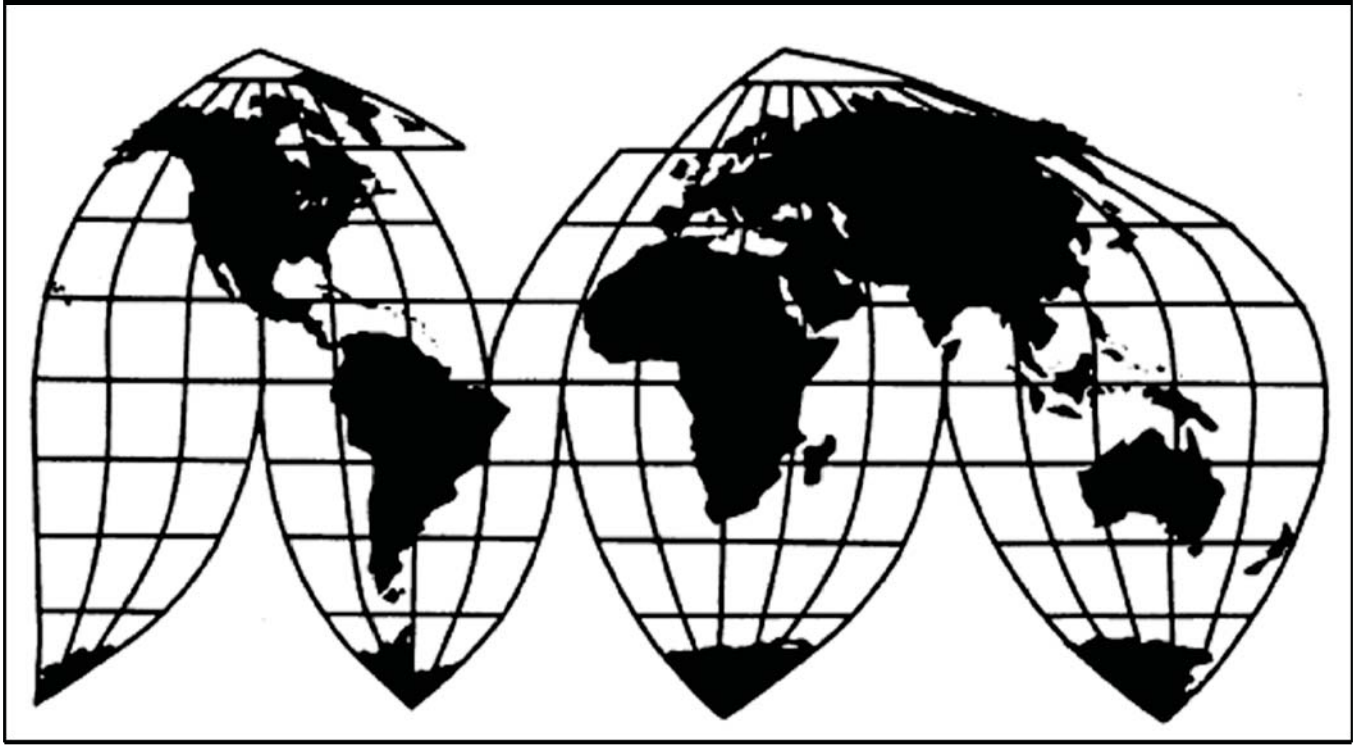
1,1,1,2—Tetrafluoroethane From China

Investigation Nos. 701-TA-509 and 731-TA-1244 (Preliminary)

Publication 4444 **December 2013**

U.S. International Trade Commission



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CONTENTS

Page

CONTENTS

Page

CONTENTS

Page

Note.—Information that would reveal confidential operations of individual concerns may not be published and therefore has been deleted. Such deletions are indicated by asterisks.

UNITED STATES INTERNATIONAL TRADE COMMISSION

Investigation Nos. 701-TA-509 and 731-TA-1244 (Preliminary)

1,1,1,2-TETRAFLUOROETHANE FROM CHINA

DETERMINATIONS

On the basis of the record[1] developed in the subject investigations, the United States International Trade Commission (Commission) determines, pursuant to sections 703(a) and 733(a) of the Tariff Act of 1930 (19 U.S.C. §§ 1671b(a) and 1673b(a)) (the Act), that there is a reasonable indication that an industry in the United States is materially injured by reason of imports from China of 1,1,1,2-Tetrafluoroethane, provided for in subheadings 2903.39.20 of the Harmonized Tariff Schedule of the United States, that are alleged to be sold in the United States at less than fair value ("LTFV"), and by reason of 1,1,1,2-Tetrafluoroethane that are allegedly subsidized by the Government of China.

COMMENCEMENT OF FINAL PHASE INVESTIGATIONS

Pursuant to section 207.18 of the Commission's rules, the Commission also gives notice of the commencement of the final phase of its investigations. The Commission will issue a final phase notice of scheduling, which will be published in the *Federal Register* as provided in section 207.21 of the Commission's rules, upon notice from the Department of Commerce (Commerce) of affirmative preliminary determinations in the investigations under sections 703(b) or 733(b) of the Act, or, if the preliminary determinations are negative, upon notice of affirmative final determinations in those investigations under sections 705(a) or 735(a) of the Act. Parties that filed entries of appearance in the preliminary phase of the investigations need not enter a separate appearance for the final phase of the investigations. Industrial users, and, if the merchandise under investigation is sold at the retail level, representative consumer organizations have the right to appear as parties in Commission antidumping and countervailing duty investigations. The Secretary will prepare a public service list containing the names and addresses of all persons, or their representatives, who are parties to the investigations.

BACKGROUND

On October 22, 2013, a petition was filed with the Commission and Commerce by Mexichem Fluor Inc., St. Gabriel, LA, alleging that an industry in the United States is materially injured or threatened with material injury by reason of LTFV and subsidized imports of 1,1,1,2-Tetrafluoroethane from China. Accordingly, effective October 22, 2013, the Commission

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

instituted countervailing duty investigation No. 701-TA-509 and antidumping duty investigation No. 731-TA-1244 (Preliminary).

Notice of the institution of the Commission's investigations and of a public conference to be held in connection therewith was given by posting copies of the notice in the Office of the Secretary, U.S. International Trade Commission, Washington, DC, and by publishing the notice in the *Federal Register* of October 28, 2013 (78 FR 64243). The conference was held in Washington, DC, on November 12, 2013, and all persons who requested the opportunity were permitted to appear in person or by counsel.

Views of the Commission

Based on the record in the preliminary phase of these investigations, we find that there is a reasonable indication that an industry in the United States is materially injured by reason of imports of 1,1,1,2-tetrafluoroethane ("R-134a") from China that are allegedly sold in the United States at less than fair value and that are allegedly subsidized by the government of China.

I. The Legal Standard for Preliminary Determinations

The legal standard for preliminary antidumping and countervailing duty determinations requires the Commission to determine, based upon the information available at the time of the preliminary determinations, whether there is a reasonable indication that a domestic industry is materially injured or threatened with material injury, or that the establishment of an industry is materially retarded, by reason of the allegedly unfairly traded imports.[1] In applying this standard, the Commission weighs the evidence before it and determines whether "(1) the record as a whole contains clear and convincing evidence that there is no material injury or threat of such injury; and (2) no likelihood exists that contrary evidence will arise in a final investigation."[2]

II. Background

The petitions in these investigations were filed on October 22, 2013 by Mexichem Fluor, Inc. ("Petitioner"), a domestic producer of R-134a. Petitioner appeared at the conference and submitted a postconference brief. A second domestic producer of R-134a, E.I. DuPont de Nemours & Company ("DuPont"), also appeared at the staff conference and submitted a postconference brief.[3]

The following respondent entities were represented at the conference and submitted postconference briefs: Juhua Group Corporation; Jiangsu Bluestar Green Technology Co., Ltd.; Sinochem Environmental Protection Chemicals (Taicang) Co., Ltd.; Zhejiang Juhua Co., Ltd.; Zhejiang Samei Chemical Industry Co., Ltd.; and Zhejiang Pujiang Bailan Chemical Co., Ltd., producers and/or exporters of the subject merchandise; the China Chamber of Commerce for Minerals, Minerals and Chemicals Importers and Exporters ("CCCME"), and the China Association of Fluorine and Silicone Industry ("CAFSI"), trade associations, some of whose members are producers or exporters of the subject merchandise (the foregoing entities are

[1] 19 U.S.C. §§ 1671b(a), 1673b(a) (2000); *see also American Lamb Co. v. United States*, 785 F.2d 994, 1001-04 (Fed. Cir. 1986); *Aristech Chem. Corp. v. United States, 2*0 CIT 353, 354-55 (1996).

[2] *American Lamb Co*., 785 F.2d at 1001; *see also Texas Crushed Stone Co. v. United States*, 35 F.3d 1535, 1543 (Fed. Cir. 1994).

[3] DuPont had not taken a position on the petitions at the time of the staff conference. DuPont subsequently notified Commerce that it ***. Letter from Cassidy Levy Kent (USA) LLP to the Acting Secretary, dated Nov. 20, 2013.

referred to collectively as the "China Respondents");[4] and AutoZone, Inc. ("AutoZone"), an importer of the subject merchandise.

U.S. industry data are based on the questionnaire responses of three producers, accounting for all U.S. production of R-134a during the period of investigation ("POI"), which runs from January 1, 2010 through June 30, 2013.[5] U.S. import data are based on official U.S. Department of Commerce ("Commerce") import statistics.[6] The Commission received responses to its questionnaires from six foreign producers of the subject merchandise, accounting for approximately 82 percent of R-134a production in China in 2012.[7]

III. Domestic Like Product

A. Legal Standard

In determining whether there is a reasonable indication that an industry in the United States is materially injured or threatened with material injury by reason of imports of the subject merchandise, the Commission first defines the "domestic like product" and the "industry."[8] Section 771(4)(A) of the Tariff Act of 1930, as amended ("the Tariff Act"), defines the relevant domestic industry as the "producers as a whole of a domestic like product, or those producers whose collective output of a domestic like product constitutes a major proportion of the total domestic production of the product."[9] In turn, the Tariff Act defines "domestic like product" as "a product which is like, or in the absence of like, most similar in characteristics and uses with, the article subject to an investigation."[10]

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

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[4] Counsel for the China Respondents subsequently advised the Commission that a majority of CCCME and CAFSI's members are not producers, exporters or importers of the subject merchandise, and withdrew their entry of appearance for CCCME and CAFSI. Letter from Mayer Brown to the Acting Secretary, dated Dec. 2, 2013.

[5] Confidential Report ("CR") at I-4, Public Report ("PR") at I-3.

[6] CR/PR at IV-1.

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

[8] 19 U.S.C. § 1677(4)(A).

[9] 19 U.S.C. § 1677(4)(A).

[10] 19 U.S.C. § 1677(10).

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

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

B. Product Description

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

> 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_2F, and the Chemical Abstracts Service ("CAS") registry number is CAS 811-97-2.
>
> 1,1,1,2-Tetrafluoroethane is sold under a number of trade names including Klea 134a and Zephex 134a (Mexichem Fluor); Genetron 134a (Honeywell); Suva 134a, Dymel 134a, and Dymel P134a (DuPont); 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.
>
> Merchandise covered by the scope of this investigation is currently

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(…Continued)
price. *See Nippon*, 19 CIT at 455 n.4; *Timken Co. v. United States*, 913 F. Supp. 580, 584 (Ct. Int'l Trade 1996).

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

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

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

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

> classified in the Harmonized Tariff Schedule of the United States ("HTSUS") at subheading 2903.39.2020. Although the HTS subheading and CAS registry number are provided for convenience and customs purposes, the written description of the scope is dispositive.[16]

As explained further below, R-134a is used predominantly as a refrigerant in air conditioning systems. It is the primary refrigerant used in automotive air conditioning systems.[17]

C. Analysis

Petitioner argues that the Commission should find one domestic like product coterminous with the scope of these investigations.[18] The China Respondents do not object to the proposed definition of the like product.[19] AutoZone did not address this issue.

Physical Characteristics and Uses. R-134a is a clear, colorless liquid or gas, which is gaseous at normal atmospheric conditions. It has a boiling point of -15^0 F and a freezing point of -153^0 F. It is relatively nontoxic and nonflammable.[20] R-134a is, for the most part, used as a refrigerant in air conditioning systems. It is the primary refrigerant used in automotive air conditioning systems.[21] Other uses for R-134a include domestic and commercial refrigeration, as a propellant in various applications such as aerosol cans, foam-blowing of building insulation, and pharmaceutical uses such as asthma inhalers.[22]

Manufacturing Facilities, Production Processes and Employees. R-134a is made by a number of methods. Generally, these methods 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.[23]

The Petitioner 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

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[16] *1,1,1,2-Tetrafluoroethane From the People's Republic of China, Initiation of Antidumping Duty Investigation*, 78 Fed. Reg. 73832, 73837 (Dec. 9, 2013), and *1,1,1,2-Tetrafluoroethane From the People's Republic of China, Initiation of Countervailing Duty Investigation*, 78 Fed. Reg. 73839, 73842 (Dec. 9, 2013).

[17] Other uses for R-134a include domestic and commercial refrigeration, as a propellant in various applications such as aerosol cans, foam-blowing of building insulation, and pharmaceutical applications. CR at I-19-20, PR at I-13.

[18] Petition, Vol. 1 at 4; Conference Transcript ("Tr.") at 28-29.

[19] China Respondents' Postconference Brief at 33.

[20] CR at I-7, PR at I-5.

[21] CR at I-16, PR at I-11.

[22] CR at I- 19-20, PR at I-13-14.

[23] CR at I-8, PR at I-6-7.

endothermic, vapor phase reaction of R-133a with HF over a chromium-based catalyst again to produce R-134a. R-134a is separated out of the recycle stream by distillation.[24] DuPont uses a somewhat different, *** process. The key difference, according to DuPont, is that it uses ***.[25] Pharmaceutical grade R-134a is a purified product, which requires additional processing steps.[26]

Channels of Distribution. Domestically produced R-134a is sold both to distributors and end users. During the POI, approximately two-thirds of U.S. producers' U.S. shipments were to distributors and one-third was to end users.[27]

Interchangeability. R-134a is interchangeable with other refrigerants in some circumstances. Two of the three U.S. producers reported that there were substitutes for R-134a but only one of the 24 responding importers reported substitutes for R-134a.[28] There are a number of refrigerant gases that can be used in auto or other air conditioners or refrigerators. Each refrigerant gas must be compatible with the air conditioning/refrigeration system's design. Consequently, users cannot substitute other products for R-134a without modifying the system in which the refrigerant will be used. Substitution, however, may occur over time as new products/systems are designed to use different gases, as new gases are developed, or as regulations discourage use of R-134a.[29]

Producer and Customer Perceptions. R-134a is regarded as a refrigerant that is nonflammable, nontoxic, and relatively economical.[30]

Price. R-134a is regarded as a relatively economical refrigerant compared to other refrigerants available. DuPont's representative testified that "134a is the most economical solution," when considered along with its nonflammable and nontoxic qualities.[31]

Conclusion. The limited information on the record in these preliminary phase investigations that can be used to address the six factors supports defining the domestic like product as R-134a coextensive with the scope of the investigations. Based on these factors, and because no party has argued to the contrary in the preliminary phase of these investigations, we find that there is one domestic like product, coextensive with the scope of the investigations.

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[24] CR at I-8, PR at I-6-7.

[25] DuPont Postconference Brief at Part II, p. 1.

[26] Conference Tr. at 24 (Geosits).

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

[28] CR at II-11, PR at II-8. Substitutes reported included: HFC-152a in foam and propellant applications, HFO-1234yf in mobile air conditioners, hydrocarbons in foam and domestic refrigerators, 404A in medium temperature commercial refrigeration, and HFO-1234ze and HFO-1233zd in foam blowing, chiller, and aerosol applications.

[29] CR at II-11-12, PR at II-8; *see generally* CR at I-23-I-27, PR at I-15-19 (discussing the regulatory history of automotive refrigerants).

[30] Conference Tr. at 102 (Geosits) and 105 (Rubin).

[31] Conference Tr. at 105 (Rubin).

IV. Domestic Industry

The domestic industry is defined as the domestic "producers as a whole of a domestic like product, or those producers whose collective output of a domestic like product constitutes a major proportion of the total domestic production of the product."[32] In defining the domestic industry, the Commission's general practice has been to include in the industry producers of all domestic production of the like product, whether toll-produced, captively consumed, or sold in the domestic merchant market.

We must determine whether any producer of the domestic like product should be excluded from the domestic industry pursuant to Section 771(4)(B) of the Tariff Act. This provision allows the Commission, if appropriate circumstances exist, to exclude from the domestic industry producers that are related to an exporter or importer of subject merchandise or which are themselves importers.[33] Exclusion of such a producer is within the Commission's discretion based upon the facts presented in each investigation.[34]

These investigations raise one domestic industry issue, concerning whether appropriate circumstances exist to exclude one domestic producer, ***, from the domestic industry pursuant to the related parties provision. *** is a related party because it imported R-134a from China during the POI. No party addressed the issue of whether appropriate circumstances exist to exclude *** from the domestic industry as a related party.

Measured by sales, *** was the *** of R-134a in 2012.[35] It imported *** short tons of subject merchandise, the equivalent of *** percent of its domestic production, in 2011, and *** short tons, the equivalent of *** percent of its domestic production, in 2012.[36] *** stated that it imported R-134a from China in order to *** in the United States.[37] ***.[38]

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[32] 19 U.S.C. § 1677(4)(A).

[33] *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).

[34] 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, *i.e.*, 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; and

(3) the position of the related producer vis-a-vis the rest of the industry, *i.e.*, whether inclusion or exclusion of the related party will skew the data for the rest of the industry. *See, e.g.*, *Torrington Co. v. United States*, 790 F. Supp. at 1168.

[35] CR/PR at Table VI-2.

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

[37] CR at III-5, PR at III-3.

[38] CR/PR at Table III-1.

We find that appropriate circumstances do not exist to exclude *** from the domestic industry for the purposes of the preliminary phase of these investigations. Because it imported ***, its interests appear to lie more with domestic production than importing.

Accordingly, we define the domestic industry as consisting of all three U.S. producers of R-134a.

V. Reasonable Indication of Material Injury by Reason of Subject Imports

A. Legal Standard

In the preliminary phase of antidumping and countervailing duty investigations, the Commission determines whether there is a reasonable indication that an industry in the United States is materially injured or threatened with material injury by reason of the imports under investigation.[39] In making this determination, the Commission must consider the volume of subject imports, their effect on prices for the domestic like product, and their impact on domestic producers of the domestic like product, but only in the context of U.S. production operations.[40] The statute defines "material injury" as "harm which is not inconsequential, immaterial, or unimportant."[41] In assessing whether there is a reasonable indication that the domestic industry is materially injured by reason of subject imports, we consider all relevant economic factors that bear on the state of the industry in the United States.[42] No single factor is dispositive, and all relevant factors are considered "within the context of the business cycle and conditions of competition that are distinctive to the affected industry."[43]

Although the statute requires the Commission to determine whether there is a reasonable indication that the domestic industry is "materially injured by reason of" unfairly traded imports,[44] it does not define the phrase "by reason of," indicating that this aspect of the injury analysis is left to the Commission's reasonable exercise of its discretion.[45] In identifying a causal link, if any, between subject imports and material injury to the domestic industry, the Commission examines the facts of record that relate to the significance of the volume and price effects of the subject imports and any impact of those imports on the condition of the domestic industry. This evaluation under the "by reason of" standard must ensure that subject imports

[39] 19 U.S.C. §§ 1671b(a), 1673b(a).

[40] 19 U.S.C. § 1677(7)(B). The Commission "may consider such other economic factors as are relevant to the determination" but shall "identify each {such} factor ... {a}nd explain in full its relevance to the determination." 19 U.S.C. § 1677(7)(B).

[41] 19 U.S.C. § 1677(7)(A).

[42] 19 U.S.C. § 1677(7)(C)(iii).

[43] 19 U.S.C. § 1677(7)(C)(iii).

[44] 19 U.S.C. §§ 1671b(a), 1673b(a).

[45] *Angus Chemical Co. v. United States*, 140 F.3d 1478, 1484-85 (Fed. Cir. 1998) ("{T}he statute does not 'compel the commissioners' to employ {a particular methodology}."), *aff'g* 944 F. Supp. 943, 951 (Ct. Int'l Trade 1996).

are more than a minimal or tangential cause of injury and that there is a sufficient causal, not merely a temporal, nexus between subject imports and material injury.[46]

In many investigations, there are other economic factors at work, some or all of which may also be having adverse effects on the domestic industry. Such economic factors might include nonsubject imports; changes in technology, demand, or consumer tastes; competition among domestic producers; or management decisions by domestic producers. The legislative history explains that the Commission must examine factors other than subject imports to ensure that it is not attributing injury from other factors to the subject imports, thereby inflating an otherwise tangential cause of injury into one that satisfies the statutory material injury threshold.[47] In performing its examination, however, the Commission need not isolate the injury caused by other factors from injury caused by unfairly traded imports.[48] Nor does the

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

[47] Uruguay Round Agreements Act Statement of Administrative Action (SAA), H.R. Rep. 103-316, Vol. I at 851-52 (1994) ("{T}he Commission must examine other factors to ensure that it is not attributing injury from other sources to the subject imports."); S. Rep. 96-249 at 75 (1979) (the Commission "will consider information which indicates that harm is caused by factors other than less-than-fair-value imports."); H.R. Rep. 96-317 at 47 (1979) ("in examining the overall injury being experienced by a domestic industry, the ITC will take into account evidence presented to it which demonstrates that the harm attributed by the petitioner to the subsidized or dumped imports is attributable to such other factors;" those factors include "the volume and prices of nonsubsidized imports or imports sold at fair value, contraction in demand or changes in patterns of consumption, trade restrictive practices of and competition between the foreign and domestic producers, developments in technology and the export performance and productivity of the domestic industry"); *accord Mittal Steel*, 542 F.3d at 877.

