the following series of reaction equations and illustrated in figure I-2:

$$3\ HF\ +\ TCE\ (HC_2Cl_3) \rightarrow R\text{-}133a\ (H_2C_2ClF_3)\ +\ 2\ HCl$$

$$R\text{-}133a\ (H_2C_2ClF_3)\ +\ HF \rightarrow R\text{-}134a\ (H_2C_2F_4)\ +\ HCl$$

Figure I-2
R-134a: Production process



R-134a Production Block Flow Diagram

Source: 1,1,1,2-Tetrafluoroethane from China, Inv. No. 731-TA-1313 (Final), USITC Publication 4679, April 2017, p. I-10.

Fluorspar, one of the primary inputs to HF (hydrofluoric acid), which is a necessary input to most R-134a production processes, is distributed throughout the world. The bulk of the identified fluorspar reserves are in Mexico (21 percent), China (13 percent), South Africa (13

[21] Chemours uses a *** to manufacture R-134a. Investigation No. 731-TA-1313 (Final): 1,1,1,2-Tetrafluoroethane from China, Confidential Report, INV-PP-033, March 13, 2017, as revised in INV-PP-036, March 16, 2017, and INV-PP-038, March 22, 2017 ("Original confidential report"), p. I-14.

percent), and Mongolia (7 percent). Two countries accounted for 77 percent of global production in 2020: China (66 percent) and Mexico (11 percent).[22]

The industry in the United States

U.S. producers

During the final phase of the original investigation, the Commission received U.S. producer questionnaires from three firms, which accounted for all U.S. production of R-134a during 2015.[23]

In response to the Commission's notice of institution in this current review, domestic interested parties provided a list of three known and currently operating U.S. producers of R-134a. Three firms providing U.S. industry data in response to the Commission's notice of institution accounted for 100 percent of production of R-134a in the United States during 2021.[24]

Recent developments

Since the Commission's original investigation, the primary development in the R-134a industry (and the U.S. refrigerant industry overall) has been the passage of the American Innovation and Manufacturing (AIM) Act in December 2020. Although the automotive industry was already moving toward the replacement of R-134a in mobile air conditioning units, the rest of the refrigerant and HFC industry was less affected before implementation of the AIM Act.

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.[25] On December 27, 2020, the President signed the AIM Act, which will result in reduced production and use of HFCs[26] in alignment with the Kigali

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[22] U.S. Geological Survey, Mineral Commodity Summaries, Fluorspar, January 2022.

[23] Original publication, pp. I-4 and III-1.

[24] Domestic interested parties' response to the notice of institution, March 31, 2022, p. 30.

[25] 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.

[26] 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; and Garry, Michael, "U.S. enacts HFC Phasedown Law as Part of COVID Relief Bill," Hydrocarbon 21, January 4, 2021,

(*continued*...)

Amendment to the Montreal Protocol.[27] 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-134a, will decrease in phases from a baseline. The baseline is determined primarily as the average of the annual sums of GWPs for all HFCs produced and imported in 2011, 2012, and 2013.[28] 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.[29]

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.[30] 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 does not exceed its annual allowance. The calendar year 2022 GWP allowances, released by

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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), https://www.congress.gov/bill/116thcongress/senate-bill/2754/text.

[27] United Nations Environment Economy Division, "The Kigali Amendment to the Montreal Protocol: HFC Phasedown," accessed 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), https://www.congress.gov/bill/116th-congress/senatebill/2754/text.

[28] 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.

[29] 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.

[30] 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.

EPA in October 2021, were for 90 percent of each company's calculated average within the baseline, as described above.[31] The AIM Act also permits trading of allowances.[32]

Each HFC on the regulated list has a specific GWP, which is called an "exchange value" in the AIM Act.[33] 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-134a has a GWP of 1,430.[34]

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 a specific HFC. 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 hydrofluoroolefins ("HFOs") have GWPs below ten.[35] Therefore, replacing R-134a

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[31] 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.

[32] 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/emissionstrading-resources/how-do-emissions-trading-programs-work.

[33] 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 (CO2). 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."

[34] 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-134a with a GWP of 1,430, 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/climateenvironment/2021/11/16/biden-kigali-amendment-senate/.

