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June 25, 2015

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USITC Inv. No. 731-TA-__
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Investigation
Proprietary Information Deleted from Pages iv, 2-3, 9-10, 21, 22, 38-53, 55-56, 58-59, and 63-65 of the Narrative; Exhibit I-1 of Volume I; Exhibits II-1, II-2, II-3, II-5, II-6, II-7, II-8, II-9, II-10, II-11, II-12, and II-13 of Volume II; and Exhibits III-4, III-5, III-10, III-12, III-19, III-20, III-21, and III-24 of Volume III.

PUBLIC VERSION

VIA ELECTRONIC FILING AND HAND DELIVERY

The Honorable Penny S. Pritzker
Secretary of Commerce
Attention: Enforcement and Compliance
Room 1870
U.S. Department of Commerce
14th Street and Constitution Avenue, N.W.
Washington, DC 20230

Lisa R. Barton, Secretary
U.S. International Trade Commission
Room 112A
500 E Street, S.W.
Washington, DC 20436

Re: Hydrofluorocarbon Blends and Components Thereof from the People's Republic of China; Antidumping Duty Petition

Dear Secretary Pritzker and Secretary Barton:

On behalf of The American HFC Coalition and its individual members, enclosed please find petitions requesting the imposition of antidumping duties on imports of hydrofluorocarbon blends and components from China.

We hereby certify that the petitions are being filed simultaneously with the U.S. Department of Commerce (the "Department") and the U.S. International Trade Commission (the "Commission"), as required by section 351.202(c) of the Department's regulations, 19 C.F.R. § 351.202(c), and section 207.10(a) of the Commission's regulations, 19 C.F.R. § 207.10(a).

Petitioners request that confidential treatment be granted to the business proprietary

Petitioners request that confidential treatment be granted to the business proprietary information designated as such in the petitions pursuant to section 777(b)(1) of the Tariff Act of 1930 (the "Act"), 19 U.S.C. §1677f(b)(1); sections 351.105 and 351.304 of the Department's regulations, 19 C.F.R. §§351.105, 351.304; and section 201.6 of the Commission's regulations, 19 C.F.R. §201.6. The information for which Petitioners request confidential treatment falls into four categories.

The first category consists of business proprietary information appearing in brackets on pages 2, 3, 9, 10, 22, 40, 41, 44, 45, 46, 47, 48, 49, 50, 51, and 52 and in Exhibits I-1, II-5, II-9, II-10, II-12. This information concerns indicators of the condition and market position of the Petitioners, either individually or collectively, including information regarding profits and losses, cost of goods sold, general and administrative expenses, interest expenses, capital and other expenditures, capacity, capacity utilization, production, inventories, shipments, sales, prices and employment.

We believe that this information, which consists of company-specific data of the Petitioners, is entitled to proprietary treatment. Disclosure of this information would be likely to impair the Commission's and the Department's ability to collect such information in the future and would cause substantial harm to the competitive position of Petitioners.

The second category of information for which Petitioners request confidential treatment is proprietary information appearing in brackets on pages iv, 21, 38, 39, 41, 42, 43, 44, 48, 53, 55, 56, and 65 and in Exhibits II-5, II-6, II-7, II-8, and II-18. This information concerns terms of sale, customer information, and names of customers, distributors, or suppliers. None of this information is available to the public, and its disclosure would cause substantial harm to the Petitioners. For this reason, we believe that this information is entitled to proprietary treatment.

The third category of information for which Petitioners request confidential treatment is proprietary information appearing in brackets on pages iv, 10, 39, 40, 41, 47, 53, 63, 64, and 65 and in Exhibits II-2, II-3, II-8, II-11, III-19, III-20, and III-21. This information concerns lost revenues and lost sales of Petitioners to subject imports, as well as pricing and export information for subject imports. The information is not available to the public, and its disclosure would cause substantial competitive harm to Petitioners and the sources of the information. For these reasons, we believe that this information is entitled to proprietary treatment.

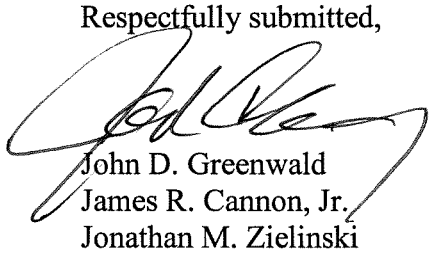
The fourth category of information for which Petitioners request confidential treatment is proprietary information appearing in brackets on pages 58 and 59, and in Exhibits II-13, III-4, III-5, III-10, III-12, and III-24. This information concerns surrogate production data and usage rates, and other information related to production of HFC components. Disclosure of the data could cause substantial harm to the competitive position of the Petitioners. For these reasons, this information is entitled to proprietary treatment.

The final category of information for which Petitioners request confidential treatment is proprietary information appearing in brackets on pages iv and 63-65, and in Exhibits II-2, II-3, II-13, and III-20. This information includes proprietary market data and was purchased from a confidential source or under terms of sale requiring that the information not be disclosed. Disclosure of the data could cause substantial harm to the competitive position of the Petitioners as well as to the sources of the information. For these reasons, this information is entitled to proprietary treatment.

Pursuant to section 351.304(b)(l) of the Department's regulation, 19 C.F.R. § 351.304(b)(1), we agree on behalf of Petitioners to permit disclosure of the above-described information pursuant to an adequately drawn administrative protective order.

We are also filing a public version of the petition. The information for which Petitioners are requesting confidential treatment has been summarized, indexed, or ranged, where possible in the public version. In certain instances, the information for which Petitioners are requesting confidential treatment has been deleted from the public version. In such instances, the information cannot be adequately summarized because it is so specific that any attempt to provide "a summary in sufficient detail to permit a reasonable understanding of the substance of the information," *see* section 777(b)(1)(B)(i)(I) of the Act, 19 U.S.C. § 1677f(b)(1)(B)(i)(I), would effectively result in disclosure of the information.

Respectfully submitted,



John D. Greenwald
James R. Cannon, Jr.
Jonathan M. Zielinski
Friederike S. Görgens**
Heather K. Pinnock
Deirdre Maloney
Senior International Trade Advisor
CASSIDY LEVY KENT (USA) LLP
2000 Pennsylvania Avenue, NW
Suite 3000
Washington, DC 20006
Tel.: 202-567-2300

**Admitted in Massachusetts; acting under the supervision of the principals of the firm admitted in the District of Columbia.

COMPANY CERTIFICATION

I, Joseph L. DePaula, Executive Vice President & CFO, currently employed by Amtrol Inc., certify that I prepared or otherwise supervised the preparation of the attached submission of Petition for the Imposition of Antidumping Duties on Imports of Hydrofluorocarbon Blends and Components Thereof from the People's Republic of China (Case No. A-570-028). I certify that the public information and any business proprietary information of Amtrol Inc. contained in this submission is accurate and complete to the best of my knowledge. I am aware that the information contained in this submission may be subject to verification or corroboration (as appropriate) by the U.S. Department of Commerce. I am also aware that U.S. law (including, but not limited to, 18 U.S.C. 1001) imposes criminal sanctions on individuals who knowingly and willfully make material false statements to the U.S. Government. In addition, I am aware that, even if this submission may be withdrawn from the record of the proceeding, the U.S. Department of Commerce may preserve this submission, including a business proprietary submission, for purposes of determining the accuracy of this certification. I certify that a copy of this signed certification will be filed with this submission to the U.S. Department of Commerce.

Signature: Joseph L DePaula

Date: JUNE 24, 2015

COMPANY CERTIFICATION

I, Richard N. Hudock, Assistant General Counsel, currently employed by Arkema Inc., certify that I prepared or otherwise supervised the preparation of the attached submission of Petition for the Imposition of Antidumping Duties on Imports of Hydrofluorocarbon Blends and Components Thereof from the People's Republic of China (Case No. A-570-028). I certify that the public information and any business proprietary information of Arkema Inc. contained in this submission is accurate and complete to the best of my knowledge. I am aware that the information contained in this submission may be subject to verification or corroboration (as appropriate) by the U.S. Department of Commerce. I am also aware that U.S. law (including, but not limited to, 18 U.S.C. 1001) imposes criminal sanctions on individuals who knowingly and willfully make material false statements to the U.S. Government. In addition, I am aware that, even if this submission may be withdrawn from the record of the proceeding, the U.S. Department of Commerce may preserve this submission, including a business proprietary submission, for purposes of determining the accuracy of this certification. I certify that a copy of this signed certification will be filed with this submission to the U.S. Department of Commerce.

Signature: 

Date: 6/24/2015

COMPANY CERTIFICATION

I, Magen L. Buterbaugh, Global Business Manager, Fluorochemicals, currently employed by The Chemours Company FC LLC, certify that I prepared or otherwise supervised the preparation of the attached submission of Petition for the Imposition of Antidumping Duties on Imports of Hydrofluorocarbon Blends and Components Thereof from the People's Republic of China (Case No. A-570-028). I certify that the public information and any business proprietary information of The Chemours Company FC LLC contained in this submission is accurate and complete to the best of my knowledge. I am aware that the information contained in this submission may be subject to verification or corroboration (as appropriate) by the U.S. Department of Commerce. I am also aware that U.S. law (including, but not limited to, 18 U.S.C. 1001) imposes criminal sanctions on individuals who knowingly and willfully make material false statements to the U.S. Government. In addition, I am aware that, even if this submission may be withdrawn from the record of the proceeding, the U.S. Department of Commerce may preserve this submission, including a business proprietary submission, for purposes of determining the accuracy of this certification. I certify that a copy of this signed certification will be filed with this submission to the U.S. Department of Commerce.

Signature: Magen L Buterbaugh

Date: June 25, 2015

COMPANY CERTIFICATION

I, Michael E. Ferrans, General Counsel – Fluorine Products, currently employed by Honeywell International Inc., certify that I prepared or otherwise supervised the preparation of the attached submission of Petition for the Imposition of Antidumping Duties on Imports of Hydrofluorocarbon Blends and Components Thereof from the People's Republic of China (Case No. A-570-028). I certify that the public information and any business proprietary information of Honeywell International Inc. contained in this submission is accurate and complete to the best of my knowledge. I am aware that the information contained in this submission may be subject to verification or corroboration (as appropriate) by the U.S. Department of Commerce. I am also aware that U.S. law (including, but not limited to, 18 U.S.C. 1001) imposes criminal sanctions on individuals who knowingly and willfully make material false statements to the U.S. Government. In addition, I am aware that, even if this submission may be withdrawn from the record of the proceeding, the U.S. Department of Commerce may preserve this submission, including a business proprietary submission, for purposes of determining the accuracy of this certification. I certify that a copy of this signed certification will be filed with this submission to the U.S. Department of Commerce.