[48] SAA at 851-52 ("{T}he Commission need not isolate the injury caused by other factors from injury caused by unfair imports."); *Taiwan Semiconductor Industry Ass'n* , 266 F.3d at 1345. ("{T}he Commission need not isolate the injury caused by other factors from injury caused by unfair imports ... . Rather, the Commission must examine other factors to ensure that it is not attributing injury from other sources to the subject imports." (emphasis in original)); *Asociacion de Productores de Salmon y Trucha de Chile AG v. United States*, 180 F. Supp. 2d 1360, 1375 (Ct. Int'l Trade 2002) ("{t}he Commission is not required to isolate the effects of subject imports from other factors contributing to injury" or make "bright-line distinctions" between the effects of subject imports and other causes.); *see also Softwood Lumber from Canada*, Inv. Nos. 701-TA-414 and 731-TA-928 (Remand), USITC Pub. 3658 at 100-01 (Dec. 2003) (Commission recognized that "{i}f an alleged other factor is found not to have or threaten to have injurious effects to the domestic industry, *i.e.*, it is not an 'other causal factor,' then there is nothing to (Continued…)

"by reason of" standard require that unfairly traded imports be the "principal" cause of injury or contemplate that injury from unfairly traded imports be weighed against other factors, such as nonsubject imports, which may be contributing to overall injury to an industry.[49] It is clear that the existence of injury caused by other factors does not compel a negative determination.[50]

Assessment of whether material injury to the domestic industry is "by reason of" subject imports "does not require the Commission to address the causation issue in any particular way" as long as "the injury to the domestic industry can reasonably be attributed to the subject imports" and the Commission "ensure{s} that it is not attributing injury from other sources to the subject imports."[51] [52] Indeed, the Federal Circuit has examined and affirmed various Commission methodologies and has disavowed "rigid adherence to a specific formula."[53]

(…Continued)
further examine regarding attribution to injury"), *citing Gerald Metals,* 132 F.3d at 722 (the statute "does not suggest that an importer of LTFV goods can escape countervailing duties by finding some tangential or minor cause unrelated to the LTFV goods that contributed to the harmful effects on domestic market prices.").

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

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

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

[52] Commissioner Pinkert does not join this paragraph or the following three paragraphs. He points out that the Federal Circuit, in *Bratsk*, 444 F.3d 1369, and *Mittal Steel*, held that the Commission is *required*, in certain circumstances when considering present material injury, to undertake a particular kind of analysis of non-subject imports, albeit without reliance upon presumptions or rigid formulas. *Mittal Steel* explains as follows:

> What *Bratsk* held is that "where commodity products are at issue and fairly traded, price competitive, non-subject imports are in the market," the Commission would not fulfill its obligation to consider an important aspect of the problem if it failed to consider whether non-subject or non-LTFV imports would have replaced LTFV subject imports during the period of investigation without a continuing benefit to the domestic industry. 444 F.3d at 1369. Under those circumstances, *Bratsk* requires the Commission to consider whether replacement of the LTFV subject imports might have occurred during the period of investigation, and it requires the Commission to provide an explanation of its conclusion with respect to that factor.

542 F.3d at 878.

[53] *Nucor Corp. v. United States*, 414 F.3d 1331, 1336, 1341 (Fed. Cir. 2005); *see also Mittal Steel*, 542 F.3d at 879 ("*Bratsk* did not read into the antidumping statute a Procrustean formula for determining whether a domestic injury was 'by reason' of subject imports.").

The Federal Circuit's decisions in *Gerald Metals*, *Bratsk,* and *Mittal Steel* all involved cases in which the relevant "other factor" was the presence in the market of significant volumes of price-competitive nonsubject imports. The Commission interpreted the Federal Circuit's guidance in *Bratsk* as requiring it to apply a particular additional methodology following its finding of material injury in cases involving commodity products and a significant market presence of price-competitive nonsubject imports.[54] The additional "replacement/benefit" test looked at whether nonsubject imports might have replaced subject imports without any benefit to the U.S. industry. The Commission applied that specific additional test in subsequent cases, including the *Carbon and Certain Alloy Steel Wire Rod from Trinidad and Tobago* determination that underlies the *Mittal Steel* litigation.

Mittal Steel clarifies that the Commission's interpretation of *Bratsk* was too rigid and makes clear that the Federal Circuit does not require the Commission to apply an additional test nor any one specific methodology; instead, the court requires the Commission to have "evidence in the record 'to show that the harm occurred 'by reason of' the LTFV imports,'" and requires that the Commission not attribute injury from nonsubject imports or other factors to subject imports.[55] Accordingly, we do not consider ourselves required to apply the replacement/benefit test that was included in Commission opinions subsequent to *Bratsk*.

The progression of *Gerald Metals*, *Bratsk*, and *Mittal Steel* clarifies that, in cases involving commodity products where price-competitive nonsubject imports are a significant factor in the U.S. market, the Court will require the Commission to give full consideration, with adequate explanation, to non-attribution issues when it performs its causation analysis.[56]

The question of whether the material injury threshold for subject imports is satisfied notwithstanding any injury from other factors is factual, subject to review under the substantial evidence standard.[57] Congress has delegated this factual finding to the Commission because of the agency's institutional expertise in resolving injury issues.[58]

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

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

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

[57] We provide in our respective discussions of volume, price effects, and impact a full analysis of other factors alleged to have caused any material injury experienced by the domestic industry.

[58] *Mittal Steel*, 542 F.3d at 873; *Nippon Steel Corp*., 458 F.3d at 1350, *citing U.S. Steel Group*, 96 F.3d at 1357; S. Rep. 96-249 at 75 ("The determination of the ITC with respect to causation is ... complex and difficult, and is a matter for the judgment of the ITC.").

B. Conditions of Competition and the Business Cycle[59]

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

1. Demand Conditions

Demand for R-134a is derived from demand for its end uses. The largest end use of R-134a is in automotive air conditioning systems.[60] Within this end use, most sales are to the replacement market rather than to original equipment manufacturers ("OEMs"); an estimated 70 to 75 percent of all air conditioning refrigerant demand for R-134a in the automotive sector is for the replacement market.[61] R-134a is also used in other refrigeration systems, as a foam expansion agent, and in pharmaceutical applications (such as asthma inhalers).[62] Consumers using R-134a as a refrigerant in automotive air conditioning systems are more likely to seek refrigerant replacement when temperatures are warm, so demand tends to be seasonal.[63] Apparent U.S. consumption of R-134a increased from *** short tons in 2010 to *** short tons in 2011, and declined to *** short tons in 2012.[64] [65]

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[59] Pursuant to Section 771(24) of the Tariff Act, imports from a subject country of merchandise corresponding to a domestic like product that account for less than 3 percent of all such merchandise imported into the United States during the most recent 12 months for which data are available preceding the filing of the petition shall be deemed negligible. 19 U.S.C. §§ 1671b(a), 1673b(a), 1677(24)(A)(i), 1677(24)(B); *see also* 15 C.F.R. § 2013.1 (developing countries for purposes of 19 U.S.C. § 1677(36)). Negligibility is not an issue in these investigations. In the most recent 12-month period preceding the filing of the petition for which data are available, October 2012 through September 2013, the volume of U.S. imports from China accounted for 92.2 percent of total U.S. imports of R-134a. CR at IV-6, PR at IV-5.

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

[61] CR at I-17, II-9 n. 14, PR at I-11, II-6 n.14.

[62] CR at I-19-I-20, PR at I-13 and CR/PR at Table I-1.

[63] CR at II-9-10, PR at II-7.

[64] CR/PR at Table IV-4. Apparent consumption was *** short tons in January-June ("interim") 2012 and *** short tons in interim 2013.

[65] Petitioner argues that official U.S. import statistics understate actual imports of R-134a by a substantial margin because R-134a imports are being misclassified. Petitioner notes that the Commission has access to the following four sources of import data: official U.S. Customs import statistics, PIERS data, aggregated importer questionnaire responses, and aggregated foreign producer export data. Petitioner urges the Commission to use the foreign producer export data to measure the volume of subject imports. Petitioners' Postconference Brief at 2-3. We note that the volume of all four databases offered by Petitioner depict a similar trend of U.S. imports from China during the POI, namely an increasing volume from 2010 to 2012 and a decrease or stabilization of volume in interim 2013 as compared to interim 2012. We also note that in 2012, the volume of official Commerce statistics and U.S. import data compiled from U.S. importers questionnaires are similar, with official Commerce statistics accounting for 99.4 percent of volume compiled from U.S. importer responses. A comparison of the volume of U.S. exports compiled from foreign producer questionnaire responses with official Commerce statistics may suggest an understatement of U.S. imports from China by official Commerce (Continued…)

2. Supply Conditions

The domestic industry and subject imports are the main sources of supply to the U.S. market. The domestic industry was the largest source of R-134a during the POI, supplying most of the U.S. market. The share of apparent U.S. consumption held by the domestic industry declined from *** percent in 2010 to *** percent in 2011 and to *** percent in 2012.[66] During the POI, domestically produced R-134a was sold for all applications.[67]

Subject imports occupied a smaller, but increasing share of the market. The market share of subject imports increased from *** percent in 2010 to *** percent in 2011 and then to *** percent in 2012.[68] Subject imports were sold for use primarily in the automotive refrigerant aftermarket, but also for use in other refrigeration systems.[69]

Nonsubject imports had a minimal presence in the U.S. market throughout the POI,[70] and were sold primarily for pharmaceutical and automotive aftermarket end uses.[71]

Starting in mid-2010 and continuing through 2011, the U.S. market for R-134a experienced price increases and reports of shortages.[72] Producers and importers attributed these market conditions to a number of factors, including production problems at some U.S. producers' facilities, a drawdown of inventories by U.S. producers and purchasers as a result of the 2008 economic downturn, raw material shortages, strengthening global and U.S. demand, and the phase-out of the use of hydrochlorofluorocarbons ("HCFC") like R-22, another refrigerant (R-134a is a replacement for certain HCFCs and for R-22).[73] Supply conditions reportedly became more normal in 2012.[74]

3. Substitutability and Other Conditions

Based on the record in the preliminary phase of these investigations, we find that there is a high degree of substitutability between subject imports and the domestic like product (except in pharmaceutical grade R-134a, for which there are no reported imports from China

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(…Continued)
statistics. However, in the preliminary phase of these investigations, we have opted to use official Commerce statistics to measure U.S. imports from China because of difficulties inherent in using export data as a proxy for U.S. import data such as timing of shipments, foreign trade zones, and re-exportation of goods without U.S. consumption, and because the trends of the two data sets are similar.

[66] CR/PR at Table IV-4. The domestic industry's share of apparent U.S. consumption was *** percent in interim 2012 and *** percent in interim 2013. *Id.*

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

[68] CR/PR at Table IV-4. The market share of subject imports was *** percent in interim 2012 and *** percent in interim 2013.

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

[70] The market share of nonsubject imports was *** percent in 2010, *** percent in 2011, *** percent in 2012, *** percent in interim 2012, and *** percent in interim 2013. CR/PR at Table IV-4.

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

[72] CR at II-5, PR at II-4.

[73] CR at II-6, PR at II-4-5.

[74] Conference Tr. at 13 (McConkey), 79 (Schagrin), and 131-132 (Klein).

during the POI), and that price is an important consideration in purchasing decisions. All domestic producers and almost all importers reported that subject imports are "always" or "frequently" used interchangeably with the domestic like product.[75] Moreover, all domestic producers and a majority of importers reported that differences other than price were only sometimes or never a significant factor in R-134a sales.[76] [77]

U.S. producers of R-134a typically sold their product directly to vehicle manufacturers and to the aftermarket through distributors, some of which repackage the product into retail containers.[78] Importers of R-134a from China, which sold almost entirely into the aftermarket, reported selling over half of their product directly to end users.[79] U.S. producers sold over half of their sales pursuant to short- or long-term contracts, while most subject imports were sold in the spot market.[80] Petitioner contends that prices in the spot market influence the price terms of contracts.[81]

Key raw materials used in the production of R-134a include hydrogen fluoride (made from fluorspar), and chlorocarbons.[82] Raw materials accounted for *** percent of the domestic industry's cost of goods sold during the POI.[83] Raw material costs ***.[84]

C. Volume of Subject Imports

Section 771(7)(C)(i) of the Tariff Act provides that the "Commission shall consider whether the volume of imports of the merchandise, or any increase in that volume, either in absolute terms or relative to production or consumption in the United States, is significant."[85]

Subject imports entered the U.S. market in increasing volumes over the POI, with the exception of interim 2013, when there was a decline as compared with interim 2012. Subject imports increased from 4,369 short tons in 2010 to 11,465 short tons in 2011, and reached 12,868 short tons in 2012.[86] The quantity of subject imports increased both when demand as measured by apparent U.S. consumption rose from 2010 to 2011 and when it declined from 2011 to 2012.

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[75] CR/PR at Table II-4.

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

[77] We will explore further in any final phase investigations the contentions of China Respondents and AutoZone that Chinese suppliers offer U.S. customers options with regard to packaging that the purchasers are unable to obtain from U.S. producers. China Respondents' Postconference Brief at 6, AutoZone Postconference Brief at 6.

[78] CR/PR at II-1, Conference Tr. at 22 (Geosits).

[79] CR/PR at Tables I-1 and II-1.

[80] CR/PR at Table V-2 and CR at V-2, PR at V-2.

[81] Conference Tr. at 22 (Geosits).

[82] CR/PR at V-1.

[83] CR at VI-2, PR at VI-1.

[84] CR at VI-2, PR at VI-1.

[85] 19 U.S.C. § 1677(7)(C)(i).

[86] CR/PR at Table IV-2. Subject imports were 7,126 short tons in interim 2012 and 6,581 short tons in interim 2013.

The market share (by quantity) of subject imports increased from *** percent in 2010 to *** percent in 2011 and *** percent in 2012.[87] This gain in market share came entirely at the expense of the domestic industry, whose market share decreased from *** percent in 2010 to *** percent in 2011 and *** percent in 2012.[88] While nonsubject imports also made slight gains in market share at the expense of the domestic industry, they had a minimal presence in the U.S. market throughout the POI.[89]

The China Respondents have argued that the increase in subject imports in 2011 was a response to supply constraints that existed in the U.S. market at that time.[90] This, however, does not explain the continued increase in the volume and market share of subject imports from 2011 to 2012, when the parties acknowledged that market conditions appeared to be normalizing and apparent U.S. consumption declined.[91]

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

D. Price Effects of the Subject Imports

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

> (I) there has been significant price underselling by the imported merchandise as compared with the price of domestic like products of the United States, and
>
> (II) the effect of imports of such merchandise otherwise depresses prices to a significant degree or prevents price increases, which otherwise would have occurred, to a significant degree.[92]

As explained above, based on the record in the preliminary phase of these investigations, we find that there is a high degree of substitutability between subject imports and the domestic like product, and that price is an important consideration in purchasing decisions.[93]

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[87] CR/PR at Table IV-4. Subject imports held *** percent of U.S. market share in interim 2012 and *** percent of market share in interim 2013. *Id.*

[88] CR/PR at Table IV-4. The domestic industry's market share was *** percent in interim 2012 and *** percent in interim 2013.

[89] Nonsubject imports' share of apparent U.S. consumption, by quantity, was *** percent in 2010, *** percent in 2011, *** percent in 2012, *** percent in interim 2012, and *** percent in interim 2013. CR/PR at Table IV-4.

[90] China Respondents' Postconference Brief at 11-12.

[91] Conference Tr. at 13 (McConkey), 79 (Schagrin), and 131-132 (Klein).

[92] 19 U.S.C. § 1677(7)(C)(ii).

[93] We note that subject imports did not compete for sales of pharmaceutical grade R-134a, but this is *** of the U.S. market. CR/PR at Table I-1.

The Commission sought quarterly pricing data for the following three pricing products: (1) Product 1 -- 1,1,1,2-tetrafluoroethane-R-134a (other than pharmaceutical grade) sold in 30 pound containers (with or without automotive fitting); (2) Product 2 -- 1,1,1,2-tetrafluoroethane-R-134a (other than pharmaceutical grade) sold in 12 ounce containers; and (3) Product 3 -- Pharmaceutical grade 1,1,1,2-tetrafluoroethane-R-134a sold in any size of containers.[94] The Commission received usable pricing data from three U.S. producers and 10 importers.[95] Pricing data reported by these firms accounted for *** percent of the domestic industry's U.S. shipments of R-134a, and *** percent of U.S. shipments of subject imports from China.[96] There were sales of both the domestic product and subject imports for Products 1 and 2 during the POI.[97] Product 1 had the highest volumes of both the domestic product and subject imports.[98] There were no U.S. sales of subject imports for Product 3 during the POI.[99]

Overall, there was a mixed pattern of overselling and underselling by subject imports during the POI. Subject imports undersold the domestic like product in 10 out of 24 quarterly comparisons and oversold it in the remaining 14 comparisons.[100]

In 2010, when prices were rising in the context of supply constraints in the market, the subject imports undersold the domestic product in two quarters and oversold the domestic product in two quarters.[101]

In 2011, supply constraints continued and the volume of subject imports increased significantly despite the fact that subject imports were priced higher than the domestic product in most quarterly comparisons. Subject imports undersold the domestic product in only 2 of 8 quarterly comparisons and these instances of underselling involved relatively small quantities of imports. The prices of both Product 1 and Product 2 reached their highest level of the POI during the second quarter of 2011 and declined during a period of lower demand later in the year.

In 2012, despite stabilizing supply conditions, the volume of subject imports continued to increase and subject imports continued to gain market share, however, unlike 2011, there

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[94] CR at V-4, PR at V-3.

[95] CR at V-4, PR at V-3.

[96] CR at V-4, PR at V-3. In any final phase investigations, we will attempt to gather more comprehensive pricing data. We encourage the parties to include in their written comments on draft questionnaires any suggestions they have regarding improvements that can be made to better define pricing products and generally collect pricing data, including to account for sales at different levels of trade. We note that pricing data from importers that reported that their sales were made at the retail level were not included in the pricing comparisons in the Commission report in order to minimize inaccuracies based on differing levels of trade. CR at V-4 n. 11, PR at V-3.

[97] CR/PR at Tables V-3 and V-4.

[98] *See* CR/PR at Tables V-3 and V-4.

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

[100] CR/PR at Table V-7.

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

was significant underselling.[102] Subject imports undersold the domestic product in all four calendar quarters for Product 1 and in two quarters for Product 2.[103] We find the pervasive underselling for Product 1 in 2012, at margins ranging from 11.9 to *** percent, to be particularly relevant in light of the large volumes of subject imports involved, the fact that all three domestic producers sold this product, and because market conditions were reportedly normalizing during this time.[104] [105]

As this underselling occurred in the latter portion of the POI, domestic prices for the two products where there was competition between the domestically produced product and the subject imports – Products 1 and 2 – trended downward. Particularly with respect to Product 1, which we find most significant for our analysis for the reasons explained above, there was consistent underselling by subject imports in 2012 and by the final quarter of that year the domestic producers' prices declined to a level below where they had started at the beginning of the period, and those prices continued to decline into 2013.[106]

There were some confirmed instances in which the domestic industry lost sales and revenue due to competition from subject imports.[107] The confirmed lost revenue allegations involved relatively large sales. Moreover, some purchasers specifically reported that U.S. producers had reduced their prices in order to compete with the prices of subject imports.[108]

Accordingly, based on the current record, we find that there was significant underselling and price depression in 2012.

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[102] The market share (by quantity) of subject imports increased from *** percent in 2010 to *** percent in 2011 and *** percent in 2012. CR/PR at Table IV-4.

[103] CR/PR at Tables V-3 and V-4.

[104] CR/PR at Tables V-3 and V-4, and questionnaire responses of Petitioner, DuPont and Arkema.

[105] CR/PR at Tables V-3 and V-4. The quarterly price comparisons in interim 2013 do not show underselling. Instead, the domestic industry either cut prices or maintained them at low levels to preserve market share. The domestic industry's market share was *** percentage points higher in interim 2013 than in interim 2012. However, domestic prices continued to decrease. During the second quarter of 2013, domestic prices for Product 1 were at the lowest level for the POI. During the first and second quarters of 2013, domestic prices for Product 2 were at their lowest levels since 2010, with one exception. CR/PR at Table IV-4.