[35] Hydrofluoroolefins are composed of hydrogen, fluorine, and carbon atoms but contain at least one double bond between the carbon atoms. HFCs are also composed of hydrogen, fluorine, and carbon atoms, but they are connected only by single bonds between the atoms. Linde, Industrial gases, HFOs, https://www.linde-gas.com/en/products_and_supply/refrigerants/hfo_refrigerants/index.html, accessed May 12, 2022. Intergovernmental Panel on Climate Change (IPCC), IPCC's Fifth Assessment Report (AR5), https://www.ipcc.ch/report/ar5/wg3/, accessed January 28, 2021.

with one of these HFOs would substantially lower the aggregate GWP 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 GWP by changing the refrigerant cannot happen quickly. Either new units would have to be installed or existing units would have to be retrofitted to work efficiently with the new refrigerant.

U.S. producers' trade and financial data

The Commission asked domestic interested parties to provide trade and financial data in their response to the notice of institution in the current five-year review.[36] Table I-5 presents a compilation of the trade and financial data submitted from all responding U.S. producers in the original investigation and this current five-year review.

[36] Individual company trade and financial data are presented in app. B.

Table I-5
R-134a: Trade and financial data submitted by U.S. producers, by period

Quantity in short tons; value in 1,000 dollars; unit value in dollars per short ton; ratio is in percent

Item	Measure	2013	2014	2015	2021
Capacity	Quantity	114,363	107,925	88,078	110,574
Production	Quantity	100,031	96,586	72,223	80,079
Capacity utilization	Ratio	87.5	89.5	82.0	72.4
U.S. shipments	Quantity	65,477	68,612	53,890	69,583
U.S. shipments	Value	307,061	302,126	220,908	355,644
U.S. shipments	Unit value	4,690	4,403	4,099	5,111
Net sales	Value	451,925	410,267	299,201	383,101
COGS	Value	361,918	357,159	283,087	325,996
COGS to net sales	Ratio	80.1	87.1	94.6	85.1
Gross profit or (loss)	Value	90,007	53,108	16,114	57,104
SG&A expenses	Value	45,241	35,808	23,414	43,210
Operating income or (loss)	Value	44,766	17,300	(7,300)	13,895
Operating income or (loss) to net sales	Ratio	9.9	4.2	(2.4)	3.6

Source: For the years 2013-15, data are compiled using data submitted in the Commission's original investigation. For the year 2021, data are compiled using data submitted by domestic interested parties. Domestic interested parties' response to the notice of institution, March 31, 2022, p. 30 and exh. 3 and domestic interested parties' supplemental response to the notice of institution, April 19, 2022, p. 2.

Note: 2021 U.S. shipments include ***. *** reported *** short tons valued at ***.

Note: For a discussion of data coverage, please see "U.S. producers" section.

Definitions of the domestic like product and domestic industry

The domestic like product is defined as the domestically produced product or products which are like, or in the absence of like, most similar in characteristics and uses with, the subject merchandise. The domestic industry is defined as the U.S. producers as a whole of the domestic like product, or those producers whose collective output of the domestic like product constitutes a major proportion of the total domestic production of the product. Under the related parties provision, the Commission may exclude a U.S. producer from the domestic industry for purposes of its injury determination if "appropriate circumstances" exist.[37]

[37] Section 771(4)(B) of the Tariff Act of 1930, 19 U.S.C. § 1677(4)(B).

In its original determination, the Commission defined a single domestic like product consisting of R-134a that is coextensive with Commerce's scope. In its original determination, the Commission defined a single domestic industry as all U.S. producers of R-134a.[38] In 2021, U.S. producer *** accounted for *** percent of total subject imports from China and its subject imports were equivalent to *** percent of the quantity of its U.S. production of R-134a. One of three domestic producers of R-134a, *** accounted for *** percent of U.S. production in 2021.

U.S. imports

U.S. importers

During the final phase of the original investigation, the Commission received U.S. importer questionnaires from 33 firms, which accounted for approximately 94.7 percent of total U.S. imports of R-134a from China during 2015.[39] Import data presented in the original investigation are based on official Commerce statistics for HTS statistical reporting number 2903.39.2020 and questionnaire responses under all other HTS categories (adjusted with proprietary Customs data for 2013).[40]

In its response to the notice of institution for this current review, one importer of the subject merchandise provided data regarding its U.S. imports and U.S. shipments (See appendix B). In addition, the domestic interested parties provided a list of 63 firms that may currently import subject merchandise.[41]

[38] 87 FR 11475, March 1, 2022.
[39] Original publication, pp. I-4-I-5.
[40] Original publication, p. I-4.
[41] Domestic interested parties' response to the notice of institution, March 31, 2022, exh. 4.

U.S. imports

Table I-6 presents the quantity, value, and unit value of U.S. imports from China as well as the other top sources of U.S. imports (shown in descending order of 2021 imports by quantity).