Signature: 

Date: June 24, 2015

COMPANY CERTIFICATION

I, Stephen Mandracchia, Vice President Legal & Regulatory, currently employed by Hudson Technologies, Inc., certify that I prepared or otherwise supervised the preparation of the attached submission of Petition for the Imposition of Antidumping Duties on Imports of Hydrofluorocarbon Blends and Components Thereof from the People's Republic of China (Case No. A-570-028). I certify that the public information and any business proprietary information of Hudson Technologies, Inc. contained in this submission is accurate and complete to the best of my knowledge. I am aware that the information contained in this submission may be subject to verification or corroboration (as appropriate) by the U.S. Department of Commerce. I am also aware that U.S. law (including, but not limited to, 18 U.S.C. 1001) imposes criminal sanctions on individuals who knowingly and willfully make material false statements to the U.S. Government. In addition, I am aware that, even if this submission may be withdrawn from the record of the proceeding, the U.S. Department of Commerce may preserve this submission, including a business proprietary submission, for purposes of determining the accuracy of this certification. I certify that a copy of this signed certification will be filed with this submission to the U.S. Department of Commerce.

Signature: 

Date: June 24, 2015

COMPANY CERTIFICATION

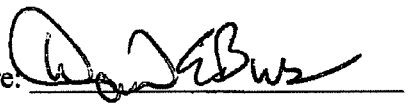
I, Alvaro Soto Gonzalez, General Counsel, currently employed by Mexichem Fluor Inc., certify that I prepared or otherwise supervised the preparation of the attached submission of Petition for the Imposition of Antidumping Duties on Imports of Hydrofluorocarbon Blends and Components Thereof from the People's Republic of China (Case No. A-570-028). I certify that the public information and any business proprietary information of Mexichem Fluor Inc. contained in this submission is accurate and complete to the best of my knowledge. I am aware that the information contained in this submission may be subject to verification or corroboration (as appropriate) by the U.S. Department of Commerce. I am also aware that U.S. law (including, but not limited to, 18 U.S.C. 1001) imposes criminal sanctions on individuals who knowingly and willfully make material false statements to the U.S. Government. In addition, I am aware that, even if this submission may be withdrawn from the record of the proceeding, the U.S. Department of Commerce may preserve this submission, including a business proprietary submission, for purposes of determining the accuracy of this certification. I certify that a copy of this signed certification will be filed with this submission to the U.S. Department of Commerce.

Signature:

Date: June 23, 2015

COMPANY CERTIFICATION

I, David E. Burks, Director, Industrial Products | Pressure Cylinders, currently employed by Worthington Industries, Inc., certify that I prepared or otherwise supervised the preparation of the attached submission of Petition for the Imposition of Antidumping Duties on Imports of Hydrofluorocarbon Blends and Components Thereof from the People's Republic of China (Case No. A-570-028). I certify that the public information and any business proprietary information of Worthington Industries, Inc. contained in this submission is accurate and complete to the best of my knowledge. I am aware that the information contained in this submission may be subject to verification or corroboration (as appropriate) by the U.S. Department of Commerce. I am also aware that U.S. law (including, but not limited to, 18 U.S.C. 1001) imposes criminal sanctions on individuals who knowingly and willfully make material false statements to the U.S. Government. In addition, I am aware that, even if this submission may be withdrawn from the record of the proceeding, the U.S. Department of Commerce may preserve this submission, including a business proprietary submission, for purposes of determining the accuracy of this certification. I certify that a copy of this signed certification will be filed with this submission to the U.S. Department of Commerce.

Signature: 

Date: 6-24-2015

CERTIFICATION

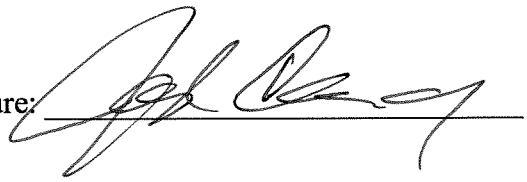
I, Howard Dawes, Directing Business Representative, District Lodge 154, International Association of Machinists and Aerospace Workers (IAM), certify that I have reviewed the attached submission of Petition for the Imposition of Antidumping Duties on Imports of Hydrofluorocarbon Blends and Components Thereof from the People's Republic of China (Case No. A-570-028). I certify that the public information and any business proprietary information of IAM District Lodge 154, contained in this submission is accurate and complete to the best of my knowledge. I am aware that the information contained in this submission may be subject to verification or corroboration (as appropriate) by the U.S. Department of Commerce. I am also aware that U.S. law (including, but not limited to, 18 U.S.C. 1001) imposes criminal sanctions on individuals who knowingly and willfully make material false statements to the U.S. Government. In addition, I am aware that, even if this submission may be withdrawn from the record of the proceeding, the U.S. Department of Commerce may preserve this submission, including a business proprietary submission, for purposes of determining the accuracy of this certification. I certify that a copy of this signed certification will be filed with this submission to the U.S. Department of Commerce.

Signature: Howard L Dawes Jr

Date: 6/24/15

REPRESENTATIVE CERTIFICATION

I, James R. Cannon, Jr., with Cassidy Levy Kent (USA) LLP, counsel to the American HFC Coalition, certify that I have read the attached June 25, 2015, Petition for the Imposition of Antidumping Duties on Hydrofluorocarbon Blends and Components Thereof from China (A-570-028). In my capacity as Counsel, I certify that the information contained in this submission is accurate and complete to the best of my knowledge. I am aware that U.S. law (including, but not limited to, 18 U.S.C. 1001) imposes criminal sanctions on individuals who knowingly and willfully make material false statements to the U.S. Government. In addition, I am aware that, even if this submission may be withdrawn from the record of the AD/CVD proceeding, the U.S. Department of Commerce may preserve this submission, including a business proprietary submission, for purposes of determining the accuracy of this certification. I certify that a copy of this signed certification will be filed with this submission to the U.S. Department of Commerce.

Signature: 

Date: 6-24-15

ATTORNEY CERTIFICATION

District of Columbia: SS

I, James R. Cannon, Jr., counsel to the American HFC Coalition, certify that (1) I have read the enclosed submission dated June 25, 2015, and (2) based on the information made available to me, I have no reason to believe that this submission contains any material misrepresentation or omission of fact.

In accordance with section 201.6(b) of the Commission's rules, I also hereby certify that, to the best of my knowledge, information substantially identical to that for which business proprietary treatment has been requested is not available to the general public.

Dated: June 24, 2015

James R. Cannon, Jr.

Subscribed and sworn to before me on this 24th day of June, 2015.

Notary Public

M. KATHLEEN MATTHES
NOTARY PUBLIC DISTRICT OF COLUMBIA
My Commission Expires July 14, 2016

PUBLIC VERSION

Before the
International Trade Administration, United States Department of Commerce,
and United States International Trade Commission

DOC Inv. Nos. A-570-028
ITC Inv. No. 731-TA-___
Total No. of Pages: 71 (Narrative)

Business Proprietary Information for Which Proprietary Treatment Has Been Requested is Deleted from Brackets at Pages iv, 2-3, 9-10, 21, 22, 38-53, 55-56, 58-59, and 63-65, and Exhibits I-1, II-2, II-3, II-5, II-6, II-7, II-8, II-9, II-10, II-11, II-12, II-13, III-4, III-5, III-10, III-12, and III-24.

PUBLIC VERSION

PETITION FOR THE IMPOSITION OF ANTIDUMPING DUTIES ON IMPORTS OF HYDROFLUOROCARBON BLENDS AND COMPONENTS THEREOF FROM CHINA

On Behalf of
The American HFC Coalition

VOLUME I: NARRATIVE

John D. Greenwald
James R. Cannon, Jr.
Friederike S. Görgens**
Heather K. Pinnock
Deirdre Maloney
Senior International Trade Advisor
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June 25, 2015

PUBLIC VERSION

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PUBLIC VERSION

Before the
International Trade Administration, United States Department of Commerce,
and United States International Trade Commission

PETITION FOR THE IMPOSITION OF ANTIDUMPING DUTIES ON IMPORTS OF HYDROFLUOROCARBON BLENDS AND COMPONENTS THEREOF FROM CHINA

I. INTRODUCTION AND SUMMARY

On behalf of the American HFC Coalition and its individual members, as well as District Lodge 154 of the International Association of Machinists and Aerospace Workers ("IAMAW"), we herein petition for relief from dumped imports of certain hydrofluorocarbon ("HFC") blends and of certain single hydrofluorocarbon components thereof imported from China. This petition is filed pursuant to Section 731 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1673.

To replace ozone-depleting refrigerants, primarily R-22, U.S. manufacturers developed a family of HFC blends designed to operate in applications ranging from residential air conditioning to commercial refrigeration. R-410A was introduced in 1991 to substitute for R-22 in residential air conditioning applications. Two decades later, R-410A dominates the residential air conditioning market in the United States. However, R-410A is not suitable for all of the diverse applications in which R-22 was used. Nor will R-410A operate in equipment designed for R-22. Accordingly, other HFC blends were developed to replace R-22 in existing systems, by retro-fitting the equipment to use a different type of oil. Over time, HFC blends such as R-407C have replaced R-22 in existing systems. Still other blends were developed to replace R-22 in commercial refrigeration applications, such as display cases in grocery stores. R-404A has

largely replaced R-22 is commercial refrigeration applications. More recently, R-407A has begun to replace R-404A, due to its lower global warming potential.

Particularly since R-22 was banned for use in new equipment in 2010, demand for HFC blends has risen. New stationary air conditioning and refrigeration equipment no longer uses R-22 and the installed base of air conditioning and refrigeration equipment more and more operates on HFC blends. Existing equipment, particularly in commercial air conditioning and refrigeration, is being retro-fitted to operate using HFC blends instead of R-22. Nevertheless, even as demand for HFC blends increases, imports of HFC blends from China are capturing a fast-growing share of the market. Chinese HFC blends, as well as the single HFC components used to make those blends, are entered into the U.S. market at prices substantially below fair value and below domestic producers' prices. Consider:

- Chinese imports of HFC blends and components (which can be blended after importation) increased by nearly 60 percent from 2012 to 2014 and continued to increase in the first quarter 2015 versus the same period 2014;
- Chinese HFC blends increased from 25.6 percent of apparent U.S. consumption in 2012 to 33.6 percent of apparent consumption in 2014 and to 38.1 percent in the first quarter 2015;
- Chinese HFC blends are routinely offered in 24-lb. and 25-lb. disposable tanks, on a landed cost, duty paid basis, at prices below the average cost of goods sold of the domestic industry;
- Direct Chinese imports of single-component HFCs in ISO tanks and bulk cylinders displace domestic producers' sales to blenders; direct imports of HFC blends in bulk containers likewise displace domestic producers' shipments of blends; and
- As a result of the increasing volume of dumped imports, domestic producers' prices have fallen, on average, 22.3 percent from 2012 to 2014, even as costs of goods sold have increased from [70 to 90] percent of sales.

Consequently, the domestic industry has suffered declining revenues and falling operating profits. Total revenues fell from [400 to 300] between 2012 and 2014. From an operating profit of [90] in 2012, the domestic industry's profits have deteriorated to a [ ] loss – a decline of [90] in two years. As a percent of sales, profits dropped from [20] percent in 2012 to a loss in 2014. And, the first quarter 2015 continues to be unprofitable. Domestic producers of HFC blends and components incurred a single-quarter loss of [ ], amounting to [ ] percent of sales.