[106] CR/PR at Table V-3. In the first quarter of 2010, the domestic producers' price was *** and by the fourth quarter of 2012, the price was ***. In the first quarter of 2013 it was *** and it was *** in the second quarter of 2013.

[107] CR at V-12-13, PR at V-6-7, and CR/PR at Tables V-8 & V-9. Purchasers indicated that they agreed with *** and partially agreed with *** of *** lost sales allegations, valued at $ ***, and *** out of *** lost revenue allegations, valued at $ ***. *Id.* We note that, within the time constraints of these preliminary investigations, we were unable to contact many of the purchasers involved in the lost sales/lost revenue allegations. We will attempt to gather more comprehensive data in any final phase investigations.

[108] CR at V-13, PR at V-7.

E. Impact of the Subject Imports[109]

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

Many of the domestic industry's performance indicators declined over the POI, even while apparent consumption grew.[110] The domestic industry's production fell from *** short tons in 2010, to *** short tons in 2011, and then to *** short tons in 2012.[111] Its production capacity was *** short tons in 2010 and 2011, and then declined to *** short tons in 2012.[112] The industry's capacity utilization declined from *** percent in 2010 to *** percent in 2011 and then to *** percent in 2012.[113] The quantity of U.S. shipments fell from *** short tons in 2010 to *** short tons in 2011 and then to *** short tons in 2012.[114] The value of U.S. shipments rose from $*** in 2010 to $*** in 2011, and then declined to $*** in 2012.[115] Net sales, by

[109] In its notice initiating the antidumping duty investigation on R-134a from China, Commerce reported an estimated dumping margin of 198.52 percent for all exporters/producers. *1,1,1,2-Tetrafluoroethane From the People's Republic of China, Initiation of Antidumping Duty Investigation*, 78 Fed. Reg. 73832, 73835. (Dec. 9, 2013). In its notice initiating a countervailing duty investigation on R-134a from China, Commerce stated it would investigate six alleged subsidy programs. *1,1,1,2-Tetrafluoroethane From the People's Republic of China, Initiation of Countervailing Duty Investigation*, 78 Fed. Reg. 73839, 73841 (Dec. 9, 2013). Commerce identifies these programs in a separate initiation checklist as including two programs concerning "government provision of goods and services for less than adequate remuneration," one income tax program, two programs involving loans and credits, and one "local and municipal program." Countervailing Duty Investigation Checklist, Inv. No. C-570-999 (Dep't of Commerce, Dec. 2, 2013) at 7-12. Commerce declined to initiate an investigation on nine other programs alleged in the petition. *Id.* at 12-15.

[110] U.S. apparent consumption was *** percent higher in 2012 than in 2010. CR/PR at Table C-1.

[111] CR/PR at Table III-2. The domestic industry's production was *** short tons in interim 2012 and *** short tons in interim 2013.

[112] CR/PR at Table III-2. Production capacity was *** short tons in interim 2012 and *** short tons in interim 2013.

[113] CR/PR at Table III-2. Capacity utilization was *** percent in interim 2012 and *** percent in interim 2013.

[114] CR/PR at III-3. The quantity of U.S. shipments was *** short tons in interim 2012 and *** short tons in interim 2013.

U.S. producers' end-of-period inventories were *** short tons in 2010, *** short tons in 2011, *** short tons in 2012, *** short tons in interim 2012, and *** short tons in interim 2013. CR/PR at Table III-4.

[115] CR/PR at III-3. The value of U.S. shipments was $*** in interim 2012 and $*** in interim 2013.

quantity, declined from *** short tons in 2010 to *** short tons in 2011 and then to *** short tons in 2012.[116] The domestic industry's indicators concerning employment and hours worked fluctuated within a narrow range over the POI.[117]

The domestic industry's financial performance improved from 2010 to 2011, during a period of supply constraints and high prices, but then deteriorated from 2011 to 2012. The industry's operating income rose from $*** in 2010 to $*** in 2011, before falling to $*** in 2012.[118] The ratio of operating income to net sales rose from *** percent in 2010 to *** percent in 2011, before falling to *** percent in 2012.[119] [120]

In light of the decline in many of the domestic industry's performance indicators, especially the large decline in profitability in 2012 that occurred when there was widespread underselling by subject imports, the significant volume of subject imports, the high degree of substitutability between the domestic like product and subject imports, and the importance of price in purchasing decisions, we find for purpose of these preliminary determinations that subject imports have had a significant adverse impact on the domestic industry. Subject imports gained market share and sales directly at the expense of the domestic industry, and in 2012, as market conditions began to normalize, subject imports lowered their prices, which depressed U.S. producers' prices and had a significant negative impact on the domestic industry's profitability.

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[116] CR/PR at Table VI-1.

[117] The number of production workers was *** in 2010, *** in 2011 *** in 2012, *** in interim 2012, and *** in interim 2013. The total hours worked were *** in 2010 and in 2011, *** in 2012, *** in interim 2012, and *** in interim 2013. Wages paid were $*** in 2010, $*** in 2011, $*** in 2012, $*** in interim 2012, and $*** in interim 2013. Worker productivity declined from *** short tons/1,000 hours in 2010 to *** short tons/1,000 hours in 2011, and to *** short tons/1,000 hours in 2012. Productivity was *** short tons/1,000 hours in interim 2012, and *** short tons/1,000 hours in interim 2013. CR/PR at Table III-6.

[118] CR/PR at Table VI-1. Operating income was much lower in interim 2013, at $***, than in interim 2012, when it was $***. As discussed above, price levels during interim 2013 were relatively low compared to prior portions of the POI, and were lower than those offered at the time by the subject imports. Consequently, the domestic industry was able to regain a small amount of market share in interim 2013, when its market share was *** percent, compared with interim 2012, when it was *** percent. CR/PR at Table IV-4. This market share gain, however, occurred at the expense of its profitability.

[119] CR/PR at Table VI-1. Operating margins declined from *** percent in interim 2012, to *** percent in interim 2013. The domestic industry's aggregate capital expenditures rose throughout much of the POI. They were $*** in 2010, $*** in 2011, $*** in 2012, $*** in interim 2012 and $*** in interim 2013. CR/PR at Table VI-4. Research and development expenditures were $*** in 2010, $*** in 2011, $*** in 2012, $*** in interim 2012 and $*** in interim 2013.

[120] We note that Petitioner and DuPont have argued that we should value the purchases of raw material that Petitioner makes from its parent Mexichem Fluor at the prices actually paid, rather than at cost. Petitioners' Postconference Brief at 12-13, DuPont Postconference Brief at 3-4. We intend to explore this issue further in any final phase investigations.

We have also considered the role of other factors, such as nonsubject imports, in our assessment of the impact of the subject imports. As discussed above, nonsubject imports were not a significant presence in the U.S. market throughout the POI.[121] [122] Accordingly, we do not find the small volume of nonsubject imports to be a cause of the declines the domestic industry experienced during the POI.

VI. Conclusion

For the reasons stated above, we determine that there is a reasonable indication that an industry in the United States is materially injured by reason of imports of R-134a from China that are allegedly sold in the United States at less than fair value and that are allegedly subsidized by the government of China.

[121] As discussed earlier, nonsubject imports share of apparent U.S. consumption, by quantity, was *** percent in 2010, *** percent in 2011, *** percent in 2012, *** percent in interim 2012, and *** percent in interim 2013. CR/PR at Table IV-4.

[122] Commissioner Pinkert finds pursuant to *Bratsk/Mittal* that, regardless of whether R-134a is a commodity product, nonsubject imports were not a significant factor in the U.S. market during the POI. As noted above, nonsubject imports' market share by quantity was never higher than *** percent of U.S. apparent consumption. CR/PR at Table IV-4.

PART I: INTRODUCTION

BACKGROUND

These investigations result from a petition filed with the U.S. Department of Commerce ("Commerce") and the U.S. International Trade Commission ("USITC" or "Commission") by Mexichem Fluor, Inc. ("Mexichem"), St. Gabriel, Louisiana, on October 22, 2013, alleging that an industry in the United States is materially injured and/or threatened with material injury by reason of imports from China of 1,1,1,2—Tetrafluoroethane ("R-134a")[1] that are allegedly sold in the United States at less-than-fair-value ("LTFV") and subsidized by the Government of China. The following tabulation provides information relating to the background of these investigations.[2] [3]

Effective date	Action
October 22, 2013	Petition filed with Commerce and the Commission; institution of Commission investigation (78 FR 64243, October 28, 2013)
November 12	Commission's conference
December 4	Commerce's notices of initiation for the antidumping and countervailing duty investigations[1]
December 13	Commission's vote
December 13	Commission's determinations
December 20, 2013	Commission's views

[1] Commerce's notices of initiation were delayed up to 20 days as it polled the U.S. industry to determine if Mexichem had standing to file the petitions. The Commission did directly receive notice on December 4, 2013 of Commerce's initiation of both the antidumping and countervailing duty investigations. Commerce has not yet published its notices of initiation in the *Federal Register*.

STATUTORY CRITERIA AND ORGANIZATION OF THE REPORT

Statutory criteria

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

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

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

[3] A list of witnesses that appeared at the conference is presented in app. B of this report.

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

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

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

Organization of report

Part I of this report presents information on the subject merchandise, alleged dumping margins, and domestic like product. *Part II* of this report presents information on conditions of competition and other relevant economic factors. *Part III* presents information on the condition of the U.S. industry, including data on capacity, production, shipments, inventories, and

employment. *Parts IV* and *V* present the volume of subject imports and pricing of domestic and imported products, respectively. *Part VI* presents information on the financial experience of U.S. producers. *Part VII* presents the statutory requirements and information obtained for use in the Commission's consideration of the question of threat of material injury as well as information regarding nonsubject countries.

MARKET SUMMARY

R-134a is a refrigerant used in air conditioning systems and is the primary refrigerant in mobile air conditioning systems, i.e. air conditioning systems located in automobiles. The U.S. market for R-134a totaled approximately $*** million and *** short tons in 2012. The Commission received responses from three firms that produce R-134a in the United States, Arkema, Inc. ("Arkema"), E.I. Du Pont de Nemours & Co., Inc. ("DuPont"), and Mexichem, which accounted for all of the U.S. production of R-134a during the period of investigation. Twenty-eight firms have reported importing R-134a during the period of investigation, which accounted for the majority of U.S. imports from China. The volume of U.S. imports from nonsubject countries was significantly lower than U.S. imports from China during the period of investigation.

U.S. producers' U.S. shipments of R-134a totaled *** short tons valued at $*** in 2012, and accounted for *** percent of apparent U.S. consumption by quantity (*** percent by value). U.S. imports of R-134a from China totaled 12,868 short tons in 2012 and accounted for *** percent of apparent U.S. consumption by quantity (*** percent by value). U.S. imports of R-134a from nonsubject countries totaled 1,206 short tons in 2012, and accounted for *** percent of apparent U.S. consumption by quantity (*** percent by value).

SUMMARY DATA AND DATA SOURCES

A summary of data collected in these investigations is presented in appendix C, table C-1. U.S. industry data are based on questionnaire responses of three U.S. producers of R-134a, Arkema, DuPont, and Mexichem, which accounted for all U.S. production of R-134a during the period of investigation. Data for U.S. imports from China and nonsubject countries are compiled based on official Commerce statistics. Foreign industry data are based on responses to the Commission's U.S. foreign producer's questionnaires.

PREVIOUS AND RELATED INVESTIGATIONS

The Commission has conducted a section 337 investigation on R-134a.[4] The Commission instituted its investigation on December 31, 2007, based on a complaint filed by INEOS Fluor

[4] *In the Matter of Certain R-134a Coolant (Otherwise Known as 1,1,1,2—Tetrafluoroethane)*, ITC Publication No. 4150 (December 2010).

Holdings Ltd.[5] The complaint alleged violations of section 337 by reason of infringement of various process patents used in the manufacture of R–134a. The complaint named the respondent, Sinochem. On December 1, 2008, the Administrative Law Judge determined that Sinochem had violated section 337. On June 1, 2009, the Commission determined to review a remand determination and reversed the conclusion of nonobviousness of the patent infringement claims finding that the claim would have been obvious to one of ordinary skill in the art and was therefore invalid. With its finding of no patent infringement, the Commission terminated its 337 investigation on R-134 in 2009.[6]

NATURE AND EXTENT OF ALLEGED SALES AT LTFV

On December 4, 2013, Commerce notified the Commission of the initiation of its antidumping duty investigation on R-134a from China. Commerce has initiated its antidumping duty investigation based on estimated dumping margins of 198.52 percent for R-134a from China. [7]

NATURE OF ALLEGED COUNTERVAILABLE SUBSIDIES

On December 4, 2013, Commerce notified the Commission of the initiation of its countervailing duty investigation on R-134a. In its notice, Commerce determined that there was sufficient information in the petition to investigate six alleged countervailable subsidy programs.[8]

THE SUBJECT MERCHANDISE

Commerce's scope

Commerce has defined the scope of these investigations as follows:[9]

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[5] In April 2010, INEOS Fluor Holdings, Ltd. sold its refrigerant business to Mexichem.

[6] *In the Matter of Certain R–134a Coolant (Otherwise Known as 1,1,1,2-Tetrafluoroethane); Notice of Commission Determination To Reverse the Remand Determination of the Presiding Administrative Law Judge and To Terminate the Investigation in Its Entirety With a Finding of No Violation*, 74 FR 39968, August 10, 2009.

[7] *1,1,1,2-Tetrafluoroethane from the People's Republic of China: Initiation of Antidumping Duty Investigation*, Letter to the Commission, December 4, 2013.

[8] *1,1,1,2 Tetrafluoroethane from the People's Republic of China: Initiation of Countervailing Duty Investigation*, Letter to the Commission, December 4, 2013. Commerce's letter to the Commission did not list the six programs under investigation.

[9] *1,1,1,2 –Tetrafluoroethane From The People's Republic Of China: Response to Scope Questionnaire*, Letter from Petitioner to Commerce, November 7, 2013, p. 2.

The product covered by these investigations is 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 CF3-CH2F, and the Chemical Abstracts Service ("CAS") registry number is CAS 811-97-2.

1,1,1,2-Tetrafluoroethane is sold under a number of trade names including Klea 134a and Zephex 134a (Mexichem Fluor); Genetron 134a (Honeywell); Suva 134a, Dymell34a, and Dymel P134a (DuPont); 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.

Merchandise covered by the scope of this investigation is currently classified in the Harmonized Tariff Schedule of the United States ("HTS") at subheading 2903.39.2020. Although the HTS subheading and CAS registry number are provided for convenience and customs purposes, the written description of the scope is dispositive.

Tariff treatment

R-134a is classified under HTS statistical reporting number 2903.39.2020, a specific product category that includes only 134-a.[10] The 2013 general rate of duty for this subheading is 3.7 percent *ad valorem*.

Petitioner contends that some U.S. imports of R-134a may have entered the United States during the period of investigation misclassified under incorrect HTS subheadings.[11] Respondents observed that the current HTS statistical reporting number is relatively new and a number of importers may not have begun entry under the new HTS number.[12]

Manufacturing processes

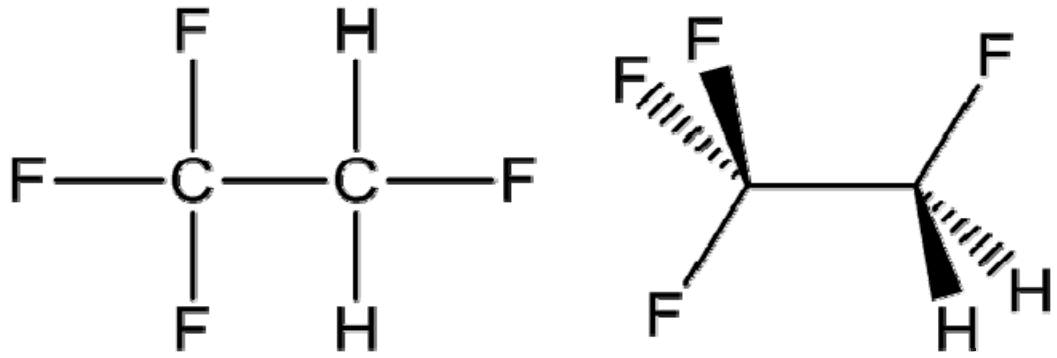
The subject product is 1,1,1,2-tetrafluoroethane (HFC-134a or R-134a). It is a clear, colorless liquid or gas, which is gaseous at normal atmospheric conditions. It has a boiling point of -15 F and a freezing point of -153 F. It is relatively nontoxic and nonflammable. As can be

[10] U.S. Harmonized Tariff Schedule (2013); Petition, p. 3.

[11] Petition, pp. 4-5; Conference transcript, pp. 29-31 (Schagrin); Petitioner's postconference brief, pp. 2-3.

[12] Conference transcript, pp. 132-133 (Waite); The current HTS statistical reporting number was created in 2009. Prior to 2009, R-134a was properly classified under HTS 2903.39.2050, which was a broader "other" category that included other fluorinated hydrocarbons. Both the current and prior HTS statistical reporting numbers carried a tariff rate of 3.7 percent. U.S. Harmonized Tariff Schedule (2009).

seen in the diagrams below it is composed of two carbon atoms, two hydrogen atoms and four fluorine atoms.



Source: http://www.chm.bris.ac.uk/motm/hfc134/hfch.htm

There are multiple methods used to produce 1,1,1,2-tetrafluoroethane. Generally, they involve reacting hydrogen fluoride (HF)[13] with a compound containing carbon and chlorine. The fluorine replaces the chlorine. The reaction with hydrogen fluoride may 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.[14]

The petitioner uses a two-stage process to manufacture R-134a. 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 to produce R-134a. R-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. [15]

The petitioner's production process is expressed by the following series of reaction equations and illustrated in the figure that follows:

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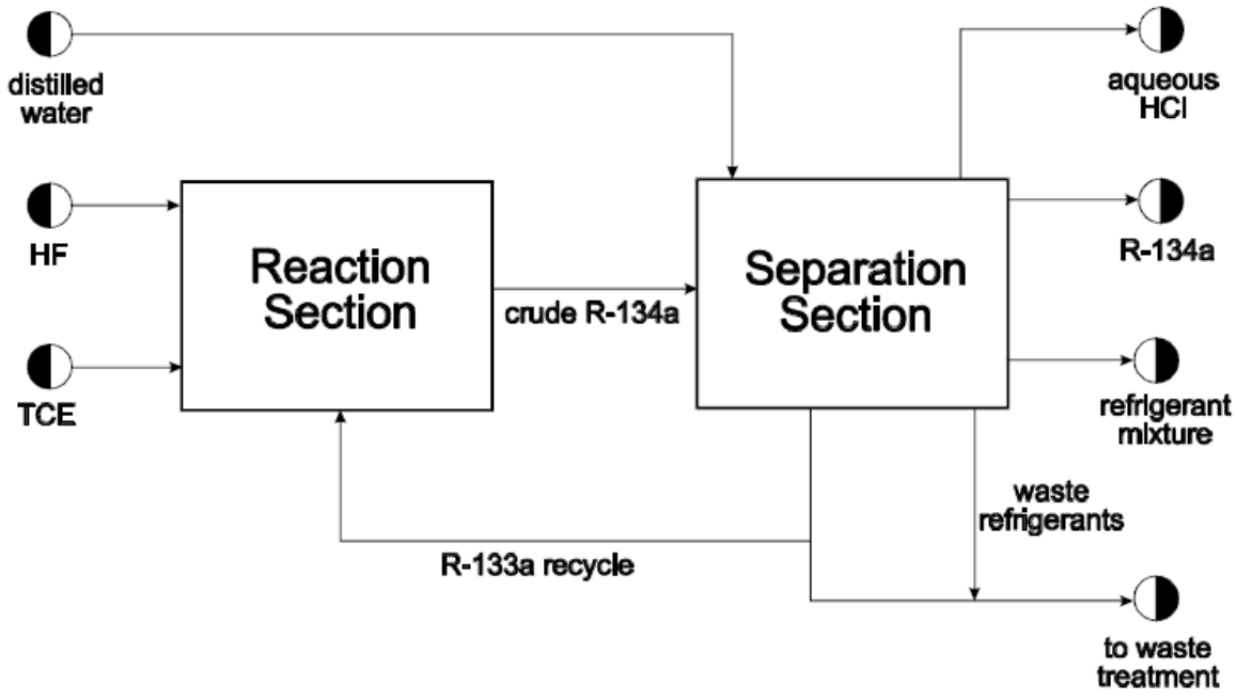
[13] HF is called "hydrogen fluoride" when it is not with water and is called "hydrofluoric acid" when it is in a water solution.

[14] Conference transcript, p. 42 (Rubin).

[15] Petition, p. 3. Conference transcript, p. 16 (Pacillo). "Typically a fluorocarbon is made from two things. It's made from a chlorocarbon and hydrofluoric acid. You take those two things. You make HCL and a fluorocarbon." Conference transcript, p. 42 (Rubin). DuPont uses a *** to manufacture R-134a. DuPont Post-Conference Brief, Part II, pp. 1-2.