Table I-6
R-134a: U.S. imports, by source and period

Quantity in short tons; value in 1,000 dollars; unit value in dollars per short ton

Source	Measure	2016	2017	2018	2019	2020	2021
China (subject)	Quantity	25,451	5,879	129	144	143	1,859
India	Quantity	835	3,885	1,890	5,645	2,495	4,818
Germany	Quantity	92	2,089	4,808	2,382	1,151	---
United Kingdom	Quantity	495	631	724	643	927	731
All other sources	Quantity	590	860	1,896	341	974	475
Nonsubject sources	Quantity	2,013	7,465	9,317	9,011	5,547	6,024
All import sources	Quantity	27,464	13,344	9,446	9,156	5,691	7,883
China (subject)	Value	98,843	24,634	845	777	521	7,372
India	Value	4,985	25,894	10,038	35,886	13,166	29,369
Germany	Value	430	13,019	22,141	9,267	4,234	---
United Kingdom	Value	3,220	4,282	5,031	4,324	6,709	6,253
All other sources	Value	2,631	4,310	9,866	2,086	3,825	2,952
Nonsubject sources	Value	11,266	47,505	47,075	51,563	27,934	38,574
All import sources	Value	110,109	72,140	47,920	52,340	28,455	45,946
China (subject)	Unit value	3,884	4,190	6,545	5,386	3,639	3,965
India	Unit value	5,972	6,665	5,312	6,357	5,278	6,096
Germany	Unit value	4,650	6,233	4,605	3,890	3,679	---
United Kingdom	Unit value	6,500	6,791	6,949	6,725	7,234	8,557
All other sources	Unit value	4,458	5,009	5,204	6,113	3,926	6,210
Nonsubject sources	Unit value	5,597	6,364	5,053	5,722	5,035	6,403
All import sources	Unit value	4,009	5,406	5,073	5,717	5,000	5,828

Source: Compiled from official Commerce statistics for HTS statistical reporting number 2903.39.2020, accessed April 21, 2022.

Note: Because of rounding, figures may not add to total shown. Shares and ratios shown as “0.0” percent represent values greater than zero, but less than “0.05” percent. Zeroes, null values, and undefined calculations are suppressed and shown as “---“.

Apparent U.S. consumption and market shares

Table I-7 presents data on U.S. producers' U.S. shipments, U.S. imports, apparent U.S. consumption, and market shares.

Table I-7
R-134a: Apparent U.S. consumption and market shares, by source and period

Quantity in short tons; value in 1,000 dollars; share of quantity is the share of apparent U.S. consumption by quantity in percent; share of value is the share of apparent U.S. consumption by value in percent

Source	Measure	2013	2014	2015	2021
U.S. producers	Quantity	65,477	68,612	53,890	69,583
China	Quantity	15,900	11,916	15,429	1,859
Nonsubject sources	Quantity	838	3,820	1,135	6,024
Total imports	Quantity	16,738	15,736	16,564	7,883
Apparent U.S. consumption	Quantity	82,215	84,348	70,454	77,466
U.S. producers	Value	307,061	302,126	220,908	355,644
China	Value	56,860	39,421	50,760	7,372
Nonsubject sources	Value	5,764	17,415	8,071	38,574
All import sources	Value	62,624	56,836	58,830	45,946
Apparent U.S. consumption	Value	369,685	358,962	279,738	401,590
U.S. producers	Share of quantity	79.6	81.3	76.5	89.8
China	Share of quantity	19.3	14.1	21.9	2.4
Nonsubject sources	Share of quantity	1.0	4.5	1.6	7.8
All import sources	Share of quantity	20.4	18.7	23.5	10.2
U.S. producers	Share of value	83.1	84.2	79.0	88.6
China	Share of value	15.4	11.0	18.1	1.8
Nonsubject sources	Share of value	1.6	4.9	2.9	9.6
All import sources	Share of value	16.9	15.8	21.0	11.4

Source: For the years 2013-15, data are compiled using data submitted in the Commission's original investigation. For the year 2021, U.S. producers' U.S. shipments are compiled from the domestic interested parties' response to the Commission's notice of institution and U.S. imports are compiled using official Commerce statistics under HTS statistical reporting number 2903.39.2020, accessed April 21, 2022.

Note: For a discussion of data coverage, please see "U.S. producers" and "U.S. importers" sections.