Notably, the U.S. industry has for years rationalized component production of R-32, R-125, and R-143a. Consolidating production of each component in one or two plants improves capacity utilization and reduces costs. [

description of operations

]. Each U.S. producer is thus able to manufacture individual components in the most efficient manner, maximizing capacity utilization, and reducing costs to produce HFC blends.

Despite this industry-wide rationalization, the increasing volume of dumped imports from China has made it impossible for the domestic industry as a whole to fill its capacity or increase its output commensurate with the rise in demand for HFC blends. Coupled with the loss of market share, the low prices offered by the Chinese HFC blends and single components have caused price levels in the U.S. market to fall sharply. As noted, domestic industry operating profits have disappeared. Without an adequate return on investment, the domestic industry will be unable to maintain production of HFC blends and components and develop the next generation of refrigerants. For these reasons and others set forth in Section III, below, the domestic industry is materially injured by reason of unfairly traded imports of HFC blends and

components from China. And, given excess and growing capacity to produce HFC blends and components in China, the condition of the domestic industry will inevitably deteriorate in the absence of relief from dumped imports.

Section IV, below, sets forth the evidence that imports of HFC blends and components from China are being dumped. As recently as October 2014, the Department of Commerce concluded that Chinese imports of another HFC refrigerant, R-134a, itself the replacement for R-12, were being sold at less than fair value. Applying similar methodology to the selection of surrogate values and calculation of normal value, imports of HFC blends and component are also being sold at less than fair value. Price lists circulated by various importers offering HFC blends imported from China establish that landed cost, duty paid prices for HFC blends are far below normal value. As set forth in Section IV, below, representative antidumping margins for HFC blends and components are as follows:

Product	**Estimated LTFV Margin (%)**
R-404A	239.5% - 259.0%
R-407A	115.6%
R-407C	124.2% - 188.0%
R-410A	133.3% - 148.3%
R-507A	223.5%
R-32	150.0% - 205.2%
R-125	109.3% - 140.4%
R-143a	296.9% - 368.1%

For these reasons, the American HFC Coalition respectfully requests the Department to initiate an antidumping duty investigation with respect to hydrofluorocarbon blends and components thereof from China.

II. GENERAL INFORMATION

A. Identification of Petitioners and Industry Support for the Petition

This petition is filed on behalf of the American HFC Coalition and its members. The Coalition's members, manufacturers and blenders of HFC blends and component HFCs, include the following companies:

1. Amtrol Inc.
   1400 Division Road
   West Warwick, Rhode Island 02893
   Contact: Tom Gagnon
   Telephone: 401.535.1292

2. Arkema Inc.
   900 First Avenue
   King of Prussia, Pennsylvania 19406-1308
   Contact: Richard N. Hudock
   Telephone: 610.205.7846

3. The Chemours Company FC LLC[1]
   1007 Market Street
   Wilmington, Delaware 19898
   Contact: Elizabeth M. Sassano
   Telephone: 302.999.6619

4. Honeywell International Inc.
   101 Columbia Road
   Morristown, New Jersey 07960
   Contact: Michael E. Ferrans
   Telephone: 973.455.3845

[1] As of the date of filing of this petition, Chemours is a wholly-owned subsidiary of E.I. du Pont de Nemours and Company. On December 18, 2014, DuPont filed an initial Form 10 registration with the U.S. Securities and Exchange Commission announcing its intention to divest its ownership of Chemours and create a separate publicly traded company. That process is underway.

5. Hudson Technologies
One Blue Hill Plaza
Pearl River, NY 10965
Contact: David E. Burks
Telephone: 614.840.4539

6. Mexichem Fluor Inc.
4990B ICI Road
St. Gabriel, Louisiana 70776
Contact: Alvaro Soto González
Telephone: +52 (55) 53366-4028

7. Worthington Industries, Inc.
200 Old Wilson Bridge Road
Columbus, Ohio 43085
Contact: Steve Mandracchia
Telephone: 845.735.6000, ext. 6004

A majority of the members of the American HFC Coalition are manufacturers or HFC components and blenders of U.S.-made HFC components. Four of the individual members, Arkema, Chemours, Honeywell, and Mexichem are manufacturers of one or more component HFCs used to produce HFC blends. Four of the members, Arkema, Chemours, Honeywell and Hudson Technologies, are U.S. blenders of U.S.-made components or wholesalers of U.S.-made products.[2] Amtrol and Worthington manufacture cylinders and tanks in which HFC blends are sold and supply the domestic manufacturers. As such, the coalition includes individual members that are "manufacturer{s}, producer{s}, or wholesaler{s} in the United States of a domestic like product" within the meaning of section 771(9)(C) of the Tariff Act of 1930 (the "Act"). 19 U.S.C. § 1677(9)(C). The coalition is "a trade or business association a majority of whose

[2] In some cases, blenders may use U.S. and imported components. However, all of the petitioners rely on U.S.-made components for the majority of their blending operations.

members manufacture, produce, or wholesale a domestic like product in the United States" within the meaning of Section 771(9)(F).

1. HFC blenders that rely primarily upon imported HFC components for their blending operations should not be counted as "domestic" for purposes of assessing industry support

In addition to the American HFC Coalition members, the following companies have the capability to produce HFC blends from imported and domestically-produced HFC components. These companies also repackage bulk HFC blends into smaller containers, typically 24-lb. or 25-lb. cylinders. None of these producers, however, manufacture single-component HFCs in the United States.

Airgas Refrigerants, Inc.
(a subsidiary of Airgas, Inc.)
2530 Sever Road, Suite 300
Lawrenceville, Georgia

Coolgas, Inc.
(a subsidiary of A-Gas International)
30045 FM 2978
Magnolia, Texas 77354

National Refrigerants, Inc.
11401 Roosevelt Boulevard
Philadelphia, Pennsylvania 19154

Weitron, Inc.
801 Pencader Drive
Newark, Delaware 19702

Technical Chemical Company
3327 Pipeline Road
Cleburne, Texas 76033

USA Refrigerants
USA United Suppliers of America, Inc.
P.O. Box 289
Old Bridge, New Jersey 08857

To determine industry support pursuant to Section 732(c)(4) of the Act, Commerce must consider the views of the "industry" and the "domestic producers or workers" involved in "production of the domestic like product." The domestic industry is defined in Section 771(4)(A) as "producers" of a domestic like product. Section 771(4)(B) provides, however, that "if a producer of the domestic like product is also an importer of the subject merchandise, the producer may, in appropriate circumstances be excluded from the industry." Likewise, Section 732(c)(4)(B) provides that the Department "may disregard the position of domestic producers of a like product who are importers of the subject merchandise."

Here, blenders that primarily rely upon imported components for their operations, and do not produce R-32, R-125, R-134a or R-143a or purchase these components from a U.S. manufacturer of components, should be "excluded from the industry" and their positions "disregarded." In its analysis of material injury, the Commission considers whether domestic producers that also import subject merchandise "substantially benefit" from the subsidized and dumped imports.[3] In addition, the Commission examines whether the data reported by such companies will "skew the data for the rest of the industry."[4] Logically, blenders that use the dumped imports as the inputs to their blending operations will have lower costs and fundamentally different interests than companies that rely on U.S.-made components. And, where those blenders have no investment in manufacturing facilities to produce even one of the

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[3] *See, e.g., Allied Mineral Producers, Inc. v. United States,* 28 CIT 1861, 1865 (2004); *USEC, Inc. v. United States,* 132 F. Supp. 2d 1, 12 (Ct. Int'l Tr. 2001).

[4] *Torrington Co. v. United States*, 790 F. Supp. 1161 9Ct. Int'l Tr. 1992), *aff'd without opinion,* 991 F.2d 809 (Fed. Cir. 1993).

component HFCs, their economic interests are tied to the price levels established by the subject imports. In other words, blenders that primarily rely on imported HFC components will both "benefit" from continued unfair trade and "skew the data" for the domestic industry.

It follows, therefore, that the foregoing blenders should be excluded from the domestic industry for purposes of Section 732(c)(4) of the Act. On that basis, 100 percent of U.S. production of HFC blends and components thereof is represented by the American HFC Coalition and the IAMAW.

2. Even assuming that blenders are included in the domestic industry, production by the petitioners nevertheless accounts for well over 50 percent of total HFC blends production

Section 732(c)(4) of the Act requires that a petition be supported by domestic producers or workers accounting for at least 25 percent of U.S production of the "domestic like product." In addition, among those "domestic producers" expressing support for or opposition to the petition, at least 50 percent, measured by production, must support the petition.[5] But, even assuming that blend-only processors are consider to be "domestic producers" for purposes of Section 732(c)(4), the blenders that are not members of the coalition account for less than [30] percent of U.S. production. As shown by **Exhibit I-1**, conservatively assuming that all imports of HFC components and all domestic merchant market sales of HFC components were used to produce R-407C, the maximum volume of production of HFC blends would be [30] metric tons.[6] The petitioners' output, by comparison, was [70] metric tons. It follows that

[5] 19 U.S.C. § 1673a(c)(4)(ii).

[6] As shown by Table 1, *infra*, R-407C consists of 52 percent R-134a and only 48 percent subject single-component HFCs (R-32 and R-125). Hence, if the entire volume of domestic merchant

(footnote continued on next page)

the American HFC Coalition has standing to petition for relief pursuant to Section 732(c)(4)(A) of the Act, 19 U.S.C. § 1673a(c)(4)(A), whether or not blenders are considered part of the "domestic industry."

B. Related Proceedings

The HFC Coalition has not filed for import relief pursuant to sections 337 of the Act, 19 U.S.C. § 1337, or section 201 or 301 of the Trade Act of 1974, 19 U.S.C. §§ 2251 or 2411, or section 232 of the Trade Expansion Act of 1962, 19 U.S.C. § 1862, with respect to the HFC blends and components that are subject to this petition, nor have Petitioners or any of its members taken any previous action under U.S. antidumping or countervailing duty law against imports of HFC blends and components from China.

In 2013, Mexichem filed antidumping and countervailing duty petitions covering imports of another single component HFC, 1,1,1,2-Tetrafluoroethane (also known as R-134a) from China. However, the Commission made a negative determination in the case of R-134a imports from China, which is currently pending appeal.[7] Although R-134a is not covered by this petition, it is an important component of three of the HFC blends covered by this petition.

(footnote continued from previous page)
sales and the entire volume of subject imports (a total of [ ] mt) were used to make R-407C, the maximum possible production in 2014 would be [ ] / 0.48 = [ ].

[7] *See 1,1,1,2-Tetrafluoroethane from China*, Inv. Nos. 701-TA-509 and 731-TA-1244 (Final), USITC Pub. 4503 (December 2014), *appeals docketed sub nom. Mexichem Fluor Inc. v. United States,* No. 15-00004 (January 6, 2015), *and E.I. du Pont de Nemours and Company v. United States*, No. 15-00005 (January 7, 2015).