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

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



R-134a Production Block Flow Diagram

Fluorspar, one of the primary inputs to HF, which is a necessary input for the production of R-134a, is distributed throughout the world. The bulk of the identified reserves are in South Africa (17 percent), Mexico (13 percent), China (10 percent), and Mongolia (9 percent). However, two countries, China and Mexico, combined for almost 80 percent of global production in 2011 and 2012. China accounted for 63 percent and 61 percent of global production in 2011 and 2012, respectively. Mexico produced 16 percent and 18 percent of global production in those years, respectively.[16]

[16] U.S. Geological Survey, Mineral Commodity Summaries, Fluorspar, January 2013.

Description and applications

Physical characteristics of refrigerants

Refrigerants need to have a number of specific properties to be used in the various applications. Conference participants mentioned boiling point and vapor pressure as a couple of properties essential for their functionality.[17] Any compound used on a mass commercial scale also needs to be noncorrosive to minimize equipment maintenance costs. Safety requires other properties such as the refrigerant being nonflammable and nontoxic.

Early refrigeration systems used compounds such as ammonia, methyl chloride or sulfur dioxide. Given that these compounds were either highly flammable or toxic, alternatives were sought for them early in the twentieth century.[18] In 1931, a joint venture between DuPont and General Motors discovered an economical method to produce chlorofluorocarbons (CFCs). These CFCs had good refrigerant properties and were neither flammable nor toxic, in most uses. Among the many related compounds that came from this discovery, one of the most commonly used was R-12 (dichlorodifluoromethane).[19] For half a century these CFCs were used extensively as they were relatively cheap to produce, were effective in refrigeration and other applications, and were relatively safe.

As environmental concerns became more important, CFCs such as R-12 have been virtually eliminated from common use and demand for hydrofluorocarbons (HFCs), their most common successors, has increased dramatically. The subject product is an HFC.[20]

Fluorinated, organic (i.e., carbon-containing) compounds that are related to R-134a are classified into three groups: chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), and hydrofluorocarbons (HFCs). Almost all of these compounds are man-made as fewer than a dozen fluorinated, organic compounds occur in nature.[21]

Chlorofluorocarbons (CFCs) contain only chlorine, fluorine, and carbon atoms. CFCs have an excellent combination of physical properties such as a low boiling point and a low vapor pressure to make them ideal for many refrigerant applications. These compounds are nonreactive, nontoxic and nonflammable. The lack of reactivity means that the compound is stable and noncorrosive. While these characteristics are desirable when the compound is being used as a refrigerant or a propellant, the stability contributes to the compound's effect on the

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[17] Conference transcript, p. 63-66 (Pacillo and Rubin).

[18] In spite of being toxic and flammable at certain concentrations, ammonia is still used in some applications. It is used in many food industry applications because it is a very efficient refrigerant. It is also being developed further because it is a naturally occurring compound that has no negative effect on the environment.

[19] Many people used to refer to this product with the generic term "freon" but that is the trade name for DuPont's line of CFC refrigerants. Conference transcript, pp. 49-50 (Rubin).

[20] "In roughly 1994, R12 refrigerant was phased out due to the environmental regulations, and then all vehicles began using 134a." Conference transcript, p. 118 (Klein).

[21] *Fluorine Compounds, Organic*. Kirk-Othmer Encyclopedia of Chemical Technology (2004), vol. 11, p. 858.

ozone layer. The CFC has a sufficiently long lifecycle that much of it is eventually carried up into the stratosphere, where it damages the ozone.

Hydrochlorofluorocarbons (HCFCs) contain hydrogen atoms in addition to the chlorine, fluorine and carbon atoms. Hydrogen atoms may be introduced into the CFC structure to lower the chlorine content (to reduce the impact on the ozone layer). The HCFCs (and HFCs) have shorter lifecycles in the lower atmosphere so they are less likely to reach the stratosphere and damage the ozone. However, introducing a hydrogen atom into a one-carbon CFC lowers the boiling point, too low for some applications. Therefore, two- and three-carbon HCFCs are more attractive substitutes. Another drawback of replacing chlorine with hydrogen is that flammability increases as the hydrogen content increases.[22]

Hydrofluorocarbons (HFCs) have completely replaced the chlorine atoms with either fluorine or hydrogen. These compounds still retain enough of the desirable properties (nontoxic, nonflammable, nonreactive, low boiling point, and low vapor pressure) while eliminating the effect on the ozone layer.

Flammability

Flammability is a significant safety concern for a refrigerant. Potential fires, whether inside a closed system (which might then explode) or only outside the system once the refrigerant leaks, would require the system and the area around it to be modified substantially. Systems made strong enough to contain any pressure build up from an internal fire would be more expensive. Systems that ensured zero refrigerant leakage would also be more expensive and still require significant fire suppression gear in case of failure.[23]

Toxicity

The problems caused by toxicity are similar to those for flammability. The cost of designing and installing a system that has zero leakage would be prohibitive. Additional monitors would be required to check for any incidental leakage. Also, the cost of health monitoring or potential liability would have to be added to the cost of the system.

Vapor pressure

An ideal refrigerant would have a low vapor pressure. The higher the vapor pressure, the stronger the equipment required to contain it. The stronger, heavier equipment would cost more initially and, for portable A/C systems like those on automobiles, would increase the operating costs, too. Installing a heavier A/C system would be counter to numerous recent moves to improve vehicle fuel efficiency.

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[22] *Fluorine Compounds, Organic*. Kirk-Othmer Encyclopedia of Chemical Technology (2004), vol. 11, p. 859.

[23] Conference transcript, pp. 105-106 (Rubin).

Form (liquid vs. gas)

The physical form of the refrigerant determines the design and operation of the system. Many systems combine liquid and gas components to take advantage of the phase transformation to transfer a significant amount of energy without requiring a large temperature swing in the refrigerant.

Nomenclature and classification conventions

The designation R-134a follows the naming convention for refrigerants: the "R" implies that it is a refrigerant and the numbers and their positions identify the chemical composition. In this case, the "4" indicates that there are four fluorine atoms; the "3" shows that the compound contains two hydrogen atoms; and the "1" means that there are two carbon atoms. The hydrogen digit is one more than the number of hydrogen atoms in the compound; the carbon digit is one less than the number of carbon atoms.[24] The "a" specifies a certain isomer of this compound. All 400 and 500 series refrigerants (R-4xx and R-5xx) are blends.

The safety classification of compounds follows a convention prescribed by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) and the International Institute of Refrigeration (IIFIIR). Under this convention the toxicity of the compound is designated by the letter "A" or "B." "A" compounds are less toxic; "B" compounds are more toxic.[25]

Flammability of refrigerants follows a similar designation, this time using the numbers 1 through 3. The refrigerants increase in flammability as the number increases.[26] The subject product has a safety classification of "A1" which means that it is relatively nontoxic and nonflammable.[27]

Environmental concerns have caused a transition away from the CFCs and their collection of excellent properties to alternatives with less ideal properties. As more of the halogens (chlorine and fluorine) have been replaced in these refrigerants, the harder it has become to find the right collection of properties in a single compound. Thus, the industry has combined different compounds into blends to get the essential or desired properties for the given application. For example, one refrigerant might have the ideal vapor pressure while another has the ideal boiling point. When combined their performance might suffer some, but

[24] International Institute for Refrigeration, "Classification of Refrigerants," pp. 1-2.

[25] Class "A" refrigerants have no or unidentified toxicity at concentrations at or below 400ppm. Class "B" refrigerants have been identified as toxic at concentrations below 400ppm. International Institute for Refrigeration, "Classification of Refrigerants," p. 2.

[26] Class 1 refrigerants do not "propagate flame" at standard room temperature and pressure. Class 2 refrigerants have a flammability limit of at least 0.10 kg/cubic meter at standard room temperature and pressure and have a heat of combustion of less than 19 kJ/kg. Class 3 refrigerants are even more flammable. International Institute for Refrigeration, "Classification of Refrigerants," p. 3.

[27] International Institute for Refrigeration, "Classification of Refrigerants," Annex.

the blend is able to meet the overall performance requirements for the specific application.[28] In some cases the blend may have superior properties to either of the component refrigerants.

Refrigerant end use market segments

There are numerous applications for refrigerants including automotive air conditioning, appliances, small stationary equipment, medium temperature supermarket cases, and industrial and commercial chillers.[29] Multiple refrigerants types 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.[30]

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.

Automotive air conditioning

Petitioner and respondents agreed that the automotive air conditioning sector is the primary end use for the subject product. Within the automotive A/C sector there are two sub-categories of end users with different determinants of demand for R-134a. These end users are: (1) the original equipment manufacturers ("OEMs")(automobile manufacturers) and (2) the automotive aftermarket which includes automobile repair shops, dealerships, auto retail stores, etc.

Demand in the OEM sub-category is based on the number of new vehicles made in the United States. Demand in this subdivision fell during the recent recession but has rebounded in the last few years.[31] This subdivision can be affected more immediately by any changes in regulations, car design, or the state of the economy.[32] Demand in this portion of the automotive refrigerant market is generally met through annual or multi-year contracts with delivery of bulk tank trucks.[33]

The aftermarket sub-category is substantially larger than the OEM subdivision, constituting of 70 to 75 percent of the overall automotive A/C refrigerant market.[34] Although R-

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[28] Conference transcript, pp. 63-66 (Pacillo and Rubin).

[29] Conference transcript, pp. 22-24 (Geosits). DuPont, Technical Information Brochure, "DuPont HFC-134a: Properties, Uses, Storage, and Handling."

[30] Conference transcript, p. 105 (Rubin).

[31] Conference transcript, pp. 93-94 (Schagrin).

[32] New car sales dipped to approximately 9 million in 2009 during the recession but rebounded to approximately 16 million in 2013, still below the 17-18 million in annual sales in 2007-08. Conference transcript, p. 94 (Schagrin).

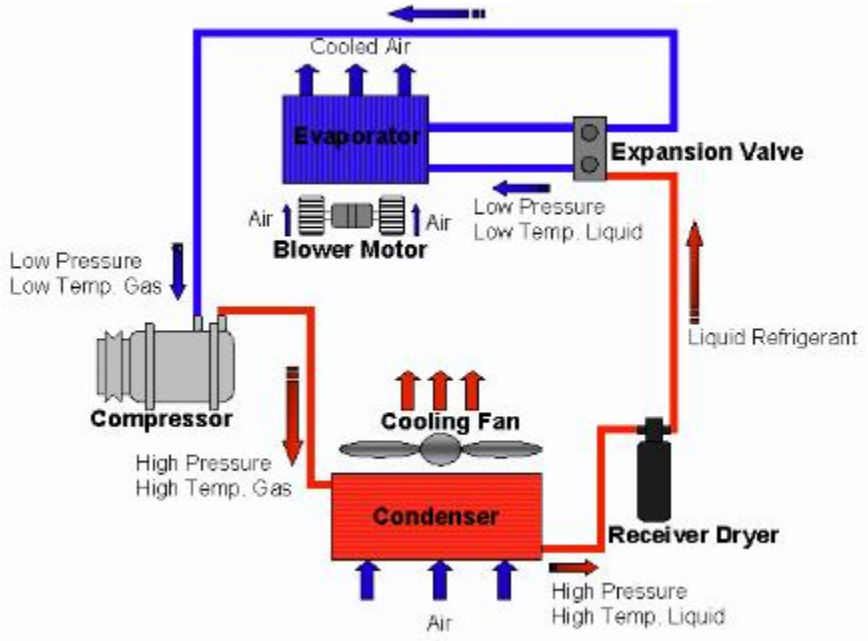
[33] Conference transcript, p. 22 (Geosits).

[34] Conference transcript, p. 52 (Geosits). Conference transcript, p. 44 (Rubin).

134a is not consumed by the A/C unit operation, some of the product leaks out of the system over time. Loss of refrigerant degrades the cooling performance of the A/C system. Eventually, the driver will need to recharge the system with refrigerant himself/herself or have a repair shop perform that maintenance. Generally, automotive A/C units typically need to be recharged with refrigerant about every 5 years.[35] System damage in a vehicle accident also creates demand for R-134a in the aftermarket. Demand in the aftermarket is generally met through spot sales of smaller containers.[36]

Almost all vehicles on the road now use R-134a and their systems cannot use another refrigerant. The cost of replacing the entire A/C system on existing vehicles would be prohibitively expensive. As a result, some demand for R-134a in the aftermarket will continue for many years, perhaps decades, after another refrigerant becomes the standard in new automotive A/C units.[37]

The following diagram illustrates how a car A/C unit works. The diagram lists the relative temperature and phase of the refrigerant as it travels through the system. A refrigeration system will generally have four main components: a compressor, a condenser, an expansion valve, and an evaporator.



Source: http://www.tmkautoaircon.com/Refrigeration_Cycle.html

The compressor is a pump that draws the refrigerant gas from the evaporator to maintain the desired low temperature and pressure in the evaporator. The compressor increases not only the pressure but also the temperature of the refrigerant gas. The increased

[35] Conference transcript, p. 63 (Geosits).
[36] Conference transcript, p. 23 (Geosits).
[37] Conference transcript, pp. 93-94 (Schagrin).

pressure drives the refrigerant flow through the system. The increased temperature ensures that the refrigerant is at a higher temperature than the air passing over the condenser to allow energy to be removed from the system.

The condenser is generally a set of many small, thin-walled pipes where the A/C unit transfers energy (heat) from the system to the heat sink (the outside air). The cooler outside air takes away enough energy for the refrigerant gas to condense into a liquid. The phase transformation allows a large amount of energy to be transferred even though the temperature change of the refrigerant may not be that great.

The expansion valve reduces the refrigerant pressure and regulates the liquid–refrigerant flow to the evaporator. The lower pressure allows the refrigerant to boil at a lower temperature. The valve is designed to adjust the amount of refrigerant flowing into the evaporator to correspond to the amount of heat being removed from the refrigerated space.

The evaporator captures or absorbs heat from the car interior. A fan blows air from inside the car over a set of thin-walled coils, which have cool refrigerant liquid entering them. The hotter air boils the low-pressure refrigerant inside the coils, transferring heat from inside the car to the refrigerant. Again, the phase transformation allows a considerable amount of energy to be transferred even though the refrigerant temperature may change only slightly.[38]

Domestic refrigeration

The subject product may also be used in household appliances such as refrigerators, freezers, and dehumidifiers.[39] Residential central A/C systems, however, generally do not use R-134a. Older residential A/C systems generally use R-22 and newer systems use R410A.[40]

Commercial refrigeration

R-134a may also be used in large, self-contained commercial refrigeration systems. Examples of these applications include display cases and freezers in supermarkets as well as large A/C systems in office buildings, stores, and airports. [41] The subject product may also be used in refrigeration systems for commercial food storage as well as in transport refrigeration systems in trucks, trains, or ships.

Propellant and pharmaceutical applications

In addition to its primary use as a refrigerant, R-134a is used as a propellant in various applications such as aerosol cans, foam-blowing of building insulation, and pharmaceutical uses

[38] *Refrigeration*. Kirk-Othmer Encyclopedia of Chemical Technology (2006), vol. 21, pp. 11-15.

[39] Conference transcript, p. 23 (Geosits).

[40] Conference transcript, p. 64 (Pacillo).

[41] Conference transcript, p. 23 (Geosits). Blends such as R-404A are also frequently used in supermarket refrigeration. Conference transcript, p. 65 (Rubin).

like asthma inhalers.[42] The nontoxicity, nonflammability, or other physical properties of the subject product make it preferable to alternatives in these applications.[43] The product needs to be nontoxic when it is being used as a blowing agent in an open environment and nonflammable if it is being used near or to clean energized electronic circuits.

Pharmaceutical applications for R-134a include "metered dose inhalers, MDIs, to treat chronic obstructive pulmonary disease, COPD, and asthma."[44] The pharmaceutical product has to be further purified than standard R-134a.

U.S. shipment data of R-134a by end use market segment

Table I-1 presents data provided by U.S. producers and U.S. importers which shows reported U.S. shipments categorized by end use market segment.

Table I-1
R-134a: U.S. shipments by U.S. producers and U.S. importers by market segment, 2010-12, January-June 2012 and January-June 2013

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Table I-2 presents the major end use applications of fluorocarbons including R-134a and similar refrigerants.

[42] Conference transcript, pp. 117-118 and 122 (Klein and Lammars). Mr. Geosits commented that the subject product is a good choice for applications that require a nonflammable propellant. Conference transcript, p. 102 (Geosits). Mr. Rubin agreed and offered the example of a duster for an energized electric circuit, which would require a nonflammable propellant. Conference transcript, p. 102 (Rubin).

[43] Conference transcript, pp. 23 and 103 (Geosits and Rubin).

[44] Conference transcript, p. 23 (Geosits).

Table I-2
R-134a: Major applications of fluorocarbons or refrigerants, by segment

Major applications	Major fluorocarbons or refrigerants
Refrigeration: Automobile A/C Home/commercial A/C Industrial plant cooling and processing Retail store chilled and frozen foods Home refrigerators and freezers Refrigerated transport	**HFC-134a** Recycled HCFC-22 HFC-32 HFC-125 HFC-143a Recycled CFCs Refrigerant Blends (e.g., R-410A, R-404A) HFO-1234yf Ammonia Carbon dioxide (R-744)
Foam blowing: Insulation for appliances and buildings Packaging foams, thermal containers	**HFC-134a** HFC-245fa HFC-365mfc HFO-1234ze
Electronics: Gases, etching, solvent cleaning	HFC-116 HFC-14 HFC-23 Carbon dioxide (R-744)
Chemical inputs: For fluoropolymers/fluoroelastomers	HCFC-22 HCFC-142b HFC-152a
Propellants: Personal care and commercial products Metered-dose inhalers	HFC-227ea HFC-152a **HFC-134a** Carbon dioxide (R-744)
Fire extinguishing:	HFC-227ea HFC-23 HFC-236fa

Source: Ray K. Will, "CEH Marketing Research Report: Fluorocarbons," 543.7000 A, September 2011.

The regulatory history of automotive refrigerants

R-12 "FREON"

Prior to the 1930's, refrigeration systems commonly used ammonia and sulfur dioxide as refrigerants, both of which are toxic and flammable. Chloroflurocarbons (CFC's) were developed as a safer alternative and widely used in all refrigeration systems. The most common CFC was R-12 and was marketed under the DuPont trademark, "Freon.™" R-12 was used for decades as the refrigerant in home and automobile air conditioning systems and in aerosol can production.

Montreal Protocol

In 1985, the discovery of a hole in the Earth's ozone layer led to an international environmental agreement to reduce substances with high "ozone depleting potential ('ODP.')"[45] This international agreement, the Montreal Protocol on Substances that Deplete the Ozone Layer ("Montreal Protocol"), entered into force in 1989 and has been ratified by 197 states, including the United States, Japan, China, and the European Union.[46] Among those substances deemed to have a high ODP were all CFC's, including R-12 refrigerants. The Montreal Protocol scheduled the worldwide phase-out of the production and use of ozone-depleting CFCs. A later amendment to the Montreal Protocol accelerated the phase-out of Class I substances, which included CFCs (including R-12), to the end of 1995.[47] The Montreal Protocol is incorporated into U.S. law through Title VI of the Clean Air Act, which is implemented by U.S. Environmental Protection Agency ("EPA") regulations.

The EPA, pursuant to Section 612(c) of the Clean Air Act, is authorized to identify and publish lists of acceptable and unacceptable substitutes for class I or class II ozone-depleting substances.[48] This program, known as the Significant New Alternatives Policy ("SNAP") Program, regulates substitutes for the ozone-depleting chemicals that are being phased out pursuant to the Montreal Protocol.[49]

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[45] The ODP of a chemical compound is the relative amount of degradation to the ozone layer it can cause, with trichlorofluoromethane (R-11 or CFC-11) being fixed at an ODP of 1.0, which is the maximum ODP of Class I and II substances with the exception of halons. R-12 has an ODP of 1.0 whereas R-134a has an ODP of 0.

[46] The list of signatories may be found at: http://ozone.unep.org/new_site/en/treaty_ratification_status.php retrieved on November 20, 2013.

[47] The Montreal Protocol included two phase-out deadlines, one for Class I substances and the other for Class II substances. Class I substances are defined as chemicals with an ozone-depletion potential of 0.2 or higher and include: CFCs, halons, carbon tetrachloride, and methyl chloroform, HBFCs, and methyl bromide. Class II substances are chemicals with an ozone-depletion potential of less than 0.2 and include all HCFCs, which includes R-22 a popular refrigerant for home air conditioning units. By January 1, 2020, the U.S. is required to reduce its consumption of Class II substances by 99.5% below the U.S. baseline and chemical manufacturers will no longer be able to produce R-22 to service existing air conditioners and heat pumps.

[48] EPA evaluates the refrigerants using the following factors: (1) atmospheric effects (the ODP and GWP); (2) exposure assessments (estimate concentration levels to which people may be exposed); (3) Toxicity; (4) Flammability; and (5) Other environmental impact. http://www.epa.gov/ozone/snap/about.html retrieved on November 20, 2013.

[49] In order for a refrigerant to be used in the U.S. marketplace it must be on the EPA's list of approved refrigerant for the end use specified. Section 612(d) of the Clean Air Act grants the right to any person to petition EPA to add a substance to or delete a substance from the lists. The Agency has 90 days to grant or deny a petition. *See* 59 FR 13044, March 18, 1994 (EPA promulgation of SNAP regulations).