The industry in China

During the final phase of the original investigation, the Commission received foreign producer/exporter questionnaires from eight firms, which exceeded U.S. imports of R-134a from China in 2015. According to estimates requested of the responding Chinese producers, the production of R-134a in China accounted for approximately 73.8 percent of overall production of R-134a in China in 2015.[42]

Although the Commission did not receive responses from any respondent interested parties in this five-year review, the domestic interested parties provided a list of 29 possible producers of R-134a in China.[43]

There were no major developments in the Chinese R-134a industry since the imposition of the order identified by interested parties in the proceeding. However, as noted in the recent developments section for the U.S. industry, concerns about global warming and the Kigali Amendment are having an impact on the R-134a markets in developed countries. European countries had largely already transitioned away from R-134a in vehicle air conditioning units at the time of the original investigation. Japan is also reducing its production and use of R-134a. Given the reduction or loss of these markets in developed countries, Chinese producers will be more dependent on their domestic market as well as those of other developing economies. Under the Kigali Amendment, signatory developing economies like China are not required to begin reducing their production or use of HFCs, including R-134a, as soon as developed countries. They do not need to cap their production and use of HFCs until at least 2024 and then begin reducing these levels no earlier than 2029. They will not need to significantly reduce their production and use of HFCs until at least 2035.[44]

Table I-8 presents export data for fluorinated, brominated or iodinated derivatives of acyclic hydrocarbons, a category that includes R-134a and out-of-scope products, from China (by export destination in descending order of quantity for 2021).

[42] Original publication, p. I-5.

[43] Domestic interested parties' response to the notice of institution, March 31, 2022, p. 29 and exhibit 5.

[44] IHS Markit, Chemical Economics Handbook, Fluorocarbons, June 2020, p. 27.

Table I-8
Fluorinated, brominated or iodinated derivatives of acyclic hydrocarbons: Quantity of exports from China, by destination and period

Quantity in short tons

Destination market	2016	2017	2018	2019	2020	2021
United States	63,755	65,437	74,571	73,245	70,143	93,800
Netherlands	21,693	32,056	34,476	16,405	19,354	23,141
Japan	19,544	19,169	20,551	20,177	17,213	21,753
Thailand	8,427	9,346	9,686	13,602	15,433	17,512
Brazil	6,719	8,985	9,719	15,634	12,944	16,304
South Korea	11,296	14,999	16,235	15,218	17,014	15,939
India	4,482	6,635	9,083	9,180	10,933	15,124
United Arab Emirates	3,314	3,382	3,718	5,526	7,539	11,718
Mexico	6,010	7,346	8,333	8,277	8,836	11,342
Turkey	6,106	6,833	7,710	9,013	7,594	7,906
All other markets	87,384	86,977	93,844	102,639	103,551	92,920
All markets	238,730	261,165	287,927	288,916	290,555	327,460

Source: Official export statistics under HS subheading 2903.39 reported by China Customs in the Global Trade Atlas database, accessed May 9, 2022.

Note: These data may be overstated as HS subheading 2903.39 may contain products outside the scope of this review.

Note: Because of rounding, figures may not add to totals shown.

Third-country trade actions

As noted in the original investigation, on July 15, 2011, India imposed antidumping duties ranging from $1.15/kg to $1.41/kg on R-134a from China. On July 11, 2016, India renewed antidumping duties on the subject product at a rate of $1.22/kg.[45] On January 6, 2022, India revoked the antidumping duties on R-134a from China.[46]

There are no trade remedy actions on standalone R-134a from China in other third-country markets. However, HFC blends containing R-134a are subject to actions in Argentina and India. Also, the EU has regulatory restrictions on fluorinated GHGs that could act as a non-tariff barrier to R-134a and blends that contain it.

On August 19, 2020, Argentina announced antidumping duties of 7 percent ad valorem on mixtures containing tetrafluoroethane (R-134) and pentafluoroethane (R-125) from China,

[45] Original publication, pp. VII-9 – VII-10.

[46] The Gazette of India: Extraordinary, Part II—Sec. 3(i), Notification CG-DL-E-06012022-232465, January 6, 2022.

and 23 percent ad valorem on mixtures containing difluoromethane (R-32) and pentafluoroethane (R-125) from China.[47]

India imposed an antidumping duty order on HFC blends 407 and 410 from China, effective September 27, 2021.[48] The antidumping duty rates range from 50 percent to 110 percent ad valorem.[49] All variants of HFC-407 blends contain R-134a. HFC-410 blends do not contain R-134a.

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-134a and all blends that contain it.[50] 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-134a, 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

[47] 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.

[48] 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-407A, R-407C, and R-410A are covered under the U.S. antidumping duty order on HFC blends from China, but other variants of 407 and 410 blends are not.

[49] 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.

[50] 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.

introduced from 2011, and in all new cars and vans produced from 2017.[51] These regulatory restrictions could act as a non-tariff barrier on imports of the subject products.