C. Description of the Merchandise and Requested Scope of Investigation

1. HFC blends and certain single component HFCs

This petition covers hydrofluorocarbon blends, as well as three of the single-component HFCs used to produce such blends, as follows:

- R-404A, a blend of 44 percent[8] 1,1,1,2,2-Pentafluoroethane, 4 percent 1,1,1,2-Tetrafluoroethane, and 52 percent 1,1,1-Trifluoroethane;
- R-407A, a blend of 20 percent Difluoromethane, 40 percent 1,1,1,2,2-Pentafluoroethane, and 40 percent 1,1,1,2-Tetrafluoroethane;
- R-407C, a blend of 23 percent Difluoromethane, 25 percent 1,1,1,2,2-Pentafluoroethane, and 52 percent 1,1,1,2-Tetrafluoroethane;
- R-410A, a blend of 50 percent Difluoromethane, and 50 percent 1,1,1,2,2-Pentafluoroethane;
- R-507A or R-507AA, a blend of 50 percent 1,1,1,2,2-Pentafluoroethane and 50 percent 1,1,1-Trifluoroethane;
- Difluoromethane, also known as R-32;
- 1,1,1,2,2-Pentafluoroethane, also known as R-125; and
- 1,1,1-Trifluoroethane, also known as R-143a.

As described below, the three single-component HFCs, R-32, R-125 and R-143a, are chiefly used in the production of HFC blends. An antidumping order providing relief from imports of HFC blends but not the three single HFCs therefore would be easily circumvented. Chinese producers and exporters would simply export the three single HFC components and produce HFC blends in the United States or a third country. Or, exporters might create semi-finished blends consisting of single-component HFCs in different proportions than required by

[8] Percentages are nominal weight. Actual weight may vary by +/- 2 percentage points. *See* **Exhibit I-4**.

the formulas for the HFC blends. After exportation, additional single-component HFCs could be added in the United States or a third country.

Accordingly, an antidumping order covering HFC blends should also cover the HFC components used in those blends, as well as semi-finished blends that, when imported, are not yet in the correct proportions for R-404A, R-407A, R-407C, R-410A or R-507A. Such semi-finished blends could be easily re-blended to produce one of the HFC blends subject to this petition.

Finally, as also described below, R-134a imported as a single component HFC is excluded from the scope of the investigation requested by this petition. R-134a was covered by the separate 2013-14 antidumping investigation now pending appeal. Unlike R-32, R-125 or R-143a, R-134a has a variety of applications other than as a blending component. R-134a is used without blending in automotive air conditioning systems, foam, pharmaceuticals and other products.[9] And, though it is a blending component for subject HFC blends, the various end-use applications for R-134a differ from the end-use applications for HFC blends. For these reasons, R-134a imported as a single component HFC should be excluded from the subject merchandise.

a. Physical characteristics

Hydrofluorocarbons are a class of man-made chemical components that contain fluorine, carbon and hydrogen atoms. These compounds have the chemical formula $C_nH_xF_{(2n+2-x)}$, where $1<n<6$. HFC blends are mixtures of two or more single HFC components. The HFC blends and component HFCs are colorless, odorless gases that are hydrophobic. The five HFC blends covered by this petition are the major commercial refrigerant blends sold in the U.S. market for

[9] *See* USITC Pub. 4503 at 11-12.

use in stationary air conditioning and refrigeration applications. Specifications for the HFC blends are found in **Exhibit I-3**. These products consist of blends of the three single component HFC refrigerants identified above as well as, in some cases, another HFC component, R-134a. The composition of each HFC blend, by volume of component HFC, is set forth below. The nominal composition is set forth below; the allowable composition may vary by plus-or-minus two percent, as shown in **Exhibit I-4**.

Table 1: Composition of HFC Blends, by HFC component (nominal weight)

	R-404A	**R-407A**	**R-407C**	**R-410A**	**R-507A**
HFC single component:					
R-32		20%	23%	50%	
R-125	44%	40%	25%	50%	50%
R-134a	4%	40%	52%		
R-143a	52%				50%

Source: AHRI Standard 700-2012, Table 2A (included in Exhibit I-4).[10]

HFC blends were developed to succeed hydrochlorofluorocarbons ("HCFCs"), as the refrigerant in residential and commercial air conditioning and refrigeration applications. HCFCs cause ozone depletion and have been phased out of original equipment applications pursuant to the Montreal Protocol.[11] HFCs were developed as a replacement that would not deplete the

[10] *See also, e.g.,* U.S. Environmental Protection Agency, "Composition of Refrigerant Blends," last updated Feb. 20, 2015, *available online at* http://www.epa.gov/ozone/snap/refrigerants/refblend.html, *last accessed* April 12, 2015.

[11] R-22 continues to be used in the replacement market, but that use will also be phased out by 2020, after which only recycled R-22 will be available to the replacement market. *See, e.g.,* U.S. Environmental Protection Agency, "What You Should Know about Refrigerants When Purchasing or Repairing a Residential A/C System or Heat Pump," at 1-2, *available online at* http://www.epa.gov/ozone/title6/phaseout/22phaseout.html, *last accessed* March 31, 2015 (included in **Exhibit I-5**); Emerson Climate Technologies, "Refrigerants for commercial refrigeration applications," at 5-6 (March 2015), *available online at*

(footnote continued on next page)

ozone layer. The near-azeotropic[12] HFC blends, including R-404A, R-407A, R-407C, and R-410A, were principally developed to replace R-22.[13] The azeotropic HFC blend, R-507A, was likewise developed as a replacement for HCFCs, such as R-22.

HFC blends share key properties that enable their use in air conditioning and refrigeration applications as replacements for HCFCs. HFC blends are nonflammable, nontoxic, noncorrosive, and recyclable.[14] These properties allow for efficient, safe commercial use in air conditioning and refrigeration systems. The HFC blends are excellent low- and medium-temperature refrigerants.[15] The blends do not cause ozone depletion, although they do have a potentially high global warming potential if the refrigerants leak into the atmosphere.

Thus, the HFC blends have common physical characteristics. HFC blends are suitable for use in low- to medium-temperature refrigeration, including residential and certain commercial air conditioning applications, and commercial, transport and some process refrigeration applications. All of the HFC blends are replacements for HCFCs, particularly, R-22. In the large majority of new residential and commercial air conditioning systems, R-410A

(footnote continued from previous page)
http://www.emersonclimate.com/en-us/WhitePapers/2005ECT-162.pdf, *last accessed* April 4, 2015, (included in **Exhibit I-6**).

[12] An "azeotropic" blend is a "liquid mixture of two or more substances which behaves like a single substance in that the vapor produced by partial evaporation of liquid has the same composition as the liquid." R.J. Lewis, *Hawley's Condensed Chemical Dictionary*, at 103 (14th ed., 2001).

[13] *See, e.g.,* **Exhibit I-5** at 2-3; **Exhibit I-6** at 7-10. *See also* U.S. Environmental Protection Agency, "Composition of Refrigerant Blends," last updated Feb. 20, 2015, *available online at* http://www.epa.gov/ozone/snap/refrigerants/refblend.html, *last accessed* April 12, 2015.

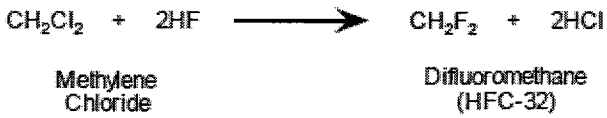
[14] *See, e.g.*, Emerson Climate Technologies, **Exhibit I-6** at 5-6.

[15] *Id.* at 9.

has replaced R-22. In commercial refrigeration applications, existing equipment is typically retro-fit to use R-404A, R-407C or other HFC blends in lieu of R-22.

b. Manufacturing process

Single-component HFCs, such as R-32, R125 and R-143a, are so-called "halocarbon gases," manufactured by reaction of a chlorine starting compound, such as methylene chloride, tetrachloroethylene or trichloroethane, with hydrofluoric acid. This reaction, known as hydrofluorination, yields a carbon-hydrogen-fluorine compound and hydrochloric acid. Thus, HFC-32 (Difluoromethane) is manufactured by hydrofluorination of methylene chloride according to the following formula.



R-125 (1,1,1,2,2-Pentafluoroethane) is manufactured either by vapor phase or liquid phase catalytic fluorination in the continuous process.[16] The catalysts for vapor phase fluorination are usually chromium oxide or aluminum compounds; antimony pentachloride is used in liquid phase fluorination. One starting chlorine compound for vapor phase hydrofluorination is tetrachloroethylene, also known as perchloroethylene or "PCE," which is used in the presence of a chromium-oxide catalyst. Another starting compound for hydrofluorination is trichloroethylene, or TCE. The report by CEH, found in **Exhibit II-13** at 36, provides a manufacturing process chart for the production of R-125.

[16] K.V. Raghavan, B.M. Reddyat, "Industrial Catalysis and Separations: Innovations for Process Intensification," at 418 (2015, CRC Press).

HFC-143a (1,1,1-Trifluoroethane) is manufactured by hydrofluorination of 1,1,1,-tri*chloro*ethane (methyl chloroform). In the process, chlorine atoms are exchanged for fluorine atoms.

Commercial manufacturing of HFC blends involves large-scale mixing of component HFCs in precise quantities under controlled pressure for a specific period of time.[17] To blend R-410A, for example, R-32 and R-125 are piped from separate tanks into a blending tank. The HFC with the lowest vapor pressure (e.g., R-32) is typically introduced into the blending tank first. Other component HFCs are then added, progressing from the lowest to the highest vapor pressure. In the case of R-410A, the blending tank produces a uniform blend of the R-32 and R-125 in prescribed proportions, *i.e.*, 50/50. The blend is continuously recirculated in the blending tank for a period of time. A liquid sample is drawn and analyzed in a laboratory. If the analysis is within the specification, the blend is ready for packaging. If not, additional HFC components are added as necessary.

HFC blends are imported in ISO containers, large-volume reusable cylinders, and 24-lb. to 50-lb. disposable cylinders, depending upon the specific blend.[18] Single component HFC blends are packaged in ISO containers and large-volume cylinders that vary in capacity depending on the HFC. Bulk quantities in ISO containers or large cylinders are ready for shipment to blenders and re-packagers. The 24-lb. and 25-lb. cylinders are ready for sale to

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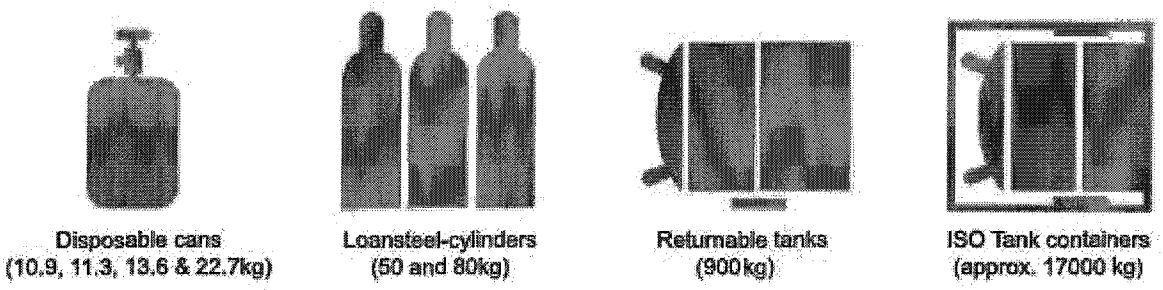
[17] *See generally,* H.M. Hughes, W.P. Dulaney, R.L. Broussard, "A Refrigerant Producer's Experience in Manufacturing Zeotropic Blends," (1996, Purdue University), *available online at* http://docs.lib.purdue.edu/cgi/viewcontent.cgi?article=1307&context=iracc, *last accessed*, April 4, 2015. A copy is included in **Exhibit I-7**.