Transition from R-12 to R-134a

In 1995, under the EPA's SNAP program, HFC–134a was deemed an acceptable substitute for CFC–12 in retrofitted and new motor vehicle air conditioners in the United States.[50] Since its approval by the EPA, R-134a has become the most common refrigerant for automotive air conditioning in the United States and globally. By 2004, all automobiles produced or sold in North America, Japan, and the Europe used R-134a as a refrigerant.[51]

Kyoto Protocol

Signed by 183 nations in 1997, the Kyoto Protocol to the United Nations Framework Convention on Climate Change ("Kyoto Protocol") is an international treaty that sets binding obligations on industrialized countries to reduce emissions of greenhouse gases.[52] The protocol set national reduction targets for a number of gases with high Global Warming Potential ("GWP"),[53] including hydrofluorocarbons (HFCs). Developed nations that ratified the Kyoto Protocol agreed to phase-out the manufacture and use of HFCs with a GWP of greater than 150. R-134a has a GWP of 1,430.

Corporate Average Fuel Economy ("CAFE") standards[54] in the United States

Although the U.S. has not ratified the Kyoto Protocol, in 2009, the NHTSA and EPA announced proposed CAFE standards that would regulate greenhouse gas emissions of automobiles, among which were HFC refrigerants.[55] The agencies described the two mechanisms by which mobile air conditioning ("MAC") systems contribute to the emissions of greenhouse gases: (1) through leakage of refrigerant into the atmosphere and (2) through the consumption of fuel to provide mechanical power to the MAC system. The regulation did not

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[50] 60 FR 31092, June 13, 1995 (SNAP list of acceptable substitutes for R-12 in 1995).

[51] *"Refrigerants for Light-Duty Passenger Vehicle Air Conditioning Systems,"* Working paper 2011-3, International Council on Clean Transportation, July 2011, p. 1.

[52] Although 103 nations have signed the Kyoto Protocol only 83 nations have ratified it and are therefore bound to its requirements. The United States has signed, but not ratified the Kyoto Protocol. http://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-7-a&chapter=27&lang=en retrieved on November 20, 2013.

[53] GWP is defined as the ratio of the warming caused by a substance to the warming caused by a similar mass of carbon dioxide. Thus, the GWP of CO_2 is defined to be 1.0. CFC-12 has a GWP of 10,900.

[54] CAFE are regulations in the United States, first enacted in 1975 and now promulgated by the National Highway Traffic Safety Administration ("NHTSA"), intended to reduce energy consumption by improving the average fuel economy of cars and light trucks sold in the United States. In 2010, the NHTSA, jointly with the EPA, issued greenhouse gas ("GHG") emissions standards. For the first time, these GHG standards became part of the CAFE regulation.

[55] *Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards; Final Rule*, 75 FR 25324, May 7, 2010. (CAFE standards for model years 2012 to 2016); *2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards*, 77 FR 62624, October 15, 2012 (CAFE standards for model years 2017 to 2025).

provide a ban or a phase-out schedule, but rather gave CAFE credits[56] to any automobile manufacturer that produced automobiles that used a refrigerant with a GWP less than 150. The EPA, pursuant to its SNAP program, approved a number of refrigerants with a GWP less than 150, including R-152a (GWP=124), R-744 (GWP=1), and HFO-1234yf (GWP=4).[57] General Motors announced that it would produce automobiles for model year 2013 that would use the HFO-1234yf refrigerant. General Motors is the only U.S. automobile manufacturer currently installing R-1234yf.[58] Petitioner stated that over 99 percent of the new vehicle production in the United States is designed to use R-134a as its refrigerant.[59]

EU regulations on R-134a

Subsequent to the European Union's ratification of the Kyoto Protocol, in May 2006, the EU promulgated regulations relating to emissions from air conditioning systems in motor vehicles.[60] The EU regulation provided for a total ban on air conditioning systems and refrigerants designed to use HFCs with a GWP higher than 150, which includes R-134a (GWP=1,430). The ban covers all new automobile types beginning January 1, 2011 and applies to all vehicles as of January 1, 2017. In order to comply with the EU regulation, manufacturers sought a refrigerant with a GWP of less than 150, but with the positive physical characteristics of R-134a with regard to toxicity and flammability. In 2007, the product HFO-1234yf was developed through a joint venture of DuPont and Honeywell.[61] HFO-1234yf has a GWP of 4 and appeared to have favorable toxicity and flammability characteristics.

EU transition from R-134a to HFO-1234fy

With development of HFO-1234yf and the EU MAC directive deadline (January 1, 2011) approaching, a number of automobile manufacturers in Europe began preliminary testing and implementation of the new refrigerant. In September 2012, Mercedes-Benz announced that

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[56] CAFE provides for a credit trading and transferring system that allows manufacturers to transfer credits between automobile categories, as well as, sell them to other manufacturers.

[57] 73 FR 33304, June 12, 2008 (R-152a); 76 FR 17488, March 29, 2011 (HFO-1234fy); 77 FR 33315, June 6, 2012 (R-744 or CO_2).

[58] *"GM First to Market Greenhouse Gas-Friendly Air Conditioning Refrigerant,"* RP News Wires, http://www.reliableplant.com/Articles/Print/25709 retrieved on October 22, 2013.

[59] Conference transcript, pp. 82 (Rubin).

[60] EU Directive 2006/40/EC; Also referred to as the "MAC Directive" or "F-gas Regulation." http://europa.eu/legislation_summaries/internal_market/single_market_for_goods/motor_vehicles/interactions_industry_policies/l24280_en.htm retrieved on November 20, 2013.

[61] China is expected to be the largest producer of HFO-1234yf as DuPont, Honeywell, Arkema, and DAIKIN have announced that they are building manufacturing facilities in China. *"Arkema to build production capacity for the novel refrigerant gas HFO-1234yf,"* Chemical Week, September 4, 2013; *"China expected to be largest production base of HFO-1234yf worldwide,"* PRLOG, December 28, 2012.

Mexichem stated that it is also developing a HFO-1234yf product. Conference transcript, p. 67 (Pacillo)(stating that the product is in the "testing" phase and not yet available commercially).

testing of HFO-1234yf showed safety issues such as flammability and recalled 3,500 automobiles in which it had installed air conditioning systems that used the new refrigerant. It also notified regulators that it intended to continue the use of R-134a subsequent to the January 1, 2011 deadline for new vehicle production.[62] Shortly thereafter, BMW and Volkswagen joined Mercedes-Benz and citing safety concerns called for a return to R-134a as the automotive refrigerant.[63] Honeywell has disputed the safety claims and provided its own safety tests to refute the Mercedes-Benz safety test results.[64] In December 2012, the EU extended its MAC directive deadline until January 1, 2013 although it appears that even that deadline is in question.[65]

DOMESTIC LIKE PRODUCT ISSUES

No issues with respect to the definition of the domestic like product have been raised in these preliminary phase investigations.[66] Petitioner argued that the definition of the domestic like product should be co-extensive with the definition of the scope in these investigations.[67]

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[62] *"Mercedes-Benz wishes to continue using the tried-and-tested R134a refrigerant in passenger cars,"* Mercedes-Benz Press Release, September 25, 2012. Mercedes-Benz specifically announced that "the refrigerant is dynamically dispersed at high pressure near to hot components of the test vehicle's exhaust system. This corresponds to a serious head-on collision in which the refrigerant line is severed and the reproducible results demonstrate that refrigerant which is otherwise difficult to ignite under laboratory conditions can indeed prove to be flammable in a hot engine compartment. Similar tests of the current R134a refrigerant did not result in ignition."

[63] *"Debate about air conditioning refrigerant R1234yf heats up,"* Auto Industry Insider, February 18, 2013, http://www.autoindustryinsider.com/?p=5697, retrieved on October 22, 2013.

[64] *"Honeywell and BAM refute risky HFO-1234yf claims,"* ACR-news.com, February 23, 2010.

[65] *Declaration by the European Commission regarding Point 9 of the agenda of the 31st meeting of the 'Technical Committee - Motor vehicles' (TCMV): State of Play of the EU Mobile Air-Conditioning directive (2006/40/EC)*, Brussels, December 20, 2013.

A witness at the conference listed three reasons that the European MAC directive deadline appears in question. First, regulators and automobile manufacturers are debating what constitutes a "new product" as the deadline only applies to new products. Second, because of the confusion in the market, enforcement of the regulation has been lax. Finally, the Mercedes-Benz safety tests have raised issues as to the safety of the new product. Conference transcript, pp. 59-60 (Rubin).

[66] During the preliminary phase of these investigations, respondents stated that they have no issues to raise with regard to the definition of the domestic like product. Conference transcript, p. 152 (McConkey).

[67] Petition, p. 2.

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

U.S. MARKET CHARACTERISTICS

R-134a is used as a refrigerant gas primarily in vehicle air conditioning systems. It is also used in certain building air conditioning units and commercial refrigerators (either alone or blended with other gasses), in the installation of insulating foams, and as a compressed gas to clean computer parts and machines. Pharmaceutical grade R-134a is also used in medical inhalers.

CHANNELS OF DISTRIBUTION

U.S.-produced R-134a is typically sold directly to vehicle manufacturers for installation in new vehicles and through distributors to repair shops to refill vehicle air conditioners. Vehicle manufacturers typically purchase R-134a in large volume containers, while repair shops typically purchase R-134a in smaller containers. U.S. producers sold mainly to distributors, while importers of R-134a from China and from nonsubject countries reported selling over half their R-134a to end users in each of the three full years (table II-1). A number of the importers of Chinese R-134a were retailers, such as Autozone, ***. Importers are more concentrated in the automobile aftermarket with over 80 percent of their sales between 2010 and 2012 in the aftermarket. [1] U.S.-producers sold under a third of their product to the automotive aftermarket, and over 40 percent to the "other refrigerant" market between 2010 and 2012.[2]

[1] Importers report no sales to the pharmaceutical or the foam expansion markets but sell to "other refrigerant" market, which includes ***, refrigerant blends, HVAC and general contractors, and ***.

[2] U.S. producers sold 15.8 percent to the foam expansion market, 9.6 percent to the OEM automotive market, and 2.0 percent to the pharmaceutical market between 2010 and 2012. "Other" includes ***, and sales for stationary refrigerators/air conditioners.

Table II-1
R-134a: U.S. producers' and importers' U.S. shipments, by sources and channels of distribution, 2010-12, January-June 2012, and January-June 2013

Item	Period				
	Calendar year			January-June	
	2010	2011	2012	2012	2013
U.S. producers' U.S. shipments of R-134a:					
Distributors	***	***	***	***	***
End users	***	***	***	***	***
U.S. importers' U.S. shipments of R-134a from China:					
Distributors	47.4	27.7	43.0	50.5	44.4
End users	52.6	72.3	57.0	49.5	55.6
U.S. importers' U.S. shipments of R-134a from all other countries:					
Distributors	***	***	***	***	***
End users	***	***	***	***	***

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

GEOGRAPHIC DISTRIBUTION

All three U.S. producers and 8 of 21 responding importers reported selling R-134a to all regions in the contiguous United States (table II-2). For U.S. producers, 1.5 percent of sales were within 100 miles of their production facility, 49.4 percent were between 101 and 1,000 miles, and 49.1 percent were over 1,000 miles. Importers of Chinese product sold 29.9 percent within 100 miles of their U.S. point of shipment, 48.5 percent between 101 and 1,000 miles, and 26.6 percent over 1,000 miles.

Table II-2
R-134a: Geographic market areas in the United States served by U.S. producers and importers, by number of responding firms

Region	U.S. producers	Importers
Northeast	3	15
Midwest	3	16
Southeast	3	16
Central Southwest	3	13
Mountain	3	13
Pacific Coast	3	14
Other[1]	2	3

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

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

SUPPLY AND DEMAND CONSIDERATIONS

U.S. supply

Domestic production

Based on available information, U.S. producers of R-134a have the ability to respond to changes in demand with moderate changes in the quantity of shipments of U.S.-produced R-134a to the U.S. market. The main contributing factors to the moderate degree of responsiveness of supply are the availability of some unused capacity and the existence of alternate markets.

Industry capacity

U.S. production of R-134a decreased from *** short tons in 2010 to *** short tons in 2012. Domestic capacity utilization decreased from *** percent in 2010 to *** percent in 2012. Although the capacity utilization rate is relatively high even in 2012, production was higher in 2010. This suggests that U.S. producers may have moderate to limited capacity to increase production in response to an increase in prices.

Alternative markets

U.S. producers' exports, as a percentage of total shipments, decreased slightly over the period of investigation. U.S. producers' export shipments declined from *** percent of production in 2010 to *** percent in 2012. This level of exports indicates that U.S. producers may have the ability to shift shipments between the U.S. market and other markets in response to price changes.

Inventory levels

U.S. producers' inventories as a percentage of total shipments fluctuated within a relatively small range, increasing from *** percent in 2010 to *** percent in 2011 and then declining to *** percent in 2012. These inventory levels suggest that U.S. producers may have limited ability to use inventories to respond to changes in demand.

R-134a producers report that they typically build up inventories at the beginning of the year in anticipation of the large shipments typically made in January, February, and March, (before summer) to supply the needs of the air conditioning repair markets.[3] Inventories fluctuate over the year peaking around the beginning of each year.[4]

[3] Conference transcript, p. 111 (Geosits).
[4] Conference transcript, p. 111 (Geosits).

Production alternatives

U.S. producers stated that they could not switch production from R-134a to other products.[5] ***.[6]

Supply constraints

Two of the three responding producers and 8 of 24 responding importers reported supply constraints. ***. ***. Mexichem and DuPont report that there were problems with supply in 2010 and 2011 caused by inventory drawdowns during the recession and a producer had difficulties getting deliveries of trichloroethylene, an essential feed stock.[7]

Importers reported supply constraints including: since 2010 supply from domestic suppliers "has been a continual issue;" in 2011 the U.S industry was unable to supply enough product to satisfy the needs of the U.S. producers' normal customer base, these customers were on allocation with extended lead times and the U.S. industry was unable to supply new customers; 2010 shortage of raw materials limited availability of R-134a; supply shortages lead to prior approval being required for all large volume orders; and production source had operation problems.[8]

Inputs in the production of R-134a include hydrogen fluoride (made from fluorspar), and chlorocarbons. All three U.S. producers reported that the price of inputs had affected the price of R-134a. Petitioners report that China had imposed export quotas and a tax on fluorspar, since removed, and now has imposed an export tax on hydrogen fluoride, making these inputs more expensive outside of China.[9]

Respondents cite a number of letters from U.S. producers that report supply shortages and price increases for R-134a. Reasons reported by U.S. producers in these letters included:

1) increasing demand for R-134a because of phase out in use of R-22 (R-22 was replaced by mainly by R-134a blends);

2) increased demand for R-134a in China and in the OEM market;

3) transition from HCFC to R-134a in the U.S. polystyrene insulating foam market;

4) high demand for R-125 (the facilities to produce R-125 otherwise could be a source of capacity for R134a); and

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[5] Conference transcript, p. 69 (Rubin).

[6] ***.

[7] Conference transcript, pp. 73-75 (Pacillo and Rubin).

[8] ***. "Today's Mobile A/C Industry – A Lawless Society" by Gary Halpern, Neutronics Inc. at www.neutronicsinc.com/news/refigerant/March 06/ALawlessSociety.doc March 2006 retrieved 11/15/2013. This article reported prices were "high" in 2006 reflecting high demand. R134a manufacturers, however, "are not ramping up with additional capacity because they know the refrigerant is targeted for replacement." It is not clear how this changed between 2006 and 2010.

[9] Conference transcript, p. 9 (Schagrin).

5) difficulty obtaining inputs (short supply for both chlorocarbons and hydrogen fluoride, increased price of fluorspar used to produce hydrogen fluoride, and logistical problems).[10]

Subject imports from China[11]

Based on available information, responding producers of R-134a from China have the ability to respond to changes in demand with moderate changes in the quantity of shipments of R-134a to the U.S. market. The main contributing factors to the moderate degree of responsiveness of supply are the existence of alternate markets and the ability to produce alternate products.

Industry capacity

Reported R-134a production capacity in China increased from *** short tons in 2010 to *** short tons in 2012. Capacity utilization increased from *** percent in 2010 to *** percent in 2012. This high level of utilization indicates that responding Chinese producers may have limited excess capacity with which to increase shipments to the United States.

Alternative markets

Over a third of R-134a shipments by producers in China (between *** and *** percent) were to the home market (including internal consumption) during 2010-12. Shipments to other (non-U.S.) markets decreased from *** percent of total shipments in 2010 to *** percent in 2012. Chinese producers reported shipping to ***. Responding R-134a producers in China may be able to shift sales from other markets to the U.S. market in response to relative price changes.

Inventory levels

The Chinese producers' R-134a inventories, as a share of total shipments, decreased from *** percent of total shipments in 2010 to *** percent in 2012. These data indicate that responding producers in China may have a limited ability to use inventories to increase sales to the United States.

Production alternatives

One Chinese producer (***) reported the production of alternative materials (2,2,2-trifluoroethanol) in its facilities, which increased from *** short tons in 2010 to *** short tons

[10] Chinese post conference brief, Exhibit 1, letters from DuPont various dates.

[11] The Commission received questionnaire responses from six Chinese producers of R-134a; their exports to the U.S. market represent about *** percent of imports from China reported by customs in 2012.

in 2011 and 2012.[12] Five of the six responding Chinese producers reported that they could shift production between R-134a and other products.[13] Two of these (***) report that the cost of such a switch is relatively small; *** reported that the time required to switch is "very limited," and *** reported the time required to switch was about a month. The other three Chinese producers indicated that they did not know how long it would take or how much it would cost to shift production to other products. Thus, responding Chinese producers may have some ability to increase sales to the U.S. market by shifting production to R-134a from alternative products.

Supply constraints

Six of the seven responding Chinese producers reported supply constraints including: limited production line, and maintenance requirements; government environmental protection regulations; government production quotas; limits on electricity supply; limited access to skilled labor; limited marketing capacity; limited supply of raw material, and increases in cost of raw materials; shifting production to other products; "accidents;" and extreme weather.

Nonsubject imports

Nonsubject imports declined from 18.0 percent to 8.6 percent of total imports of R-134a between 2010 and 2012. The largest sources of nonsubject imports during 2010-12 were the UK and Germany. Combined, these countries accounted for 87.5 percent of nonsubject imports in 2012.

U.S. demand

Based on available information, the overall demand for R-134a would likely experience small changes in response to changes in price. The main contributing factors are the lack of substitute products for R-134a, and the very small cost share of R-134a in most of its end-uses.

End uses

U.S. demand for R-134a depends on the demand for U.S.-produced downstream products and services. Reported end uses include automobile air conditioners (new and repairs),[14] truck air conditioners, refrigerant blends, HVAC, refrigerators, stationary air

[12] This firm also reported that it could ***.

[13] Other products which could be switched to or from included R-125, R-32, R-143a, R-133a, 2,2,2-trifluoroethanol, chlorodifluoroacetic acid, and 2,2-difluoroethanol.

[14] Petitioners estimate that about 70 percent of all air conditioning/refrigerant demand is for use in repairs and 30 percent is for OEM. Smaller cars typically use less R-134a than larger ones. Repairs requiring R-134a are caused by leaks in the air conditioning system, not because of contamination or overuse. Conference transcript, pp. 44, 89-90, 154-155 (Rubin, Geosits, and Klein).

conditioning units, *** propellant, industrial aerosol products, foam blowing, and pharmaceutical (***).

Business cycles

All three U.S. producers and 18 of 25 importers indicated that the market was subject to business cycles. Specifically, firms reported that demand was seasonal based on the weather because air conditioners are more likely to be repaired at the end of spring or beginning of the summer since air conditioning is not essential for overall vehicle functioning. Fewer firms, one producer and 4 of 11 importers, reported that R-134a demand reflected distinctive conditions of competition. Distinctive conditions of competition reported included: availability is critical for business; demand is also affected by the housing market; and new regulations are expected to be developed that switch consumption away from R-134a because of its high global warming potential. One of three responding producers and 9 of 23 responding importers reported changes in the conditions of competition since 2010. Changes include: prices have gone down significantly due to oversupply; there has been an influx of product at lower prices; Chinese capacity has increased; hot weather and increased vehicle age has increased demand; the European phase out of R-22 increased demand for R-134a; and supply shortages in 2011.

Apparent consumption

Apparent U.S. consumption of R-134a fluctuated during 2010-12 but increased slightly overall. Apparent U.S. consumption in 2012 was *** percent higher than it had been in 2010.

Demand trends

There was little consensus on changes in U.S. demand for R-134a since 2010 (table II-3). Half of the importers reported that demand had fluctuated, while one U.S. producer each reporting demand had increased, not changed, and fluctuated. Half of the importers and two of the responding U.S. producers reported that demand outside the United States had fluctuated, and all other firms, except for one importer, reported increased demand.