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-134a, by more than 80 percent over the next 30 years.[52]

The global market

R-134a is produced in only a few countries around the globe and that number is declining as developed countries reduce their production and consumption of HFCs in accordance with the Kigali Amendment.

India has limited production of R-134a. SRF Limited has a capacity of *** MT per year. Another company, Navin Fluorine International, Ltd., is also reported to have the ability to produce R-134a. As India is a developing country, its demand for R-134a is growing and it has a few years before its HFC baseline is determined for the Kigali Amendment.[53]

In Europe, only Germany continues to produce the subject product. France and the U.K. have ceased production, but the Kuora plant in the U.K. continues to purchase technical-grade R-134a, which it then refines into medical-grade for use in inhalers.[54]

Japan produces R-134a but in 2019 *** as it exported. The country is forecast to reduce its production to approximately *** MT per year by 2025 and become ***.[55]

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[51] 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. 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.

[52] 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.

[53] IHS Markit, Chemical Economics Handbook, Fluorocarbons, June 2020, p. 105.

[54] IHS Markit, Chemical Economics Handbook, Fluorocarbons, June 2020, pp. 81-82.

[55] IHS Markit, Chemical Economics Handbook, Fluorocarbons, June 2020, pp. 133, 135.

Table I-9 presents global export data for fluorinated, brominated or iodinated derivatives of acyclic hydrocarbons, a category that includes R-134a and out-of-scope products, (by source in descending order of quantity for 2021).

Table I-9
Fluorinated, brominated or iodinated derivatives of acyclic hydrocarbons: Quantity of global exports by country and period

Quantity in short tons

Exporting country	2016	2017	2018	2019	2020	2021
China	238,730	261,165	287,927	288,916	290,555	327,460
United States	80,451	95,200	73,178	61,107	62,265	55,874
Netherlands	27,500	38,714	38,761	35,160	30,766	35,325
Japan	15,830	16,669	17,053	17,129	14,957	19,183
India	5,346	12,530	8,537	9,990	9,648	16,519
United Kingdom	12,612	14,797	14,983	12,697	14,389	10,921
Belgium	9,893	8,225	7,766	9,157	9,464	8,704
France	19,595	13,588	10,111	9,653	9,539	8,510
Germany	11,148	13,615	12,375	10,307	6,567	5,547
Italy	4,352	4,413	4,031	3,965	3,831	4,459
All other exporters	20,815	23,410	30,586	21,729	24,566	15,883
All exporters	446,272	502,325	505,307	479,811	476,548	508,384

Source: Official export statistics under HS subheading 2903.39 reported by various national statistical authorities in the Global Trade Atlas database, accessed May 9, 2022.

Note: These data may be overstated as HS subheadings 2903.39 may contain products outside the scope of this review.

Note: Because of rounding, figures may not add to total shown.

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
87 FR 11416 March 1, 2022	*Initiation of Five-Year (Sunset) Reviews*	https://www.govinfo.gov/content/pkg/FR-2022-03-01/pdf/2022-04283.pdf
87 FR 11475, March 1, 2022	*1,1,1,2-Tetrafluoroethane (R-134a) From China; Institution of a Five-Year Review*	https://www.govinfo.gov/content/pkg/FR-2022-03-01/pdf/2022-04196.pdf

APPENDIX B

COMPANY-SPECIFIC DATA

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APPENDIX C

SUMMARY DATA COMPILED IN PRIOR PROCEEDING

The summary table from the original investigation appears in appendix C of Confidential Staff Report, Memorandum INV-PP-033 (March 13, 2017) and USITC Publication 4679 (April 2017).

APPENDIX D

PURCHASER QUESTIONNAIRE RESPONSES

As part of their response to the notice of institution, interested parties were asked to provide a list of three to five leading purchasers in the U.S. market for the domestic like product. A response was received from domestic interested parties and it named the following five firms as top purchasers of R-134a: ***. Purchaser questionnaires were sent to these five firms and four firms (***) provided responses, which are presented below.

1. Have there been any significant changes in the supply and demand conditions for R-134a that have occurred in the United States or in the market for R-134a in China since April 20, 2017?

Purchaser	Yes / No	Changes that have occurred
***	***	***
***	***	***
***	***	***
***	***	***

2. Do you anticipate any significant changes in the supply and demand conditions for R-134a in the United States or in the market for R-134a in China within a reasonably foreseeable time?

Purchaser	Yes / No	Anticipated changes
***	***	***
***	***	***
***	***	***
***	***	***