[18] For example, Jinhua Yonghe Flurochemical offers R-410A in ISO tanks, 926L cylinders, or 25-lb. cylinders. R-404A is offered in ISO tanks, 400L, 800L or 926L cylinders, or 24-lb. tanks. *See* **Exhibit I-8**.

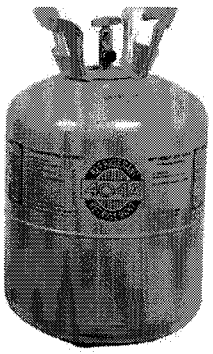
service supply operators and contractors. Subject imports typically arrive in ISO containers, large-volume reusable cylinders, or 24-lb. and 25-lb. disposable cylinders.[19]

HFC Blends may be packaged in various containers:



Source: **Exhibit I-8** (AC Edge).

24-lb. Disposable Cylinder (R-404A):



c. End uses and customer expectations

As described above, HFC blends were developed to succeed HCFCs, particularly R-22, as a source of refrigeration in residential and commercial (stationary) applications. There are two major end-use markets for HFC blends: air conditioning and refrigeration. HFC

[19] Cylinders contained compressed gases generally are subject to 49 C.F.R. § 173.303, *et seq.*

manufacturers and blenders, as well as subject imports, serve both segments. Indeed, major OEM customers, such as Carrier, Johnson Control, and Trane, serve both the air conditioning and the refrigeration markets.[20] These two major end-uses may be subdivided into the following categories:

- Residential air conditioning and heat pumps. The residential market includes central and unitary air conditioning systems, heat pumps and dehumidifiers.

- Commercial air conditioning. Commercial applications use different air conditioning systems than residential dwellings, depending on the size of the building. HFC blends are typically used in decentralized systems found in hotels, shopping malls, and other commercial buildings where the air conditioning requirements are not the same for all points of use or the overall system is less than 100 tons in capacity.[21]

- Commercial refrigeration. A major portion of the commercial refrigeration market consists of low- and medium-temperature refrigeration for supermarket display and storage cases and walk-in coolers. Commercial refrigeration also includes greenhouse, industrial, and food-service refrigeration.

- Transportation refrigeration. The transportation refrigeration market includes refrigerated truck trailers, rail cars, ships and airplanes. Transport refrigeration also includes refrigerated containers for ocean and inter-modal shipping, refrigerated cargo ships (reefers), HVAC chillers for cruise and other passenger ships, refrigeration systems for provision stores, galleys,

[20] *See, infra,* Section III(A) and Table 3.

[21] In contrast, large office buildings with a central air conditioning system tend to use centralized "chillers" to cool the entire building. Centralized chillers have capacities ranging from ten tons to thousands of tons. The large majority of centrifugal chillers in large tonnage systems (over 100 tons) use R-134a and not HFC blends. It is difficult to use R-410A in large chillers because it is a high-pressure refrigerant and therefore requires greater compressor horsepower to design and operate such a system. *See, e.g.,* M. Naitove, "Six Things You Should Know About New Eco-Friendly Chillers," *Plastics Technology*, April 2010, *available online at* http://www.ptonline.com/articles/six-things-you-should-know-about-new-eco-friendly-chillers, *last accessed* April 11, 2015; McQuay Air Conditioning, "Applications Bulletin," dated January 2002, *available online at* http://www.ee-solutions.com/resources/Shared%20Documents/Common%20Refrigerants%20and%20Choices%20for%20Chiller%20Plants.pdf, *last accessed* April 11, 2015.

technical spaces and ice rinks, and refrigeration and chillers for navy ships and special marine applications.

- Process refrigeration. Process refrigeration refers to large equipment, typically 25 kW and over, used in food processing and cold storage, chemical manufacturing, and municipal cooling. Typical applications for HFC blends in petrochemical and chemical processing include compression used in production or recovery of natural gas liquids, ammonia, propane, and propylene.[22]

Given that the HFC blends were largely designed to replace R-22, there is substantial overlap in the use of HFC blends for different applications, as shown by Table 2, below. For example, since R-22 was banned in new equipment in 2010, R-410A has become the most widely used refrigerant in newly installed residential air conditioning systems. R-407C is a widely used retrofit replacement for R-22 in existing residential air conditioning systems. In commercial air conditioning applications, R-407C is also used as a retrofit refrigerant to replace R-22 in existing equipment, while R-410A is used in new systems. In food display and storage cases, cold storage rooms, ice machines, transportation and process refrigeration, R-404A is the most widely used HFC blend to replace R-22. However, R-407A, R-407C and R-507A are also used in these applications, particularly if the R-22 equipment is being retrofitted rather than replaced by a new system. Several blends can be used in process refrigeration, depending upon the process gas and the specific temperature requirements of the refrigeration application.

[22] *See, e.g.,* Linde, "Transport Refrigeration," *available online at* http://www.linde-gas.com/en/processes/refrigeration_and_air_conditioning/transport_refrigeration/index.html, *last accessed* April 7, 2015; European Fluorocarbons Technical Committee (EFCTC), "Fluororcarbons & Sulphur Hexafluoride: Refrigeration Applications," available online at https://www.fluorocarbons.org/the-hfc-debate/applications/refrigeration/refrigeration-applications, *last accessed* April 9, 2015.

Table 2: HFC Blends and typical end-use applications					
End-use application	**R-404A**	**R-407A**	**R-407C**	**R-410A**	**R-507A**
Residential a/c and heat pumps	Yes		Yes	Yes	
Commercial a/c			Yes	Yes	Yes
Commercial refrigeration	Yes	Yes	Yes		Yes
Transport refrigeration	Yes	Yes	Yes	Yes	
Process refrigeration	Yes	Yes	Yes	Yes	Yes

Turning to HFC components, the most important end-use is in the production of blends. As they are flammable, R-32 and R-143a are only sold in the U.S. market for use in producing the HFC blends.[23] There is a small market for R-125 in fire suppression systems where water from a sprinkler system would damage equipment or other articles, but the large majority of R-125 production is also consumed in HFC blends.[24]

d. Channels of distribution

As discussed above, HFC blends are used in low- to medium-temperature applications as replacements for HCFCs such as R-22. HFC blends therefore are primarily suited for use in stationary air conditioning and refrigeration. As noted above, many of the same customers serve both the air conditioning and the refrigeration markets. The major original equipment manufacturers of air conditioning and refrigeration systems purchase HFC blends in bulk quantities, either imported in ISO tanks or bulk returnable tanks or shipped domestically by rail car. These customers then charge new air conditioning and refrigeration systems, *e.g.*, ice

[23] Despite being flammable, R-32 is sold in China for use in residential air conditioning systems, because its global warming potential is significantly lower than that of R-410A. However, it is not approved in the United States for residential air conditioning.

[24] *E.g.*, **Exhibit I-9**, DuPont™ Pentafluorine, "Product Safety Summary Sheet."

machines, before sale.[25] The same OEM companies also sell HFC blends into the service and replacement market. To supply the aftermarket, OEM equipment manufacturers may purchase HFC blends already packaged in 24-lb. to 50-lb. disposable cylinders, which are the typical sizes used by service technicians. These cylinders are supplied directly to OEM manufacturers, such as [customer], or in other cases are distributed by importers and blenders/repackagers, such as [names].

Apart from the OEMs, distributors and service contractors also supply the aftermarkets for air conditioning and refrigeration. These distributors and service contractors may purchase HFC blends directly from U.S. or Chinese producers, or from blenders and repackagers that buy HFC blends in bulk and break down the bulk quantities into 24-lb. to 50-lb. cylinders. The blenders and repackagers import HFC components in bulk ISO containers or returnable cylinders, perform the blending operations in the United States, and then fill smaller cylinders for sale.

Unlike R-134a, which is primarily sold for use in automotive air conditioning, the HFC blends are not used in automotive air conditioning and are not sold through retailers directly to consumers for do-it-yourself installation.[26] Residential and commercial systems using HFC blends are serviced by trained technicians and are not recharged by typical consumers.[27] Thus,

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[25] Supermarkets requiring refrigerant to the food display and storage cases will have the equipment installed in the supermarket without refrigerant. The refrigerant is then "field filled" by contractors once the equipment is in place.

[26] USITC Pub. 4503 at II-1, fn 3; II-2.

[27] Pursuant to the Clean Air Act, as amended in 1990, trained technicians must service residential and commercial air conditioning and refrigeration equipment. CAA § 608, 42 U.S.C. §7671(g).

HFC blends contrast with R-134a, in that blends are not sold through retailers such as AutoZone or Walmart.

Finally, component HFCs are almost entirely sold to blenders that produce HFC blends for sale in the foregoing channels. Only a very small portion of the domestic producers' production of component HFC shipments are sold "as-is" into the fire suppression and propellant markets. The manufacturers of the component HFCs, including Arkema, Chemours, and Honeywell, are all producers of component HFCs and HFC blends.[28] In addition, there are companies that only blend HFC components, such as National or Weitron.

2. Tariff classification of HFC blends and components

Attached as **Exhibit I-10** are the relevant subheadings of the Harmonized Tariff Schedules of the United States ("HTSUS"). HFC blends are classified under subheading 3824.78.0000, HTSUS, which includes mixtures containing "perfluorocarbons (PFCs) or hydrofluorocarbons (HFCs)." However, because it is not limited to HFC blends, this subheading is broader than the scope of the investigation requested by this petition.

Single component HFCs are classified under subheading 2903.39.2030, as "Fluorinated hydrocarbons … other." This subheading includes all component HFCs other than R-134a, which is classified under subheading 2903.39.2020, HTSUS. The subheading, therefore, is also broader than the HFC components covered by this petition. The foregoing description of the

[28] For example, [company and component

].

product, not the HTSUS subheadings or the CAS numbers of the HFC blends and components, should define the scope of the requested investigation.

3. R-134a, patented HFC blends, and other (non-HFC) refrigerant blends are outside the scope of the investigation requested by this petition

R-134a, or 1,1,1,2-Tetrafluoroethane, is another HFC component used in the blending of R-404A, R-407A, and R-407C. But, R-134a is not covered by this petition. R-134a was subject to the antidumping and countervailing duty investigations that concluded in October 2014.[29] As noted above, the negative determination of material injury in those investigations is currently pending appeal.[30] There is a substantial merchant market for unblended R-134a. The single component HFCs covered by this petition, in contrast, are primarily used to manufacture HFC blends, which are in turn used in stationary air conditioning and refrigeration applications.