Table II-3
R-134a: Firms' responses regarding U.S. demand, by number of responding firms

Item	Increase	No change	Decrease	Fluctuate
Demand in the United States				
U.S. producers	1	1	0	1
Importers	4	4	2	10
Demand outside the United States				
U.S. producers	1	0	0	2
Importers	6	0	1	7

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

Substitute products

Most U.S. producers (2 of 3) reported that there were substitutes for R-134a but only 1 of 24 responding importers reported substitutes for R-134a. Substitutes reported included: HFC-152a in foam and propellant applications;[15] HFO-1234yf in mobile air conditioners; hydrocarbons in foam and domestic refrigerators; 404A in medium temperature commercial refrigeration; and HFO-1234ze and HFO-1233zd in foam blowing, chiller, and aerosol applications. No firm reported that the cost of substitutes affected the demand for R-134a.

There are a number of refrigerant gasses that may be used in auto or other air conditioners or refrigerators. [16] Each refrigerant gas must be compatible with the air conditioning/refrigeration system's design. Consequently, users cannot substitute other products for R-134a without modifying the system to be able to use a different refrigerant gas.[17] Substitution, however, may occur over time as new products/systems are designed to use different gasses, as new gasses are developed, or as regulations discourage use of R-134a. Parties estimate that about 1 percent of new automobiles produced in the United States have air conditioning systems that use HFO-1234yf. General Motors, for example, has begun producing some automobiles that use HFO-1234yf.[18] U.S. automobile manufacturers may switch to HFO-1234yf because it helps them meet the Corporate Average Fuel Economy (CAFE) standards.[19] [20]

Cost share

R-134a typically accounts for a small share of the cost of many of the end-use products in which it is used. Reported cost shares for some end uses were as follows: [21]

- less than 0.05 percent of the cost of a patented metered dose inhaler
- 0.0 to 0.1 percent of the cost of a refrigerator
- 0.0 to 0.2 percent of the cost of a car when used in automotive air conditioning
- 0.5 to 1 percent of the cost of HVAC; 0.8 to 1 percent of the cost of "foam"
- 0.9 to 1 percent of the cost of stationary air conditioners

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[15] Use of HFC 152 is limited by its flammability.

[16] Conference transcript, p. 56 (Rubin).

[17] Conference transcript, pp. 56-57 (Rubin).

[18] Conference transcript, pp. 93-94, 152 (Schagrin and Klein). *GM First to Market Greenhouse Gas-Friendly Air Conditioning Refrigerant in U.S.* http://media.gm.com/content/media/us/en/gm/news.detail.html/content/Pages/news/us/en/2010/July/0723_refrigerant.html, July 23, 2010, retrieved November 4, 2013.

[19] Conference transcript, p. 81 (Rubin).

[20] The European Union began phasing out the use of R-134a because of its relatively high GWP. German Auto producer Daimler is resisting the shift to HFO-1234yf, reporting that the new refrigerant is a fire hazard. Automotive Airconditioning Reporter, Latest News, Updated September 5, 2013, retrieved November 5, 2013.

[21] ***.

- ***"
- ***
- 50 percent for "refrigerant blends"
- 75 percent of the cost of industrial aerosol products

No firm provided estimates for the cost of R-134a in the cost of repairing a car air conditioner, which uses the largest share of R-134a in the U.S. market.[22]

SUBSTITUTABILITY ISSUES

The degree of substitution between domestic and imported R-134a depends upon such factors as relative prices, quality (e.g., impurities, risk of counterfeit product, reliability of supply, etc.), and conditions of sale (e.g., price discounts/rebates, lead times between order and delivery dates, product services, etc.). Based on available data, staff believes that there is high degree of substitutability between domestically produced R-134a and R-134a imported from China except in pharmaceutical grade for which there are no reported imports from China.[23]

Lead times

R-134a is primarily sold from inventory. U.S. producers sold over 99 percent of its R-134a from inventories with lead times of ***.[24] Importers also reported that most sales (67.4 percent) were from U.S. inventories with lead times of 1 to 7 days;[25] 22.5 percent of sales were from overseas inventories with lead times of 2 to 60 days;[26] and 10.1 percent of sales were produced-to-order with lead time ranging from 42 to 90 days.

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[22] It is also unknown how much of the R-134a used in the aftermarket is used in auto repair shops and how much is purchased by do-it-yourselfers.

[23] No importers of Chinese R-134a reported selling any product into the foam expansion market. It is not clear if there are significant barriers to entry into this market. Petitioners report that Chinese imports are being targeted into this market. Conference transcript, p. 24 (Geosits).

[24] ***.

[25] Eleven of the 12 responding importers reported lead times of up to 7 days, the other two reported lead times of 30 days. One firm (***), a retailer, was not included in the lead time information. Its reported lead time was 30 minutes for product produced to order or from U.S. and overseas inventories. This apparently reflects the lead time for its retail customers.

[26] Of the six importers reporting the time required for shipments from overseas inventories, three reported lead times of 7 days of less. All three of these reported the same lead times for both U.S. and overseas inventories. Three reported lead times from overseas inventories of 42 to 60 days. These firms either reported a different shipping time from U.S. inventories, or reported no sales from U.S. inventories.

Comparisons of domestic products, subject imports, and nonsubject imports

In order to determine whether U.S.-produced R-134a can generally be used in the same applications as imports from China, U.S. producers and importers were asked whether the products can "always," "frequently," "sometimes," or "never" be used interchangeably. As shown in table II-4, most producers (2 of 3) reported that U.S. and Chinese R-134a were "frequently" interchangeable. Most importers (19 of 24) reported that U.S. and Chinese R-134a were "always" interchangeable. Most responding producers and importers reported that nonsubject R-134a were "always" or "frequently" interchangeable with both U.S. and Chinese R-134a. Differences reported included: pharmaceutical grade would require FDA approval (this could take 3 to 5 years); Chinese product may have impurities that prevent it from meeting U.S. specifications; Chinese product may have a high percent of gas that cannot condense causing inefficiencies; and packaging types may limit interchangeability.

Table II-4

R-134a: Perceived interchangeability between R-134a produced in the United States and in other countries, by country pairs

Country pair	Number of U.S. producers reporting				Number of U.S. importers reporting			
	A	F	S	N	A	F	S	N
U.S. vs. subject countries:								
U.S. vs. China	1	2	0	0	19	3	1	1
Nonsubject countries comparisons:								
U.S. vs. nonsubject	1	2	0	0	10	1	0	1
China vs. nonsubject	1	2	0	0	10	1	0	1

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

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

In addition, producers and importers were asked to assess how often differences other than price were significant in sales of R-134a for U.S., subject, or nonsubject product. As seen in table II-5, most U.S. producers and importers reported that there were only "sometimes" or "never" differences other than price between R-134a from any of the listed sources. Differences other than price reported by the importers included: that Chinese supply was available to meet peak season demand while the availability of U.S. product on the aftermarket was uncertain; brand name; quality and perceived quality (some Middle East countries pay a premium for U.S. product over Chinese because of concerns that R-40 rather than R-134a will be provided and the marine industry prefers U.S. or EU R-134a because R-40 contamination may cause explosions); ISO9000 and other quality certifications; box and cylinder quality; lead times; U.S. product has a warranty while the imported product does not; Chinese importers typically require either advance payment or earlier payment than domestic sales; Chinese product may have inconsistent weights; when Chinese product is not palletized it is necessary to unload containers by hand; minimum order for domestic is generally 4,000 pounds for freight prepaid but a full container load is needed for Chinese product; possibility of customs inspection, customs fees, port fees, demurrage, and duties; and Chinese shipments are required

Table II-5

R-134a: Significance of differences other than price between R-134a produced in the United States and in other countries, by country pair

Country pair	Number of U.S. producers reporting				Number of U.S. importers reporting			
	A	F	S	N	A	F	S	N
U.S. vs. subject countries:								
U.S. vs. China	0	0	2	1	3	4	7	7
Nonsubject countries comparisons:								
U.S. vs. nonsubject	0	0	2	1	1	0	3	3
China vs. nonsubject	0	0	2	1	1	0	3	3

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

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

to come with ARI-700 certification where the manufacturers pledge that the product meets the industry standard for R-134a.

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

The Commission analyzes a number of factors in making injury determinations (see 19 U.S.C. §§ 1677(7)(B) and 1677(7)(C)). Information on the alleged margin of dumping was presented in *Part I* of this report and information on the volume and pricing of imports of the subject merchandise is presented in *Part IV* and *Part V*. Information on the other factors specified is presented in this section and/or *Part VI* and (except as noted) is based on the questionnaire responses of three firms that accounted for the 100 percent of U.S. production of R-134a during the period of investigation.

U.S. PRODUCERS

The Commission issued U.S. producer questionnaires to four firms, Arkema, DuPont, Mexichem, and Honeywell, based on information contained in the petition. [1] All four firms responded to the Commission and three firms provided useable data on their R-134a operations.[2] These three responses accounted for 100 percent of U.S. production of R-134a during the period of investigation.

Table III-1 lists U.S. producers of R-134a, their production location(s), positions on the petitions, total production in 2012, and shares of total production in 2012.

Table III-1
R-134a: U.S. producers of R-134a, their positions on the petitions, production locations, 2012 U.S. production, and shares of reported 2012 U.S. production

Firm	Position on AD petition	Position on CVD petition	U.S. production location(s)	2012 production *(short tons)*	Share of 2012 production *(percent)*
Mexichem[1]	Petitioner	Petitioner	King of Prussia, PA	***	***
Arkema [2]	***	***	St. Gabriel, LA	***	***
DuPont[3]	***	***	Wilmington, DE	***	***
Total				***	100.0

[1] Mexichem is a subsidiary of Mexichem Fluor SA de CV of San Luis Potosi, Mexico and is affiliated with Mexichem Fluor Japan, Ltd. of Tokyo, Japan and Mexichem UK, Ltd. of Cheshire, United Kingdom, both producers of R-134a. Mexichem purchased its R-134a production facilities in North America from the INEOS Group of Rolle, Switzerland in April 2010.

[2] Arkema is a wholly owned subsidiary of Arkema S.A. of Colombe Cedex, France, a producer of R-134a.

[3] In October 2013, DuPont announced that it is spinning off into a separate company its performance chemicals unit, a unit that includes production of R-134a and all refrigerants. DuPont stated that it would take approximately 18 months to complete the transaction.

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

[1] Petition, p. 2.

[2] Although not listed in the petition as a U.S. producer, the Commission did send Honeywell a U.S. producer questionnaire. Honeywell responded that ***.

U.S. PRODUCTION, CAPACITY, AND CAPACITY UTILIZATION

Table III-2 presents U.S. producers' production, capacity, and capacity utilization. Total U.S. capacity of R-134a decreased by *** percent from 2010 to 2012 and remained steady from January-June 2012 to January-June 2013. Total U.S. production[3] of R-134a decreased from 2010 to 2012 by *** percent and was *** percent lower in January-June 2013 than in January-June 2012.[4] Annual capacity utilization rates for R-134a production declined from *** percent in 2010 to *** percent in 2012 and was *** percent in January-June 2013.

Table III-2
R-134a: U.S. producers' production, capacity, and capacity utilization, 2010-12, January-June 2012, and January-June 2013

* * * * * * *

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

Table III-3 presents U.S. producers' U.S. shipments, export shipments, and total shipments. The quantity of U.S. producers' U.S. shipments of R-134a decreased by *** percent from 2010 to 2012 and was *** percent lower in January-June 2013 than in January-June 2012. The value of U.S. shipments increased by *** percent from 2010 to 2012, but was *** percent lower in January-June 2013 than in January-June 2012. ***.

Table III-3
R-134a: U.S. producers' U.S. shipments, exports shipments, and total shipments, 2010-12, January-June 2012, and January-June 2013

* * * * * * *

[3] Arkema and Mexichem reported that they ***. U.S. producer questionnaires of Arkema & Mexichem, question II-3. DuPont reported that it ***. U.S. producer questionnaire of DuPont, question II-3.

[4] All three U.S. producers reported that *** during the period of investigation. Mexichem reported that it ***. In 2012, it reported a***. U.S. producer questionnaire of Mexichem, question II-2; Petitioner's postconference brief, p. 16. Arkema reported that each year of the period of investigation it curtailed U.S. production for some commercial reason. In 2011, it curtailed production by *** short tons because of a flood. U.S. producer questionnaire of Arkema, question II-2. DuPont reported that during the period of investigation it experienced "unscheduled downtime due to operation issues" resulting in its importing from China and purchasing from Arkema in 2010 and 2011 to supply its customers. U.S. producer questionnaire of DuPont, question II-2 and II-11.

U.S. PRODUCERS' INVENTORIES

Table III-4 presents U.S. producers' end-of-period inventories and the ratio of these inventories to U.S. producers' production, U.S. shipments, and total shipments over the period of investigation**.**

Table III-4
R-134a: U.S. producers' inventories, 2010-12, January-June 2012, and January-June 2013

* * * * * * *

U.S. PRODUCERS' IMPORTS AND PURCHASES

***, reported that *** during the period of investigation.[5] *** stated that it imported R-134a from China in order to *** in the United States.[6] Table III-5 presents *** U.S. imports from China during the period of investigation as well as its U.S. production and ratio of U.S. imports to U.S. production.

Table III-5
R-134a: U.S. producers' U.S. imports of R-134a from China, ratio of those imports to their U.S. production, 2010-12, January-June 2012, and January-June 2013

* * * * * * *

U.S. EMPLOYMENT, WAGES, AND PRODUCTIVITY

Table III-6 shows U.S. producers' employment-related data during the period of investigation.

[5] Arkema and DuPont have announced the building of manufacturing facilities in China to produce what is arguably the next generation automotive refrigerant, HFO-1234yf. Conference transcript, pp. 81-82 (Rubin). China is expected to be the largest producer of HFO-1234yf as DuPont, Honeywell, Arkema, and DAIKIN have announced that they are building manufacturing facilities in China. *"Arkema to build production capacity for the novel refrigerant gas HFO-1234yf,"* Chemical Week, September 4, 2013; *"China expected to be largest production base of HFO-1234yf worldwide,"* PRLOG, December 28, 2012.

Mexichem stated that it is also developing a product to compete with HFO-1234yf. Conference transcript, p. 67 (Pacillo)(stating that the product is in the "testing" phase and not yet available commercially).

[6] U.S. importer questionnaire response of ***, question II-4.

Table III-6
R-134a: Average number of production and related workers, hours worked, wages paid to such employees, hourly wages, productivity, and unit labor costs, 2010-12, January-June 2012, and January-June 2013

* * * * * * *

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

U.S. IMPORTERS

The Commission issued U.S. importer's questionnaires to 98 firms which were listed in the petition and/or proprietary data from U.S. Customs and believed to be U.S. importers of R-134a, as well as to all U.S. producers of R-134a. Questionnaire responses from U.S. importers containing usable data were received from 28 firms, which accounted for the majority of total U.S. imports from China and nonsubject countries during the period of investigation.[1] Table IV-1 lists all responding U.S. importers of R-134a from China and nonsubject countries, their locations, their total reported U.S. imports from January 2010 to June 2013, and their shares of reported U.S. imports.

[1] The Commission also received responses from the following firms which reported that they did not import R-134a during the period of investigation: ***.

Staff notes that the U.S. importer list provided in the petition contains the names of numerous firms that are clearly not U.S. importers of record or consignees of R-134a, but rather are firms which provide logistics services such as freight forwarding and shipping companies.

Table IV-1
R-134a: U.S. importers by source, location(s), reported U.S. imports, and share of reported U.S. imports, January 2010-June 2013

Firm	Headquarters	Reported U.S. imports *(short tons)*		Share of reported U.S. imports (*percent*)	
		China	Other	China	Other
Advance Stores	Roanoke, VA	***	***	***	***
Altair Partners	Mullburn, NJ	***	***	***	***
Autopart International	Norton, MA	***	***	***	***
AutoZone	Memphis, TN	***	***	***	***
Coolgas, Inc.	Magnolia, TX	***	***	***	***
DuPont	Wilmington, DE	***	***	***	***
Elliott Auto Supply	Eagan, MN	***	***	***	***
Energent	Santa Ana, CA	***	***	***	***
First Continental	Glen Rock, NJ	***	***	***	***
Galpa	Doral, FL	***	***	***	***
GlaxoSmithKline	Philadelphia, PA	***	***	***	***
Global Automotive	Decatur, AL	***	***	***	***
Global Consolidated	Mclean, VA	***	***	***	***
Honeywell	Morristown, NJ	***	***	***	***
Icor	Indianapolis, IN	***	***	***	***
Intertrans	Alhambra, CA	***	***	***	***
Lenz	Jacksonville, IL	***	***	***	***
Mexichem	St. Gabriel, LA	***	***	***	***
Mondy	San Antonio, TX	***	***	***	***
O'Reilly Auto Parts	Springfield, MO	***	***	***	***
Reclamation Technologies	Bowling Green, OH	***	***	***	***
Rig Tough	San Antonio, TX	***	***	***	***
Solvay	Houston, TX	***	***	***	***
Technical Chemical	Cleburne, TX	***	***	***	***
Techven	Irvine, CA	***	***	***	***
Test Rite	Ontario, CA	***	***	***	***
Tulstar	Tulsa, OK	***	***	***	***
Weitron	Elkton, MD	***	***	***	***
Total		***	***	100.0	100.0

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

U.S. IMPORTS

U.S. imports of R-134a from China first entered the U.S. market in late 2009. Respondents claimed that the commencement of these imports were at the request of U.S. purchasers of R-134a, which were unable to procure the necessary volume of R-134a from U.S. producers.[2] Table IV-2 presents data, compiled from official import statistics, for U.S. imports of R-134a from China and nonsubject countries.[3] As shown, the volume of U.S. imports of R-134a from China increased by 194.5 percent from 2010 to 2012, but were 7.6 percent lower in January-June 2013 than in January-June 2012.[4] The value of U.S. imports of R-134a from China

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[2] Chinese respondents' postconference brief, pp. 3-10 & exh. 1 (series of letters from U.S. producers to customers detailing supply concerns during the 2010-2011 time period).

[3] Petitioner argued that the Commission could use in its analysis one of four separate databases for U.S. imports from China: (1) official Commerce statistics for HTS 2903.39.2020; (2) The Port Import/Export Reporting Service ("PIERS") data for R-134a entries; (3) U.S. import data compiled from responses to the Commission's U.S. importer questionnaire; and (4) U.S. export data compiled from responses to the Commission's foreign producer questionnaire.

Petitioner claimed that official Commerce statistics understate actual U.S. imports of R-134a from China. Petitioner observed that in 2012, official Commerce statistics were only *** percent of PIERS data and *** percent of U.S. exports reported by foreign producer questionnaires. Petitioner urged the Commission to use U.S. export data compiled from foreign producer questionnaires as a proxy for U.S. import data from China. Petitioner has not argued that official Commerce statistics understate U.S. imports from nonsubject countries. Petition, pp. 8-9; Petitioner's postconference brief, pp. 2-3.; DuPont's postconference brief, pp. 7-9.

Respondent AutoZone, inferring that U.S. imports based on official Commerce statistics may be understated, noted that HTS 2903.39.2020 was created in 2009 and because of the relative novelty of the statistical reporting number, a number of U.S. importers may not have begun their entries under that category.

Staff notes that the volume of all four databases offered by Petitioner depict a similar trend of U.S. imports from China during the period of investigation, namely an increasing volume from 2010 to 2012 and a decrease or stabilization of volume in January-June 2013. Staff also observes that in 2012, the volume of official Commerce statistics and U.S. import data compiled from U.S. importers questionnaires are similar with official Commerce statistics accounting for 99.4 percent of volume compiled from U.S. importer responses. A comparison of the volume of U.S. exports compiled from foreign producer questionnaire responses with official Commerce statistics, may suggest an understatement of U.S. import from China by official Commerce statistics. However, in the preliminary phase of these investigations, staff opted to use official Commerce statistics to depict U.S. imports from China because: (1) of issues inherent in using export data as a proxy for U.S. import data such as timing of shipments, foreign trade zones, re-exportation of goods without U.S. consumption, etc. and (2) the fact that the trends of the two databases are similar.

[4] Respondents argued that an increase in U.S. imports from China from 2010 to 2011 was the result of U.S. producers unable to satisfy a rebound in U.S. demand of R-134a after the 2008-2009 economic downturn. They stated that U.S. producers curtailed production and drew down inventories during the years of the economic downturn and were unable to supply the U.S. market, especially the automotive aftermarket (a market segment AutoZone claimed that the U.S. producers traditionally underserved), when demand increased in 2010-2011. Respondent AutoZone's postconference brief, pp. 7-12 & exhs. 3 through 20 (contemporaneous letters and emails depicting short supply and rising prices for R-134a

increased by 129.7 percent from 2010 to 2012, but were 28.4 percent lower in January-June 2013 than in January-June 2012. The volume of U.S. imports of R-134a from nonsubject countries, although a fraction of U.S. imports from China, increased by 25.6 percent from 2010 to 2012, and were 3.1 percent higher in January-June 2013 than in January-June 2012. The value of U.S. imports of R-134a from nonsubject countries increased by 22.8 percent from 2010 to 2012, but were 3.6 percent lower in January-June 2013 than in January-June 2012. The top five nonsubject sources of U.S. imports in descending order of 2012 volume is as follows: (1) United Kingdom, (2) Germany, (3) Mexico, (4) Italy, and (5) Netherlands.

Table IV-2
R-134a: U.S. imports, by source, 2010-12, January-June 2012, and January-June 2013

Item	Calendar year			January - June	
	2010	2011	2012	2012	2013
Quantity (*short tons*)					
China	4,369	11,465	12,868	7,126	6,581
All other	961	1,333	1,206	506	521
Total	5,330	12,797	14,074	7,632	7,103
Value (*1,000 dollars*)[1]					
China	25,091	91,719	57,644	34,529	24,707
All other	5,913	9,630	7,263	3,527	3,401
Total	31,004	101,349	64,907	38,055	28,107
Unit value (*dollars per short ton*)					
China	5,743	8,000	4,480	4,846	3,754
All other	6,156	7,226	6,022	6,973	6,523
Total	5,817	7,920	4,612	4,987	3,957
Share of quantity (*percent*)					
China	82.0	89.6	91.4	93.4	92.7
All other	18.0	10.4	8.6	6.6	7.3
Total	100.0	100.0	100.0	100.0	100.0
Share of value (*percent*)					
China	80.9	90.5	88.8	90.7	87.9
All other	19.1	9.5	11.2	9.3	12.1
Total	100.0	100.0	100.0	100.0	100.0

[1] Landed-duty paid.

Source: Compiled from official Commerce statistics.

NEGLIGIBILITY

The statute requires that an investigation be terminated without an injury determination if imports of the subject merchandise are found to be negligible.[5] Negligible imports are generally defined in the Tariff Act of 1930, as amended, as imports from a country of merchandise corresponding to a domestic like product where such imports account for less

during the 2009-2011 time frame) ; Chinese respondents' postconference brief, pp. 3-10. *See Part II* of this report for more information regarding issues on supply and demand.

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

than 3 percent of the volume of all such merchandise imported into the United States in the most recent 12-month period for which data are available that precedes the filing of the petition or the initiation of the investigation. However, if there are imports of such merchandise from a number of countries subject to investigations initiated on the same day that individually account for less than 3 percent of the total volume of the subject merchandise, and if the imports from those countries collectively account for more than 7 percent of the volume of all such merchandise imported into the United States during the applicable 12-month period, then imports from such countries are deemed not to be negligible. From October 2012 to September 2013, the volume of U.S. imports from China accounted for 92.2 percent of total U.S. imports of R-134a.[6]

APPARENT U.S. CONSUMPTION AND MARKET SHARES

Table IV-3 presents data on apparent U.S. consumption of R-134a over the period of investigation. From 2010 to 2012, the quantity of apparent U.S. consumption of R-134a increased by *** percent, but was *** percent lower in January-June 2013 than in January-June 2012. From 2010 to 2012, the value of apparent U.S. consumption increased by *** percent, but was *** percent lower in January-June 2013 than in January-June 2012. Apparent U.S. consumption of R-134a in 2012 was equivalent to *** percent of reported U.S. capacity.

Data on U.S. market shares for R-134a are presented in table IV-4. From 2010 to 2012, U.S. producers' market share decreased by *** percentage points based on quantity and *** percentage points based on value. U.S. producers' market share in January-June 2013 was *** percentage points higher than in January-June 2012 based on quantity and *** percentage points lower based on value. Market share of U.S. imports from China increased by *** percentage points from 2010 to 2012 based on quantity and *** percentage points based on value. Market share of U.S. imports from China in January-June 2013 was *** percentage points lower than in January-June 2012 based on quantity and *** percentage points lower based on value. Market share of U.S. imports from nonsubject countries increased by *** percentage points of U.S. market share from 2010 to 2012 based on quantity and *** percentage points based on value. Market share of U.S. imports from nonsubject countries in January-June 2013 was *** percentage points higher than in January-June 2012 based on quantity and *** percentage points lower based on value.

[6] Monthly official Commerce statistics for HTS 2903.39.2020.

Table IV-3
R-134a: U.S. shipments of domestic product, U.S. shipments of imports, and apparent U.S. consumption, 2010-12, January-June 2012, and January-June 2013

Item	Calendar year			January - June	
	2010	2011	2012	2012	2013
			Quantity (*short tons*)		
U.S. producer's U.S. shipments	***	***	***	***	***
Imports from--					
China	4,369	11,465	12,868	7,126	6,581
All other sources	961	1,333	1,206	506	521
Total imports	5,330	12,797	14,074	7,632	7,103
Apparent consumption	***	***	***	***	***
			Value (*1,000 dollars*)		
U.S. producer's U.S. shipments	***	***	***	***	***
Imports from--					
China	25,091	91,719	57,644	34,529	24,707
All other sources	5,913	9,630	7,263	3,527	3,401
Total imports	31,004	101,349	64,907	38,055	28,107
Apparent consumption	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires and official Commerce statistics.

Table IV-4
R-134a: U.S. consumption and market shares, 2010-12, January-June 2012, and January-June 2013

* * * * * * *

RATIO OF IMPORTS TO U.S. PRODUCTION

Table IV-5 presents data on the ratio of U.S. imports to U.S. production.

Table IV-5
R-134a: Ratio of U.S. imports to U.S. production, 2010-12, January-June 2012, and January-June 2013

Item	Calendar year			January - June	
	2010	2011	2012	2012	2013
Quantity *(short tons)*					
U.S. production	***	***	***	***	***
Imports from--					
China	4,369	11,465	12,868	7,126	6,581
All other sources	961	1,333	1,206	506	521
Total imports	5,330	12,797	14,074	7,632	7,103
Ratio of imports to production *(percent)*					
Imports from--					
China	***	***	***	***	***
All other sources	***	***	***	***	***
Total imports	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires and official Commerce statistics.

PART V: PRICING DATA

FACTORS AFFECTING PRICES

Raw material costs

Key raw materials include hydrogen fluoride (made from fluorspar), and chlorocarbons.[1] Respondents report that in 2010 and in 2011 both hydrogen fluoride and chlorocarbons were in short supply resulting in rising prices.[2]

U.S. inland transportation costs

All three responding U.S. producers and all 25 responding importers reported that they typically arrange transportation to their customers. U.S. producers reported that their U.S. inland transportation costs ranged from 2 to 6 percent while importers reported costs of 1 to 40 percent, with 12 of the 20 responding importers reporting transportation costs of 5 percent or less.

PRICING PRACTICES

Pricing methods

Most firms reported using transaction-by-transaction sales. All three responding producers reported pricing on both transaction-by-transaction and contract basis, two reported set price lists, and one reported "other" (***). Most responding importers (16 of 26) reported setting prices on a transaction-by-transaction basis, three importers reported using contracts (these three also reported transaction-by-transaction pricing), four reported price lists (one of these also reported transaction-by-transaction pricing), and eight reported using "other" methods[3] including retail sales, COD, net 14, payment on arrival of vessel, prepayment, 2/10 net 60, and varies by customer (table V-1).[4]

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[1] Conference transcript, pp. 16, 42 (Pacillo and Rubin).

[2] Chinese respondents' post conference brief, p. 5.

[3] One of these eight importers also reported transaction-by-transaction pricing.

[4] Three importers did not sell R-134a, but rather used it internally, although one of these reported price setting for internal transfers.

Table V-1

R-134a: U.S. producers and importers reported price setting methods, by number of responding firms[1]

Method	U.S. producers	Importers
Transaction-by-transaction	3	16
Contract	3	3
Set price list	2	4
Other	1	8

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

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

Over 90 percent of imports were sold on the spot market. U.S. producers in contrast sold over half of their product via contracts (table V-2).

Table V-2

R-134a: U.S. producers' and importers' shares of U.S. commercial shipments by type of sale, 2012

Type of sale	U.S. producers	Importers
Long-term contracts	14.2	0.0
Short-term contracts	41.1	9.2
Spot sales	44.7	90.8

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

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

Sales terms and discounts

All three U.S. producers and 14 of 20 responding importers typically quote prices on a delivered basis.[5] One producer (***) reported no discounts, the other two reported rebates and also *** reported "growth targets". The majority of importers (17 of 22) report no discounts.[6] All producers reported sales terms of net 30 days; ***. Twelve of 21 responding importers reported sales terms of net 30 days, two importers reported 2 percent 10 net 30 days.[7] One importer reported selling net 60.[8] Other terms reported included: cash/COD (reported by 4 importers) this was typical for firms reporting retail sales; net 14 days (1

[5] Five of the six importers reporting selling on an f.o.b. basis reported the price was based on a location in China.

[6] Some importers that internally consumed R-134a responded to questions in this section but their responses are not included in this paragraph.

[7] One of these reported both net 30 and 2 percent 10 net 30 days.

[8] This firm also reported selling net 30 days.

importer); payment upon vessel arrival (1 importer); prepaid (1 importer);[9] and "varies by customer" (2 importers).[10]

PRICE DATA

The Commission requested U.S. producers and importers to provide quarterly data for the total quantity and f.o.b. value of the following R-134a products shipped to unrelated U.S. customers during January 2010-June 2013.

Product 1.-- 1,1,1,2-Tetrafluoroethane-R-134a (other than pharmaceutical grade) sold in 30 pound containers (with or without automotive fitting).

Product 2.-- 1,1,1,2-Tetrafluoroethane-R-134a (other than pharmaceutical grade) sold in 12 ounce containers.

Product 3.-- Pharmaceutical grade 1,1,1,2-Tetrafluoroethane-R-134a sold in any size of containers.

Three U.S. producers and 10 importers provided usable pricing data for sales of the requested products, although not all firms reported pricing for all products for all quarters.[11] Price data reported by these firms accounted for approximately 11.0 percent of U.S. producers' commercial U.S. shipments of R-134a[12] and 45.5 percent of U.S. importers' commercial U.S. shipments of subject imports from China between 2010 and June 2013.

Price data for products 1-3 are presented in tables V-3 to V-5 and figure V-1 to V-3. Products 1 and 2 are typically used to repair automobile air conditioners and quantity data reported shows most quantity is sold in the first half of each of the years covered. Nonsubject country prices were not collected because all nonsubject imports were less than 10 percent of all imports in 2012.

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[9] This importer reported ***.

[10] One of these is also included with cash/COD. ***.

[11] Importers whose prices were out of line with other prices and those reporting that all sales were exports or that sales were retail were not included in the pricing data. Useable price data were received from importers ***.

[12] A bulk pricing product was not requested in the preliminary investigation most Chinese imports tended to be in smaller containers. This, however, reduced the coverage for U.S. producers which sell much of their product in bulk packages. In addition, some distributors buy R-134a in bulk containers from U.S. producers and repackage it into 30 pound or 12 ounce containers, further reducing the U.S. producers' direct sales in smaller containers. Conference transcript, pp. 22-23 (Geosits).

Table V-3

R-134a: Weighted-average f.o.b. prices and quantities of domestic and imported product 1[1] and margins of underselling/(overselling), by quarters, January 2010-June 2013

Period	United States		China		
	Price *(dollars per pound)*	Quantity *(pounds)*	Price *(dollars per pound)*	Quantity *(pounds)*	Margin *(percent)*
2010: Jan.-Mar.	***	***	2.95	210,602	***
Apr.-June	***	***	***	***	***
July-Sept.	***	***	***	***	***
Oct.-Dec.	***	***	4.09	1,201,810	***
2011: Jan.-Mar.	***	***	5.48	5,676,661	***
Apr.-June	***	***	5.90	2,695,860	***
July-Sept.	4.84	840,510	5.66	339,996	(17.0)
Oct.-Dec.	3.55	783,780	3.61	41,768	(1.6)
2012: Jan.-Mar.	***	***	2.72	3,954,560	***
Apr.-June	***	***	2.95	4,286,310	***
July-Sept.	3.13	969,330	2.76	976,491	12.0
Oct.-Dec.	2.55	886,020	2.24	909,678	11.9
2013: Jan.-Mar.	***	***	2.56	5,475,279	***
Apr.-June	***	***	2.55	3,519,861	***

[1] Product 1: 1,1,1,2-Tetrafluoroethane-R-134a (other than pharmaceutical grade) sold in 30 pound containers (with or without automotive fitting).

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

Table V-4

R-134a: Weighted-average f.o.b. prices and quantities of domestic and imported product 2[1] and margins of underselling/(overselling), by quarters, January 2010-June 2013

* * * * * * *

Table V-5

R-134a: Weighted-average f.o.b. prices and quantities of domestic product 3[1] by quarters, January 2010-June 2013

* * * * * * *

Figure V-1

R-134a: Weighted-average prices and quantities of domestic and imported product 1, by quarters, January 2010-June 2013

* * * * * * *

Figure V-2

R-134a: Weighted-average prices and quantities of domestic and imported product 2, by quarters, January 2010-June 2013

* * * * * * *

Figure V-3

R-134a: Weighted-average prices and quantities of domestic product 3, by quarters, January 2010-June 2013

* * * * * * *

Price trends

Between the first quarter of 2010 and the second quarter of 2012, the prices of U.S. and Chinese product 1 declined overall, however, the U.S. prices of product 2 and product 3 increased overall. Prices for products 1 and 2 generally increased until mid-2011 before generally declining sharply until 2012, prices stabilized or rose in the first half of 2012, but then fell again in the second half of 2012 and stabilizing in the first half of 2013. The price of product 3 fluctuated much less than the prices for either product 1 or product 2. Table V-6 summarizes the price trends, by country and by product. As shown in the table, overall the domestic price of product 1 decreased by *** percent between the first quarter of 2010 and the second quarter of 2013 while product 2 and product 3 prices increased by *** percent and *** percent respectively. Chinese import prices of product 1 decreased by 13.6 percent between the first quarter of 2010 and the second quarter of 2013.

Table V-6

R-134a: Summary of weighted-average f.o.b. prices for products 1-3 from the United States and China

Item	Number of quarters	Low price (dollars per pound)	High price (dollars per pound)	Change in price[1] (percent)
Product 1				
United States	14	***	***	***
China	14	2.24	5.90	-13.6
Product 2				
United States	14	***	***	***
China	10	***	***	[2]
Product 3				
United States	14	***	***	***

[1] Percentage change from the first quarter of 2010 to the second quarter of 2012.
[2] Changes in the price of Chinese product 2 are not recorded in this table because no Chinese prices were reported in 2010. The decline of *** percent in the Chinese price reflects the much higher prices typical in 2011 and therefore is not comparable with the change in the U.S. price for the whole period.

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

Price comparisons

As shown in table V-7, prices for R-134a imported from China were below those for U.S.-produced product in 10 of 24 instances; margins of underselling ranged from 2.5 to 17.8 percent. In the remaining 14 instances, prices for R-134a from China were between 1.1 and 41.6 percent above prices for the domestic product.

Table V-7

R-134a: Instances of underselling/overselling and the range and average of margins, by country, January 2010-June 2013

	Underselling			Overselling		
Source	Number of instances	Range (percent)	Average margin (percent)	Number of instances	Range (percent)	Average margin (percent)
China	10	(2.5 to 17.8)	10.8	14	(1.1 to 41.6)	10.6

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

LOST SALES AND LOST REVENUE

The Commission requested U.S. producers of R-134a to report instances of lost sales or revenue they experienced due to competition from imports of R-134a from China since the beginning of 2010. All three responding U.S. producers reported that they had to reduce prices and two of the three reported rolling back announced price increases in response to competition from Chinese R-134a. All three producers reported lost sales and lost revenue

because of competition from Chinese R-134a and provided information on these lost sales and lost revenue allegations.[13] The *** lost sales allegations totaled $*** and involved *** short tons of R-134a and the *** lost revenue allegations totaled $*** and involved *** short tons of R-134a. Staff contacted 14 purchasers and received responses from five purchasers. A summary of the information obtained follows.

Purchasers responding to the lost sales allegations also were asked whether they shifted their purchases of R-134a from U.S. producers to suppliers of R-134a from China since 2010. In addition, they were asked whether U.S. producers reduced their prices in order to compete with suppliers of R-134a from China. Two of the four responding purchasers reported that they had shifted purchases of R-134a from U.S. producers to subject imports since 2010; one of these purchasers reported that price was the reason for the shift. Three purchasers reported that the U.S. producers had reduced their prices in order to compete with the prices of subject imports since 2010.

***."

When asked if it had shifted purchases of R134a from U.S. producers to product imported from China, ***."

When asked if U.S. producers of R-134a had reduced their prices in order to compete with R134a imported from China, ***.

***.

Table V-8
R-134a: U.S. producers' lost sales allegations

* * * * * * *

Table V-9
R-134a: U.S. producers' lost revenue allegations

* * * * * * *

[13] ***.

PART VI: FINANCIAL EXPERIENCE OF U.S. PRODUCERS

BACKGROUND

Three U.S. producers provided financial data. These three firms are believed to account for all U.S. production of R-134a.[1] No firms reported tolling operations, but ***,[2] and ***.[3] Collectively, ***.

OPERATIONS ON R-134A

Table VI-1 presents aggregated data on U.S. producers' operations in relation to R-134a over the period examined, while table VI-2 presents selected company-specific financial data. Aggregate net sales quantity decreased from 2010 to 2012, and was lower in January-June 2013 as compared to January-June 2012. Net sales value increased from 2010 to 2011, attributable primarily to increased average unit sales values, and then decreased in 2012, and was also lower in January-June 2013 as compared to January-June 2012.

Per-short ton COGS increased by *** percent from 2010-12, but was *** percent lower in January-June 2013 when compared with the same interim period in 2012.[4] [5] Raw materials accounted for *** percent of COGS during the period examined. While all three companies showed an increase in ***.

Per-short ton SG&A expense increased by *** percent from 2010-12, and was *** percent higher in January-June 2013 when compared to the same interim period in 2012. ***.

Operating income increased from $*** in 2010 to $*** in 2011, before decreasing to $*** in 2012. Operating income was also lower in January-June 2013 ($***) when compared with the same interim period in 2012 ($***). Operating margins followed a similar trend, increasing from *** in 2010 to *** percent in 2011 before decreasing to *** percent in 2012. Operating margins were also lower in January-June 2013 at *** percent when compared to the margin of *** percent in January-June 2012.

Table VI-1
R-134a: Results of operations of U.S. producers, 2010-12, January-June 2012, and January-June 2013

* * * * * * *

[1] All three firms reported financial data for a fiscal year ending December 31.

[2] ***.

[3] ***.

[4] ***. E-mail correspondence from ***, November 11, 2013, and *** of the U.S. producers' questionnaire.

[5] With respect to its normal business operations, Mexichem asserts that ***.

***. *See* table VI-1; Mexichem's postconference brief, exh. 3; DuPont's postconference brief, p. 4; and e-mail correspondence from ***, November 11, 2013.

Table VI-2
R-134a: Results of operations of U.S. producers, by firm, 2010-12, January-June 2012, and January-June 2013

* * * * * * *

Variance analysis

A variance analysis for the operations of U.S. producers of R-134a is presented in table VI-3.[6] The information for this variance analysis is derived from table VI-1. The analysis shows that the increase in operating income from 2010 to 2011 is primarily attributable to a higher favorable price variance despite an unfavorable net cost/expense variance. It further shows that the decline in operating income from 2011 to 2012 is attributable to both unfavorable price and net/cost expense variances (that is, costs and expenses increased, and prices declined). Conversely, the lower operating income in January-June 2013 as compared to January-June 2012 is attributable to a higher unfavorable price variance despite a favorable net cost/expense variance (that is, prices decreased more than costs and expenses).

Table VI-3
R-134a: Variance analysis on the operations of U.S. producers, 2010-12, January-June 2012, and January-June 2013

* * * * * * *

Capital expenditures and research and development expenses

The responding firms' aggregate data on capital expenditures and research and development ("R&D") expenses are shown in table VI-4. All three firms provided capital expenditure data and R&D expenses. Capital expenditures increased from 2010 to 2011 before *** in 2012. ***.[7]

---

[6] The Commission's variance analysis is calculated in three parts: Sales variance, cost of sales variance (COGS variance), and SG&A expense variance. Each part consists of a price variance (in the case of the sales variance) or a cost or expense variance (in the case of the COGS and SG&A expense variance), and a volume variance. The sales or cost/expense variance is calculated as the change in unit price or per-unit cost/expense times the new volume, while the volume variance is calculated as the change in volume times the old unit price or per-unit cost/expense. Summarized at the bottom of the table, the price variance is from sales; the cost/expense variance is the sum of those items from COGS and SG&A variances, respectively, and the volume variance is the sum of the volume components of the net sales, COGS, and SG&A expense variances. The overall volume component of the variance analysis is generally small.

[7] E-mail correspondence from ***, November 11, 2013.

Table VI-4
R-134a: Capital expenditures and research and development expenses of U.S. producers, 2010-12, January-June 2012, and January-June 2013

* * * * * * *

Assets and return on investment

The Commission's questionnaire requested data on assets used in the production, warehousing, and sale of R-134a, presented in table VI-5. From 2010 to 2012, the total assets for R-134a irregularly increased from $*** in 2010 to $*** in 2012.