Moreover, R-134a is a medium- to high-temperature refrigerant, in contrast to the HFC blends, which are low- to medium-temperature refrigerants. R-134a was designed to replace R-12 in automotive air conditioning, residential refrigeration, propellant, foam and pharmaceutical applications.[31] In contrast, the HFC blends were designed to replace R-22, particularly in residential and commercial air conditioning and commercial refrigeration applications. For these reasons, R-134a when imported as an unblended HFC is excluded from the scope of this petition.

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[29] *1,1,1,2-Tetrafluoroethane from China,, supra*, USITC Pub. 4503.

[30] *See* USITC Pub. 4503, *appeals pending, supra,* Nos. 15-00004 and 15-00005.

[31] USITC Pub. 4503 at I-13 – 15.

Also excluded from the scope of this petition are patented HFC blends, such as ISCEON® blends[32] or Genetron® Performax™ LT (R-407F). These products are covered by patents in the United States and other markets, and are not being imported from China.[33]

Finally, CFCs, HCFCs, HFOs, and blends including these non-HFC components are outside the scope of this petition. CFCs, or chlorofluorocarbons, are physically distinct chemicals that include a chlorine molecule and have different properties than HFCs – in particular, the CFCs and HCFCs are ozone depleting. CFCs are covered by the Montreal Protocol and were phased out in new equipment in the United States starting in 1996. HCFCs, or hydrochlorofluorocarbons, also include chlorine molecules. The resulting physical characteristics more closely resemble the CFC's, particularly in that the HCFCs and HCFC blends cause ozone depletion (although not to the same degree as CFCs). This family of refrigerants, which includes R-22 and R-502, is covered by the Montreal Protocol and has been or is being replaced by HFC blends.[34]

HFO's, or hydrofluoroolefins, are the latest or fourth generation of refrigerants. This class of refrigerants consists of olefins that have a very short atmospheric lifetime. In other words, HFOs have a distinctly different global warming potential than do HFCs. HFOs are

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[32] ISCEON® blends include MO99™ (RR-438A), MO79 (R-422A), MO59 (R-417A), MO49*Plus*™ (R-437A) and MO29™ (R-422D).

[33] *See, e.g., Certain Cased Pencils From the People's Republic of China: Notice of Initiation and Preliminary Results of Antidumping Duty Changed Circumstances Review*, 80 Fed. Reg. 10,457, (Feb. 26, 2015) (excluding certain patented cased pencils from the scope of the order).

[34] The "400-series" nomenclature may be confusing. For example, R-401A, R401B, R402A, R402B, R408A and R409A are HCFCs or blends that include HCFCs. Similarly, R-422A and R-422D are blends that include HC-600a, which is not an HFC. These products include refrigerants that are not single component HFCs and are outside the scope of the requested investigation.

derivatives of alkenes (olefins); HFCs are derivatives of alkanes. HFO production involves different raw materials and processes. Also, HFOs currently on the market are patented products not yet facing competition from Chinese imports, and they are currently being used in automotive applications to replace R-134a, not R-22.

4. Requested Scope Language

Based on the foregoing product description and attached exhibits, as well as the description of the production process that follows, this petition requests the following scope language:

> The products subject to this investigation are blended hydroflurocarbons ("HFCs") and single HFC components of those blends thereof, whether or not imported for blending, including the following: **R-404A**, a zeotropic mixture consisting of 52 percent 1,1,1-Trifluoroethane, 44 percent by weight Pentafluoroethane, and 4 percent 1,1,1,2-Tetrafluoroethane; **R-407A**, a zeotropic mixture of 20 percent Difluoromethane, 40 percent Pentafluoroethane, and 40 percent eight 1,1,1,2-Tetrafluoroethane; **R-407C**, a zeotropic mixture of 23 percent Difluoromethane, 25 percent Pentafluoroethane, and 52 percent 1,1,1,2-Tetrafluoroethane; **R-410A**, a zeotropic mixture of 50 percent Difluoromethane and 50 percent Pentafluoroethane; and **R-507A**, an azeotropic mixture of 50 percent Pentafluoroethane and 50 percent 1,1,1-Trifluoroethane also known as R-507. The foregoing percentages are nominal percentages by weight. Actual percentages of single component refrigerants by weight may vary by plus or minus two percent points from the nominal percentage identified above.
>
> R-404A is sold under various trade names, including Forane® 404A, Genetron® 404A, Solkane® 404A, Klea® 404A, and Suva®404A. R-407A is sold under various trade names, including Forane® 407A, Solkane® 407A, Klea®407A, and Suva®407A. R-407C is sold under various trade names, including Forane® 407C, Genetron® 407C, Solkane® 407C, Klea® 407C and Suva® 407C. R-410A is sold under various trade names, including EcoFluor R410, Forane® 410A, Genetron® R410A and AZ-20, Solkane® 410A, Klea® 410A, Suva® 410A, and Puron®. R-507A is sold under various trade names, including Forane® 507,

Solkane® 507, Klea®507, Genetron®AZ-50, and Suva®507. R-32 is sold under various trade names, including Solkane®32, Forane®32, and Klea®32. R-125 is sold under various trade names, including Solkane®125, Klea®125, Genetron®125, and Forane®125. R-143a is sold under various trade names, including Solkane®143a, Genetron®143a, and Forane®125.

The subject merchandise also includes the following single component hydrofluorocarbons used to produce the foregoing blends: **R-32**, **R-125**, and **R-143a**. **R-32** or Difluoromethane has the chemical formula CH_2F_2, and is registered as CAS No. 75-10-5. It may also be known HFC-32, FC-32, Freon-32, Methylene difluoride, Methylene fluoride, Carbon fluoride hydride, halocarbon R32, fluorocarbon R32, and UN 3252. **R-125** or 1,1,1,2,2-Pentafluoroethane has the chemical formula CF_3CHF_2 and is registered as CAS No. 354-33-6. R-125 may also be known as R-125, HFC-125, Pentafluoroethane, Freon 125, and Fc-125, R-125. **R-143a** or 1,1,1-Trifluoroethane has the chemical formula CF_3CH_3 and is registered as CAS No. 420-46-2. R-143a may also be known as R-143a, HFC-143a, Methylfluoroform, 1,1,1-Trifluoroform, and UN2035.

This investigation includes any Chinese HFC components that are blended in a third country to produce a subject HFC blend before being imported into the United States. Also included are semi-finished blends of Chinese HFC components. Semi-finished blends are blends of one or more of the single-component Chinese HFCs used to produce the subject HFC blends, whether or not blended in China or a third country, that have not been blended to the specific proportions required to meet the definition of one of the subject HFC blends described above (R-404A, R-407A, R-407C, R-410A, and R-507A). Single-component HFCs and semi-finished HFC blends are not excluded from the scope of this investigation when blended with HFCs from non-subject countries.

Excluded from this investigation are blends of refrigerant chemicals that include products other than HFCs, such as blends including chlorofluorocarbons (CFCs) or hydrochlorofluorocarbons (HCFCs).

Also excluded from this investigation are patented HFC blends, such as ISCEON® blends, including include MO99™ (RR-438A), MO79 (R-422A), MO59 (R-417A), MO49*Plus*™ (R-437A) and MO29™ (R-4 22D), and Genetron® Performax™ LT (R-407F).

> HFC blends covered by the scope of this investigation are currently classified in the Harmonized Tariff Schedule of the United States ("HTSUS") at subheading 3824.78.0000. Single component HFCs are currently classified at subheading 2903.39.2030, HTSUS. Although the HTSUS subheading and CAS registry number are provided for convenience and customs purposes, the written description of the scope is dispositive.

D. Country of Exportation

The HFC blends and component HFCs subject to this petition are produced in the People's Republic of China. As noted above, this petition includes Chinese single-component HFCs and semi-finished HFC blends that are blended together in any third country to produce a subject HFC blend before being imported into the United States.

E. Chinese Producers and Exporters of the Subject Merchandise

There are more than 20 Chinese producers of HFC blends and components. The Chemical Economics Handbook ("CEH") report from February 2014 identifies eighteen manufacturers of HFCs and HFC blends and provides capacity for each manufacturer.[35] However, there are other manufacturers in China, including Zhejiang Yonghe Refrigerant Co., Ltd. (Ice Loong), which has reported 100,000 tons capacity and has been circulating offers for HFC blends over the past several months at prices substantially below other suppliers. A list of known producers and exporters in China is included in **Exhibit III-1**.

[35] **Exhibit II-13** at 114.

F. Volume and Value of Imports

The volume and value of U.S. imports of HFC blends and components from China and other countries are set forth in **Exhibit II-1** for calendar years 2012, 2013 and 2014, and for interim 2014 and 2015. These data are based on Census Bureau statistics collected by HTSUS subheading. As noted above, however, the relevant HTSUS subheadings and corresponding Census import statistics do not separately break out HFCs blends subject to this petition from other blends that may include PFCs. Nor are the single-component HFCs separately broken out from other "fluorinated hydrocarbons" other than R-134a. As such, the Census statistics are defined to include fluorocarbons outside the scope of this petition.

More importantly, when compared to ships' manifest data and Chinese export statistics, Census data for HTSUS subheading 3824.78.0000, fall far short of the volume of imports of HFC blends indicated by other sources. Accordingly, the volume and value of imports has also been identified from ships' manifest data reported by Zepol and PIERS and from Chinese export statistics published by Global Trade Atlas ("GTA"). These data are included in **Exhibit II-2.** As shown, the ships' manifest data and Chinese export statistics indicate a substantially larger volume of HFC blends – and a far more significant increase in that volume – than is shown by the Census data. As set forth in greater detail in **Exhibit II-3**, company analysis of these data confirm that the Census data understate the total volume of imports of HFC blends.

G. Names and Addresses of U.S. Importers

Based on information reasonably available to Petitioners, a list of known importers of HFC blends and component HFCs from China during the 12-month period preceding the filing of this petition is included in **Exhibit II-4.**

III. THE U.S. INDUSTRY HAS BEEN MATERIALLY INJURED BY REASON OF DUMPED IMPORTS OF HFC BLENDS AND COMPONENTS FROM CHINA

A. The Domestic Like Product is Coextensive With the Scope and Consists of HFC Blends and Component HFCs, Excluding R-134a

For purposes of assessing industry support for this petition and the impact of the subject imports on domestic producers of the like product, the domestic like product should be defined in a way that is co-extensive with the scope of the petition, that is, HFC blends and single HFC components thereof.

1. The domestic like product consists of HFC blends and single-component HFCs

a. HFC blends produced to replace HCFCs in stationary air conditioning and refrigeration applications constitute a single like product

Section 771(10) of the 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."[36] In making its determination regarding like products, the Commission generally considers a number of factors, including: (1) physical characteristics and uses; (2) interchangeability; (3) channels of distribution; (4) customer and producer perceptions of the products; (5) common manufacturing facilities, production processes, and production employees; and, where appropriate, (6) price.[37] Based on these six factors, and consistent with all prior investigations, the Commission should find that HFC blends constitute a single like product.

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[36] 19 U.S.C. § 1677(10).

[37] *See Nippon Steel Corp. v. United States*, 19 CIT 450, 455 n. 4 (1995); *Timken Co. v. United States*, 913 F. Supp. 580, 584 (Ct. Int'l Trade 1996).