Table VI-5
R-134a: U.S. producers' total assets, 2010-12, January-June 2012, and January-June 2013

Item	Fiscal year		
	2010	2011	2012
	Value (*$1,000*)		
Total assets	***	***	***

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

Capital and investment

The Commission requested U.S. producers of R-134a to describe any actual or potential negative effects of imports of R-134a from China on their firms' growth, investment, ability to raise capital, development and production efforts, or the scale of capital investments. Responses provided by U.S. producers follow.

Actual negative effects

Arkema ***

DuPont ***

Mexichem ***

Anticipated negative effects

Arkema ***

DuPont	***
Mexichem	***

PART VII: THREAT CONSIDERATIONS

Section 771(7)(F)(i) of the Act (19 U.S.C. § 1677(7)(F)(i)) provides that—

> *In determining whether an industry in the United States is threatened with material injury by reason of imports (or sales for importation) of the subject merchandise, the Commission shall consider, among other relevant economic factors*[1]*--*
>
> *(I) if a countervailable subsidy is involved, such information as may be presented to it by the administering authority as to the nature of the subsidy (particularly as to whether the countervailable subsidy is a subsidy described in Article 3 or 6.1 of the Subsidies Agreement), and whether imports of the subject merchandise are likely to increase,*
>
> *(II) any existing unused production capacity or imminent, substantial increase in production capacity in the exporting country indicating the likelihood of substantially increased imports of the subject merchandise into the United States, taking into account the availability of other export markets to absorb any additional exports,*
>
> *(III) a significant rate of increase of the volume or market penetration of imports of the subject merchandise indicating the likelihood of substantially increased imports,*
>
> *(IV) whether imports of the subject merchandise are entering at prices that are likely to have a significant depressing or suppressing effect on domestic prices, and are likely to increase demand for further imports,*
>
> *(V) inventories of the subject merchandise,*
>
> *(VI) the potential for product-shifting if production facilities in the foreign country, which can be used to produce the subject merchandise, are currently being used to produce other products,*

[1] Section 771(7)(F)(ii) of the Act (19 U.S.C. § 1677(7)(F)(ii)) provides that "The Commission shall consider {these factors} . . . as a whole in making a determination of whether further dumped or subsidized imports are imminent and whether material injury by reason of imports would occur unless an order is issued or a suspension agreement is accepted under this title. The presence or absence of any factor which the Commission is required to consider . . . shall not necessarily give decisive guidance with respect to the determination. Such a determination may not be made on the basis of mere conjecture or supposition."

(VII) in any investigation under this title which involves imports of both a raw agricultural product (within the meaning of paragraph (4)(E)(iv)) and any product processed from such raw agricultural product, the likelihood that there will be increased imports, by reason of product shifting, if there is an affirmative determination by the Commission under section 705(b)(1) or 735(b)(1) with respect to either the raw agricultural product or the processed agricultural product (but not both),

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

(IX) any other demonstrable adverse trends that indicate the probability that there is likely to be material injury by reason of imports (or sale for importation) of the subject merchandise (whether or not it is actually being imported at the time).[2]

Information on the volume and pricing of imports of the subject merchandise is presented in Parts IV and V; and information on the effects of imports of the subject merchandise on U.S. producers' existing development and production efforts is presented in Part VI. Information on inventories of the subject merchandise; foreign producers' operations, including the potential for "product-shifting;" any other threat indicators, if applicable; and any dumping in third-country markets, follows. Also presented in this section of the report is information obtained for consideration by the Commission on nonsubject countries and the global market.

THE INDUSTRY IN CHINA

The Commission issued foreign producer questionnaires to seven firms listed in the petition and believed to produce R-134a in China. The Commission received responses from six firms, (1) Zhejiang Pujiang Bailian Chemical Co., Ltd. ("Bailian"); (2) Jiangsu Bluestar Green Technology Co. Ltd. ("Bluestar"); (3) Zhejiang Sanmei Chemical Ind. Co., Ltd. ("Sanmei"); (4) Sinochem Environmental Protection Chemicals (Taicang) Co., Ltd. ("Sinochem"); (5) Zhejiang Juhua Co., Ltd. ("Juhua"); and (6) Weitron International, Inc. ("Weitron").[3] These firms reported

[2] Section 771(7)(F)(iii) of the Act (19 U.S.C. § 1677(7)(F)(iii)) further provides that, in antidumping investigations, ". . . the Commission shall consider whether dumping in the markets of foreign countries (as evidenced by dumping findings or antidumping remedies in other WTO member markets against the same class or kind of merchandise manufactured or exported by the same party as under investigation) suggests a threat of material injury to the domestic industry."

[3] Of the seven firms named in the petition, the Commission received responses from five firms (Bailian, Bluestar, Sanmei, Sinochem, and Juhua). Weitron, an exporter and not a producer of R-134a,

estimates that in 2012, they accounted for approximately 82 percent of overall production of R-134a in China and 91 percent of all exports of R-134a to the United States.

Table VII-1

R-134a: Responding Chinese manufacturers' reported production capacity, production, and U.S. exports, by firm, 2012

Producer	Capacity (short tons)	Production (short tons)	Share of reported 2012 production in China (*percent*)	Exports to the U.S. (short tons)	Share of reported exports to the U.S. (*percent*)
Jiangsu Bluestar Green Technology Co. Ltd (Formerly Jiangsu Kangtai Fluorine Chemical Co. Ltd)	***	***	***	***	***
Sinochem Environmental Protection Chemicals (Taicang) Co., Ltd	***	***	***	***	***
Weitron, Inc. International	***	***	***	***	***
Zhejiang Juhua Co.,Ltd, Juxin Fluor-Chemistry Plant	***	***	***	***	***
Zhejiang Juhua Co.,Ltd, Organic Fluor-Chemistry Plant	***	***	***	***	***
Zhejiang Pujiang Bailian Chemical Co.,Ltd	***	***	***	***	***
Zhejiang Sanmei Chemical Ind. Co.,Ltd.	***	***	***	***	***
Total	***	***	100.0	***	100.0

Bailian

Bailian reported that *** percent of its total sales in the most recent fiscal year were sales of R-134a. Since 2010, Bailian has not exported any R-134a to the United States and projects this will remain true through at least 2014.

Sanmei

Sanmei reported that *** percent of its total sales in the most recent fiscal year were sales of R-134a. In 2012, the plant's first full year of production, *** percent of Sanmei's total shipments of R-134a were exported to the United States, *** percent of its total shipments were to its home market, and *** percent of its total shipments were to export markets such as ***. Sanmei's exports to the United States are expected to *** percent in 2013. Similarly, Sanmei's reported capacity is expected to *** in 2013.[4] Sanmei's wholly owned subsidiary, Jiangsu Sanmei Chemical & Industrial Co., Ltd. opened for limited production in May 2013. Sanmei also reported that its top U.S. importer of R-134a is ***, importing *** percent of the firm's 2012 U.S. exports.

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submitted a response. Juhua, although one firm, submitted two responses, one for each of its manufacturing facilities.

The two firms, which were named in the petition, but did not provide the Commission with a response to its foreign producer questionnaire were: (1) Jiangsu JIN XUE group Co., Ltd. and (2) Dongyue Group Ltd., both producers of R-134a in China.

[4] Zheijiang indicated that ***

Sinochem

Sinochem reported that *** percent of its total sales in the most recent fiscal year were sales of R-134a. In 2012, *** percent of Sinochem's total shipments of R-134a were exported to the United States, *** percent of its total shipments were to its home market, and *** percent of its total shipments were to export markets such as ***. Sinochem's exports to the United States *** percent from 2011 to 2012, but projects to *** from its 2012 level by 2014. Sinochem's reported capacity *** from 2011 to 2012 and is projected to *** through 2014.[5] Its production *** percent from 2011 to 2012 and projects to *** percent of its 2012 levels by 2014. Sinochem reported its largest U.S. importer was *** in 2012 with *** percent of the firm's U.S. exports.

Bluestar

Bluestar reported that *** percent of its total sales in the most recent fiscal year were sales of R-134a. In 2012, *** percent of Bluestar's total shipments of R-134a were exported to the United States, *** percent of its total shipments were to its home market, and *** percent of its total shipments were to markets such as ***. Bluestar's exports to the United States in *** percent from 2010 to 2012, but Bluestar projects U.S. exports ***. Bluestar's capacity *** percent from 2010 to 2012 and is projected to ***. Its production *** percent from 2010 to 2012, but is projected to ***. Bluestar reported that its top U.S. importer was ***.

Juhua[6]

Juhua Organic reported that *** percent of its total sales in its most recent fiscal year was represented by sales of R-134a. In 2012, *** percent of Juhua Organic's total shipments of R-134a were exported to the United States, *** percent of its total shipments were to its home market, and *** percent of its total shipments were to export markets such as ***. Juhua Organic's exports to the United States *** percent from 2010 to 2012, but projects to ***. Juhua Organic's reported capacity *** from 2010 to 2012 and is projected to *** through 2014. Its production by *** percent from 2010 to 2012 and projects to *** percent of its 2012 levels through 2014. Juhua Organic reported *** as its top U.S. importer at *** percent of its U.S. exports in 2012.

Juhua Juxin began production in May 2012. It reported that *** percent of its total sales in the most recent fiscal year were sales of R-134a. Juhua Juxin started exporting to the United States in 2013. Between January and June of 2013, *** percent of Juhua Juxin's total shipments of R-134a were exported to the United States and *** percent of its total shipments were to its home market. Juhua Juxin projects its exports to the United States to *** through

[5] Sinochem's ***.

[6] Juhua consists of two separate plants, Juxin fluor-Chemistry Plant and Organic fluor-Chemistry Plant. Although requested to provide a consolidated foreign producer response, Juhua submitted its data separately, by plant, to the Commission.

2014. Juhua Juxin's projects its capacity to *** percent and its production to *** percent through 2014.

Table VII-2 presents cumulative data for reported capacity, production, and shipments of R-134a for all reporting producers in China. Cumulatively, exports to the United States from Chinese producers increased by 287.0 percent from 2010 to 2012. Capacity in China increased by 51.3 percent from 2010 to 2012 and is projected to increase by 20.0 percent from 2012 to 2014.[7] Production in China increased by 84.3 percent from 2010 to 2012 and is projected to increase 7.8 percent from 2012 to 2014.

Table VII-2

R-134a: Data for producers in China, 2010-12, January-June 2012, January-June 2013, and Projections

	Actual experience					Projections	
	Calendar year			January - June		Calendar year	
Item	2010	2011	2012	2012	2013	2013	2014
	Quantity *(short tons)*						
Capacity	85,998	106,025	130,125	60,592	65,525	152,212	156,087
Production	68,035	90,941	125,379	62,630	68,013	134,001	135,149
End-of-period inventories	***	***	***	***	***	***	***
Shipments:							
Internal consumption/ transfers	***	***	***	***	***	***	***
Home market	***	***	***	***	***	***	***
Exports to:							
United States	5,620	18,773	21,751	14,398	12,424	19,782	20,140
All other markets	35,342	39,857	52,185	24,550	29,493	56,987	43,826
Total exports	40,962	58,630	73,936	38,948	41,917	76,769	63,966
Total shipments	68,744	92,632	125,361	62,084	67,992	136,656	118,033
	Ratios and shares *(percent)*						
Capacity utilization	79.1	85.8	96.4	103.4	103.8	88.0	86.6
Inventories/production	***	***	***	***	***	***	***
Inventories/shipments	***	***	***	***	***	***	***
Share of total shipments:							
Internal consumption/ transfers	***	***	***	***	***	***	***
Home market	***	***	***	***	***	***	***
Exports to:							
United States	8.2	20.3	17.4	23.2	18.3	14.5	17.1
All other markets	51.4	43.0	41.6	39.5	43.4	41.7	37.1
Total exports	59.6	63.3	59.0	62.7	61.7	56.2	54.2

[7] Petitioner argues that because capacity utilization declined from *** percent in the first half of 2012 to *** percent in the first half of 2013, that the Chinese producers can use this extra capacity to gain much higher levels of import penetration in the near future. Petitioner's postconference brief, pp. 18-19.

U.S. IMPORTERS' INVENTORIES

Reported inventories held by U.S. importers of subject merchandise from China and non-subject countries are shown in Table VII-3.

Table VII-3

R-134a: U.S. importers' end-of-period inventories of imports, by source, 2010-2012, January-June 2012, and January-June 2013

Item	Calendar year			January - June	
	2010	2011	2012	2012	2013
Imports from China: Inventories (short tons)	1,055	8,250	6,576	12,343	4,873
Ratio to U.S. imports (*percent*)	33.7	33.2	50.8	76.3	30.1
Ratio to U.S. shipments of imports (*percent*)	48.2	51.6	52.3	85.7	27.2
Imports from all other sources: Inventories (short tons)	136	139	272	90	70
Ratio to U.S. imports (*percent*)	16.2	11.7	22.9	10.9	8.1
Ratio to U.S. shipments of imports (*percent*)	17.0	12.8	21.3	8.5	8.3
Imports from all sources: Inventories (short tons)	1,191	8,389	6,848	12,433	4,943
Ratio to U.S. imports (*percent*)	30.0	32.2	48.5	73.1	29.0
Ratio to U.S. shipments of imports (*percent*)	39.9	49.2	49.4	80.4	26.3

U.S. IMPORTERS' CURRENT ORDERS

The Commission requested U.S. importers to indicate whether they imported or arranged for the importation of R-134a after June 30, 2013. *** U.S. importers stated that they had arranged for importation from China after June 30. Table VII-4 presents U.S. importers' current and future orders through June 2014.

Table VII-4

R-134a: U.S. importers' current and future orders of imports, by source and by quarter, 2013-2014

* * * * * * *

ANTIDUMPING AND COUNTERVAILING DUTY ORDERS IN THIRD-COUNTRY MARKETS

In April 19th, 2010, India imposed countervailing duty orders on producers and exporters of R-134a under subheading 2903.39.19 from China and Japan that were in effect through October 18, 2010.[8] Duty rates included $1.04 per kilogram for producer/exporter Sinochem

[8] Government of India CUSTOMS Notification No. 52/2010.

Environmental Protection (Taicang) Co. Ltd., $1.19 per kilogram for producer Sinochem Environmental Protection (Taicang) Co. Ltd. and exporter Du-Pont Trading (Shanghai) Co. Ltd., and $.99 per kilogram on producer/exporter Sinochem Environmental Protection Chemicals (Xian) Co. A duty rate of $1.41 per kilogram was placed on other producer/exporters.[9]

INFORMATION ON PRODUCERS IN NONSUBJECT COUNTRIES

In assessing whether the domestic industry is materially injured or threatened with material injury "by reason of subject imports," the legislative history states "that the Commission must examine all relevant evidence, including any known factors , other than the dumped or subsidized imports, that may be injuring the domestic industry, and that the Commission must examine those other factors (including nonsubject imports) 'to ensure that it is not attributing injury from other sources to the subject imports.'"

GLOBAL MARKET

Table VII-5 presents countries' global exports of a basket category of goods, including R-134a, during 2010-12. The basket category of exports includes all compounds of "other fluorinated, brominated or iodinated derivatives of acyclic hydrocarbons." Further information on production of R-134a in the UK and Germany, the two largest sources of nonsubject imports during 2010-12, is provided below.

Table VII-5
R-134a: Global exports[1], by country, 2010-12

	2010	2011	2012
	Value *(1,000 US dollars)*		
China	681,105	1,307,811	889,692
United States	400,092	525,016	574,450
Japan	188,718	254,480	196,572
Netherlands	166,570	191,463	172,705
France	139,980	168,373	155,884
United Kingdom HMRC	97,735	120,654	127,713
Germany	77,798	103,775	81,323
Belgium	51,985	70,526	52,836
Spain	33,294	42,315	36,094
Italy	31,857	34,746	32,730
Singapore	19,680	30,637	18,543
South Korea	10,487	10,163	12,792
Taiwan	8,478	35,329	10,900
Mexico	7,638	10,867	10,162
All other	33,987	56,596	50,248

[9] Ibid.

[1] The exports presented are for all compounds under "other fluorinated, brominated or iodinated derivatives of acyclic hydrocarbons."

Source: Global Trade Atlas (accessed November 27, 2013), HS subheadings 2903.39.

United Kingdom

There are no production facilities for R-134a in the United Kingdom. Mexichem UK has a fluorocarbon production facility there, but it was converted from production of R-134a to production of R-125 during 2001-06.[10] While the facility no longer produces R-134a, Mexichem UK does purify R-134a. Mexichem stated that it exports standard R-134a to the United Kingdom, where the subject product is purified before imported into the U.S. market.[11] The purified R-134a is used in pharmaceutical applications such as metered dose inhalers (MDIs) to treat lung/breathing issues.

Germany

Solvay Fluor produces the subject product in Germany. While most of the product is intended for refrigerant and foam blowing applications, some of the R-134a is further purified for pharmaceutical uses.[12] Solvay produces its own HF from fluorspar, some of which it sources from its mines in Namibia and Bulgaria.[13]

[10] Mexichem Fluor, manufacturing plants, http://www.mexichemfluor.com/americas/m_plants.html (retrieved November 27, 2013).

[11] Conference transcript, pp. 24-25 (Geosits).

[12] Solvay Chemicals, Fluor Products, http://www.solvaychemicals.com/EN/products/Fluor/Fluor.aspx (retrieved December 2, 2013).

[13] Solvay Chemicals, hydrogen fluoride brochure, October 11, 2011.

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
78 FR 64243 October 28, 2013	*1,1,1,2-Tetrafluoroethane From China; Institution of Antidumping and Countervailing Duty Investigations and Scheduling of Preliminary Phase Investigations*	http://www.gpo.gov/fdsys/pkg/FR-2013-10-28/pdf/2013-25315.pdf
78 FR 66894 November 7, 2013	*Notice of Extension of the Deadline for Determining the Adequacy of the Antidumping Duty and Countervailing Duty Petitions: 1,1,1,2-Tetrafluoroethane From the People's Republic of China*	http://www.gpo.gov/fdsys/pkg/FR-2013-11-07/pdf/2013-26730.pdf
78 FR 73832	*1,1,1,2-Tetrafluoroethane from the People's Republic of China: Initiation of Antidumping Duty Investigation*	http://www.gpo.gov/fdsys/pkg/FR-2013-12-09/pdf/2013-29344.pdf
78 FR 73839	*1,1,1,2 Tetrafluoroethane from the People's Republic of China: Initiation of Countervailing Duty Investigation*	http://www.gpo.gov/fdsys/pkg/FR-2013-12-09/pdf/2013-29341.pdf

APPENDIX B

LIST OF CONFERENCE WITNESSES

CALENDAR OF PUBLIC PRELIMINARY CONFERENCE

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

Subject: 1,1,1,2-Tetrafluoroethane from China

Inv. Nos.: 701-TA-509 and 731-TA-1244 (Preliminary)

Date and Time: November 12, 2013 - 9:30 a.m.

Sessions were held in connection with these preliminary investigations in the Main Hearing Room (room 101), 500 E Street, S.W., Washington, DC.

OPENING REMARKS:

Petitioner (**Roger B. Schagrin**, Schagrin Associates)
Respondents (**Matthew J. McConkey**, Mayer Brown LLP)

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

Schagrin Associates
Washington, DC
on behalf of

Mexichem Fluor, Inc.

Peter Geosits, Americas Commercial Director, Mexichem Fluor, Inc.

John Pacillo, Americas Operations Director, Mexichem Fluor, Inc.

Roger B. Schagrin)
) – OF COUNSEL
Paul W. Jameson)

Non-Petitioning Domestic Producer:

Cassidy Levy Kent (USA) LLP
Washington, DC
on behalf of

E.I. DuPont de Nemours & Company ("DuPont")

Greg M. Rubin, Global Business Manager, Fluorochemicals Global Products, Dupont

John D. Greenwald)
) – OF COUNSEL
James R. Cannon)

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

Alston Bird
Washington, DC
on behalf of

AutoZone, Inc.

Ken Klein, Vice President Merchandising, AutoZone, Inc.

Kristen Collier Wright, Vice President & Assistant General Counsel, AutoZone, Inc.

John Lammars, Director of Merchandising, AutoZone, Inc.

Elizabeth Hein)
) – OF COUNSEL
Jason Waite)

Mayer Brown LLP
Washington, DC
on behalf of

Juhua Group Corporation
Jiangsu Bluestar Green Technology Co., Ltd.
Sinochem Environmental Protection Chemicals (Taicang) Co., Ltd.
Zhejiang Juhua Co., Ltd.
Zhejiang Samei Chemical Industry Co., Ltd.
Zhejiang Pujiang Bailan Chemical Co., Ltd.
China Chamber of Commerce for Minerals, Minerals and Chemicals Importers and Exporters ("CCCME")
China Association of Fluorine and Silicone Industry ("CAFSI")

Robert Cox, President, Global Consolidated Trading, Inc.

Matthew J. McConkey)
Jing Zhang)
) – OF COUNSEL
Kevin Baker)
Lynn Holec)

REBUTTAL/CLOSING REMARKS:

Petitioner (**Roger B. Schagrin**, Schagrin Associates)
Respondents (**Matthew J. McConkey**, Mayer Brown LLP)

APPENDIX C

SUMMARY DATA

Table C-1
R-134a: Summary data concerning the U.S. market, 2010-12, January-June 2012, and January – June 2013

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