First, HFC blends are similar in physical characteristics and uses. HFC blends by definition consist of hydroflurocarbons – HFC's –which do not cause ozone depletion. This class of chlorine-free refrigerants was designed to replace HCFCs and CFCs precisely to eliminate ozone depletion in accordance with the requirements of the Montreal Protocol. HFC blends are low- and medium-temperature refrigerants, which limits their use to specific applications including residential and commercial air conditioning, commercial refrigeration, transport refrigeration and process refrigeration. As a group, HFC blends are non-flammable, recyclable, energy-efficient and low toxicity. These characteristics ensure that HFC blends are suitable for identical or similar applications. In short, HFC blends have similar physical characteristics and overlapping end-use applications.

Second, all of the HFC blends are used in the same or overlapping applications. Some HFC blends are interchangeable with each other (*e.g.*, R-407A or R-407C for R-404A), and other HFC blends can be used in the same application, albeit in different equipment. As shown by Table 2, *supra*, certain blends are more often used in air conditioning, such as R-410A in residential air conditioning, and others are more often used in refrigeration, such as R-404A in commercial refrigeration. Overall, the HFC blends fall along a continuum of performance characteristics, including efficiency, operating pressure, discharge temperature, and global warming potential, and therefore have applications across a range of low- to medium-refrigeration end-uses.[38] These incremental differences in properties and applications do not

[38] *See, generally,* Emerson, *supra*, **Exhibit I-6**.

define separate like products.[39] Rather, as the Commission has found in prior cases, the HFC blends have common end uses as substitutes for R-22 in air conditioning and refrigeration.

Third, HFC blends are sold through the same channels to the same end-users. Within the residential and commercial air conditioning markets, HFC blends are sold to OEMs and in the replacement market. As shown, above, most of the OEMs participate in the replacement market through their dealers and service technicians. Within the refrigeration segment of the market, many of the same OEMs that sell air conditioning equipment also sell refrigeration equipment. These OEMs provide original equipment and service in the same manner in both segments of the market. There are also independent service providers in both the refrigeration and the air conditioning markets. These companies will typically purchase HFC blends in 24-lb. to 50-lb. tanks. Aftermarket service companies buy from domestic HFC manufacturers and blenders, as well as from importers.

Fourth, customers and producers categorize HFC blends as third-generation refrigerants, designed to have no ozone-depleting impact and to comply with the Montreal Protocol. By virtue of their physical characteristics, HFC blends are classified as safe (non-flammable), efficient, and suitable for use in low- and medium-temperature refrigeration. As such, this class

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[39] *See, e.g., Sodium Azide from Japan*, Inv. No. 731-TA-740 (Prelim.), USITC Pub. 2948 (March 1996) at 5 n.28, 1996 ITC LEXIS 529, at 11 (noting that "{t}he absence of complete interchangeability among the different end uses of sodium azide does not require the finding of separate domestic like products"); *Polyethylene Terephthalate Film, Sheet, and Strip from Japan and the Republic of Korea*, Inv. Nos. 731-TA-458-459 (Final), USITC Pub. 2383 (May 1991) at 8 (finding a single like product though "end use alone would argue for finding literally dozens of separate like products" given the "many distinct end uses for different types of PET film"), 11-12 (noting that "the Commission has never viewed complete interchangeability as a definitive requirement for the inclusion of multiple domestic products in a single like product").

of refrigerants is generally regarded as the replacement for HCFCs such as R-22.[40] The manner in which HFC blends are advertised and positioned within the market illustrates that HFC blends are regarded as a common class of refrigerants.[41]

Fifth, each of the HFC blends are manufactured by the integrated producers, Arkema, Chemours, and Honeywell, in the same facilities, using the same workforce and equipment that produce other HFC blends.

Sixth, HFC blends from China are typically offered at prices within a relatively narrow range, from less than $2.00 per lb. to $2.50 per lb. when offered in similar (here, truckload) quantities. As illustrated by **Exhibits II-7** and **III-18**, these HFC blends are offered on the same price lists to the same customers.

For all of these reasons, HFC blends constitute a single like product within the meaning of Section 771(10) of the Act and for the reasons relied upon by the Commission in past cases.[42]

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[40] As discussed below, HFC blends are distinct from HCFCs (or blends including HCFCs) in that HFC blends are not ozone-depleting. Likewise, HFC blends are distinct from the fourth-generation of refrigerants, HFOs, insofar as HFC blends have a significant global warming potential if released into the atmosphere.

[41] *See, e.g.,* **Exhibit I-3**.

[42] *See, e.g., Certain Polyester Staple Fiber from China,* Inv. No. 731-TA-1104 (Final), USITC Pub. 3922 (June 2007) (finding "no clear dividing line" between CIPP PSF and other forms of certain PSF under the six like product factors and concluding that CIPP PSF is part of a single like product encompassing all PSF products); *see also Nippon Steel v. United States*, 19 CIT 450, 457 (1995) (citing *R-M Indus., Inc. v. United States*, 848 F. Supp. 204, 210 n.9, 18 Ct. Int'l Trade 219 (Ct. Int'l Trade 1994)) (holding that "the Commission is not required to find that products must be completely interchangeable" to be defined as a single like product).

b. Single component HFCs used to produce the HFC blends should be included in the "like product" for purposes of this investigation

In performing its semi-finished product analysis, the Commission traditionally examines: (1) whether the upstream article is dedicated to the production of the downstream article or has independent uses; (2) whether there are perceived to be separate markets for the upstream and downstream articles, (3) differences in the physical characteristics and functions of the upstream and downstream articles, (4) differences in the costs or value of the vertically differentiated articles; and (5) the significance and extent of the processes used to transform the upstream into the downstream articles.[43]

First, HFC components, R-32, R-125, and R-143a, are predominantly used to produce HFC blends. Because it is flammable, R-32 has no other commercial application in the United States. R-125 is capable of being used as a fire suppressant, but the volume of R-125 sold for use in blends far exceeds the volume used as fire suppressants. Notably, in contrast to R-125, R-134a is sold in large volume for use in automobile air conditioning systems. R-134a is therefore appropriately treated as a separate "like product" and was treated as such in the recent investigations.[44]

Second, HFC components and HFC blends ultimately supply the same market. Because HFC components are primarily or exclusively used for the production of HFC blends, there is no distinction in the end-uses or market segments to which HFC blends and HFC components are

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[43] *See, e.g., Low-Enriched Uranium from France, Germany, the Netherlands, and the United Kingdom*, Inv. Nos. 701-TA-409-412 (Prelim.) and 731-TA-909-912 (Prelim.), USITC Pub. 3388 at 5-6 (Jan. 2001); *Uranium from Kazakhstan*, Inv. No. 731-TA-539-A (Final), USITC Pub. 3213 at 6 n. 23 (July 1999); *Saccharin from China* Inv. No. 731-TA-1013 (Prelim.), USITC Pub. 3535 at 6, n. 31 (Sept. 2002).

[44] USITC Pub. 4503 at 7; USITC Pub. 4444 at 7.

destined. And, even to the extent that there are small separate markets for R-125 (fire suppression) and R-143a (propellants), the large majority of these components are sold for use in making blends.[45]

Third, the upstream HFCs have similar and complimentary physical properties that contribute to the properties of the blends. None of the HFC components are ozone-depleting. All of the components are low- to medium-temperature refrigerants. All are colorless gases. HFC blends are designed precisely to take advantage of these properties. There are some differences between HFCs, but these differences are exploited to produce HFC blends with desired properties. For example, R-32 is slightly flammable and therefore poses a safety hazard in residential or commercial air conditioning differences. But, when blended to produce R-407C or R-410A, the result is not flammable. At the same time, R-32 has a low global warming potential relative to other HFCs and blends. Thus, adding R-32 to the blend tends to reduce the global warming potential.

Fourth, as shown by the normal value calculations found in **Exhibit III-5**, the costs to produce different HFC components and the resulting costs to produce HFC blends are comparable in magnitude.

Fifth, the blending process used to transform component HFCs into blends is not as significant as the process to produce component HFCs. Unlike the manufacture of R-32, R-125 or R-143a, blending HFCs does not require a chemical reaction, involve substantial energy or labor inputs, or generate by-products. As shown by the bills of materials submitted to support

[45] **Exhibit I-7.**

the calculation of normal value, the total costs incurred in blending the HFC components are a small fraction of the costs incurred to manufacture those components.[46]

When the scope of an antidumping duty investigation includes both upstream and downstream products, the Commission generally has relied upon the foregoing factors to determine whether there is a single like product, even when the upstream products "function as both finished and semi-finished products."[47] Here, given that the single component HFCs are primarily used to produce the HFC blends, the factors support the conclusion that there is a single like product produced by a single domestic industry.[48]

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[46] *See* **Exhibit III-5.**

[47] *See, e.g., Certain Wax and Wax/Resin Thermal Transfer Ribbons from France and Japan,* Inv. Nos. 731-TA-1039 – 1040 (Final) (Remand), USITC Pub. 3854 at 2-5 (April 2006); *Crystalline Silicon Photovoltaic Cells and Modules from China*, Inv. Nos. 701-TA-481 and 731-TA-1190 (Prelim), USITC Pub. 4295 (Dec. 2011)(finding one domestic like product using the semi-finished product analysis because nearly all CSPV cells are dedicated to the production of PV modules, both cells and modules are sold in similar markets, both CSPV cells and modules share the same primary physical characteristics, cells represent a substantial portion of the cost and the value of a finished module, and cells undergo only one major production step before transformation into modules); *Artists' Canvas from China*, Inv. No. 731-TA-1091 (Final), USITC Pub. 3853 (May 2006) (finding that artists' canvas bulk rolls that are sold as is, as well and the finished further processed products constitute one like product under the semi-finished product analysis); *Certain Tow-Behind Lawn Groomers and Parts Thereof from China*, Inv. Nos. 701-TA-457 and 731-TA-1153 (Final), USITC Pub. 4090 (July 2009)(confirming the preliminary phase finding that using the semi-finished analysis TBLG parts and TBLG were all one domestic like product); *Drill Pipe and Drill Collars from China*, Inv. Nos. 701-TA-474 and 731-TA-1176 (Final), USITC Pub. 4213 (Feb.2011) (finding that drill pipe and drill collars constitute a single like product because there is no clear dividing line between the two products under the semi-finished product analysis).

[48] It may be noted that the individual components, i.e., R-32, R-125 and R-143a, need not be "like" each other pursuant to the traditional like product test. Where an investigation covers finished products (blends) and parts thereof (components) the parts may have very different characteristics and uses vis-à-vis each other. For example, the three major components of personal word processors, *i.e.*, key boards, displays and printers, are not "like" each other. *Certain Personal Word Processors from Japan*, Inv. No. 731-TA-483 (Final), USITC Pub. 2411 at A-11 (August 1991)

2. R-134a, CFCs, HCFCs and HFOs (and blends thereof) should be excluded from the "like product" for purposes of this investigation

There are important physical differences between HFC blends and R-134a that result in a significant differences in end-use applications. R-134a is a medium- to high-temperature refrigerant, suitable as a replacement for R-12. In contrast, HFC blends are low- or medium-temperature refrigerants, suitable for replacement of R-22. HFC blends exhibit "glide," or a change in the boiling point, and may fractionalize into separate components. Because R-134a is a single component HFC, it does not exhibit "glide" or fractionalize.

Most importantly, R-134a is used in a variety of applications other than the production of HFC blends. "{T}he automotive aftermarket … is {} the largest segment of the total R-134a market."[49] R-134a is also used in the OEM automotive market, household refrigeration, foam blowing of building insulation, pharmaceutical applications or as a propellant.[50] HFC blends are not used in these applications. The largest end-use market for HFC blends is the residential air conditioning market. The only overlap between R-134a and HFC blends is in the market for commercial refrigeration, but even within that market, R-134a and HFC blends are used in different equipment. Otherwise, HFC blends are not sold for use in residential refrigeration, foam blowing, pharmaceutical applications, or as propellants, all of which are applications for R-134a.

Regarding other refrigerants, CFCs and HCFCs contain chlorine and are ozone-depleting compounds. These refrigerants have been banned for use in new equipment and phased-out for

[49] USITC Pub. 4503 at 23 (footnote omitted).

[50] *See* USITC Pub. 4503 at 12.

use in the replacement market. The different physical characteristics of HFC blends are precisely the reason that HFC blends have not been banned from or phased out of the market. HFOs likewise have different physical characteristics than HFCs and are currently being used in different end-use markets. As noted above, HFOs are derivatives of alkenes (olefins) with a very low global warming potential. HFO production involves different raw materials and processes. HFOs are currently being used in automotive applications to replace R-134a, which replaced R-12, and not to replace R-22 or HFC blends.

For these reasons, HFC blends are recognized in the industry and market as a separate class of refrigerants. By virtue of their common characteristics, described above, HFC blends constitute a single "like product" for purposes of Section 771(10) of the Act. And, by virtue of those same physical characteristics and end uses, other types of refrigerants are not sufficiently similar to be included in the domestic like product. Stated differently, the like product for purposes of the investigation requested by this petition should be co-extensive with the scope of the investigation.

B. Subject Imports Surpass the Negligibility Threshold

Pursuant to section 771(24) of the Act, 19 U.S.C. § 1677(24)(A)(i), imports from any single country that account for less than 3 percent of the total import volume in the most recent 12-month period for which data are available that precedes the filing of the petition are considered negligible. **Exhibit II-1** sets forth the volume and value of imports of HFC blends, as identified from the Census statistics for HTSUS subheadings 3824.78.0000 and 2903.39.2030. Albeit imports under these subheadings are not strictly limited to HFC blends and blend components, these data reasonably indicate that imports of HFC blends and components are far

more than "negligible" within the meaning of the statute. As shown, China accounted for over 87 percent of imports of PFC and HFC blends, by volume, in 2014, and over 92 percent of component HFCs, by volume, in the same year. Moreover, as discussed above and shown by **Exhibits II-2** and **II-3**, the Census data tend to understate actual imports of HFC blends from China.

C. Conditions of Competition

1. Demand for HFC blends is driven primarily by the replacement of HCFCs in air conditioning and refrigeration applications

Demand for HFC blends (as well as the single components used to produce those blends) is stable or slowly increasing. Demand for HFC blends is derived from their end use as a replacement for R-22, whether in new equipment replacing an R-22 system or in existing equipment retrofitted to accommodate HFC blends. Demand for HFC blends is in part a function of the installation of new air conditioning and refrigeration equipment. Also, as the installed base of air conditioning and refrigeration equipment using HFC blends rises, demand for HFC blends in the replacement market will also rise. However, the shift from R-22 to HFC blends has been underway for many years and was well-established even before the commencement of the period of investigation for this case.

2. HFC blends and components are chemicals typically sold by contract or on a spot basis

The domestic industry generally sells bulk HFC blends and single-components on a contract basis. However, typical contracts [

contract terms

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Otherwise, prices to the aftermarket are determined on a sale-by-sale basis. In this environment, the presence of wide-spread offers to supply Chinese HFC blends and components at low prices inevitably depresses U.S. price levels.[51]

D. HFCs Blends and Components from China Have a Significant, Negative Impact on the Domestic Industry

1. The volume of HFC blends and components from China is significant and increasing

The statute instructs the Commission to consider "whether the volume of imports of the merchandise {under investigation}, or any increase in that volume, either in absolute terms or relative to production or consumption in the United States, is significant."[52] Here, the volume of imports of HFC blends and components from China, and the increase in that volume, absolutely and relative to U.S. production and consumption, have been unquestionably "significant."

As discussed above, the volume and value of imports reported by the Census statistics does not accurately reflect the volume of imports of HFC blends and single-component HFCs. The tariff subheading covering single-component HFCs, 2903.39.2030, HTSUS, is a basket category that also includes "other" fluorinated hydrocarbons. The tariff subheading covering HFC blends, 3824.78,0000, HTSUS, is also a basket category and includes HFC and PFC blends. However, as shown by the ships' manifest data and by the Chinese export statistics published by GTA, the Census data substantially understate imports of HFC blends. Hence, for purposes of Table 4, below, import volume is based on ships' manifest data, as indicated below. As the

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[51] *See also* **Exhibit II-7**, [impact of offers].

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

ships' manifest data do not include value, however, average unit values are based on Census statistics.

Table 4 sets forth the total volume and value of HFC blends and components imported from China. As shown, imports of HFC blends increased [100] percent by volume from 2012 to 2014. At the same time, the average unit value of those imports fell 50.2 percent, from $7.60/kg. to $3.78/kg. Likewise, imports of HFC components, primarily R-32 and R-125—the components used to produce R-410A—increased [20] percent from 2012 to 2014, and the average unit value of such component imports declined 24.3 percent.

Table 4.—HFC Blends and Components, Imports from China, by Volume and Value, 2012-2014 and 1st Quarter 2014-2015

	2012	2013	2014	1st Qtr 2014	1st Qtr 2015	%-change 2012-2014
Imports of HFC Blends from China:						
Volume (mt)	[100]	[ ]	[200]	[ ]	[ ]	[ ]
Avg. unit value ($/kg)	7.60	5.09	3.78	3.45	3.68	-50.2%
Imports of HFC Components from China:						
Volume (mt)	[100]	[ ]	[120]	[ ]	[ ]	[ ]
Avg. unit value ($/kg)	4.64	3.56	3.52	3.27	3.35	-24.3%

Source: Volume data per **Exhibit II-2**. AUVs based on Census data, **Exhibit II-1**.

2. The volume of subject imports is increasing relative to consumption and domestic production

Table 5 sets forth trade data applicable to HFC blends and components. Because the large majority of components are consumed in manufacturing blends, including imports of components, as well as the blends made from those components by U.S. blenders, the data tend to overstate apparent consumption. Nevertheless, the market penetration achieved by subject imports from China is significant when compared to consumption and is increasing over the period 2012-2014 and first quarter 2014 and 2015.

Table 5.—HFC Blends and Components, Apparent Domestic Consumption, Imports from China, Other Imports, Domestic Shipments and Market Share, 2012-2014 and 1st Quarter 2014-2015

(Metric Tons)	2012	2013	2014	1st Qtr 2014	1st Qtr 2015	%-change 2012-2014
Apparent Domestic Consumption	[100]	[ ]	[100]	[ ]	[100]	[ ]
US Producer Shipments	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Imports from China	[25]	[ ]	[35]	[ ]	[40]	[ ]
All Other Imports	3,475	2,341	2,919	550	516	-16.0%
Market share:						
US producers (%)	[ ]	[ ]	[ ]	[ ]	[ ]	
Imports from China (%)	[25]	[ ]	[35]	[ ]	[40]	

Source: **Exhibits II-2** (Chinese imports), **II-5** (US producer shipments), and **II-1** ("All Other Imports" based on Census statistics for subheading 3824.78.0000, HTSUS).

1. Subject imports have undersold U.S. producers' prices

Section 771(7)(C)(ii)(I) of the Act, 19 U.S.C. § 1677(7)(C)(ii)(I), instructs the Commission to consider whether there was "significant price underselling" by subject imports compared to the pricing of the domestic like product. To analyze underselling, the Commission first identifies pricing products that permit a comparison of prices for the same products. Such products are identified below. Remarkably, the offered list prices of many of the pricing products from China are below U.S. producers' net prices.

a. Prices must be collected with respect to direct imports

Several major blenders are direct importers of HFC components and several OEM customers are major importers of HFC blends and components. **Exhibit II-6** identifies the volume of imports of each HFC blend and component by consignee. Among others, the following OEMs and blenders imported subject merchandise directly from China: [

customer names

]. All of these importers are end-users or blenders/repackers. The same importers also purchased HFC blends and components directly from the domestic industry during the period of investigation.

In other words, domestic producers of HFC blends and components were competing head-to-head with direct imports by importers accounting for a substantial volume of Chinese imports. In this circumstance, the traditional Commission questionnaire will not capture many of the most important price comparisons. If importers are only asked to report their quarterly resales of HFC blends and components, the direct importers will either report nothing (when the HFC components are used for blending or the blends are installed in OEM equipment) or will report retail prices (when HFC blends are sold in the replacement market). For example, even though [importer] purchased HFC blends directly from the domestic industry, as well as imported directly from China, the import purchase prices would not be collected in a traditional Commission questionnaire. Hence, the traditional questionnaire format would not collect any import prices at the same level of trade as the U.S. producers' prices for direct sales to these customers.

Therefore, the Commission should require importers that purchase directly from domestic producers to also report their monthly purchases of imports.[53] Such data should be reported by importers in the same format as prices collected from purchasers. That is, importers should not

[53] This approach was taken in other recent cases in which purchasers from domestic producers were also direct importers, such as *Sugar from Mexico,* Inv. Nos. 701-TA-513 and 731-TA-1249 (Final), *Boltless Steel Shelving Units Prepackaged for Sale from China*, Inv. Nos. 701-TA-523 and 731-TA-1259 (Preliminary), and *Grain-Oriented Electrical Steel from China, Czech Republic, Korea, and Russia*, Inv. Nos. 701-TA-505 and 731-TA-1231, 1232, 1235, and 1237 (Final).

report their overall costs with respect to Chinese HFC blends and components. Rather, importers should report their invoice prices. If such prices are on an FOB China basis, the Commission could also collect information concerning transportation costs.

b. Proposed pricing products

As set out below, Petitioners propose that quarterly volume and value of deliveries of imported and domestic HFC blends and components be collected for specific products where there is head-to-head competition between subject imports and the domestic like product.

Product 1: R-410A in bulk containers (1,000 lbs. or greater);

Product 2: R-410A in 25-lb. disposable tanks or cylinders;

Product 3: R-404A in 24-lb. disposable tanks or cylinders;

Product 4: R-407C in 25-lb. disposable tanks or cylinders;

Product 5: R-32 in in bulk containers (1,000 lbs. or greater);

Product 6: R-125 in in bulk containers (1,000 lbs. or greater);

For products 1, 5 and 6, importers that are blenders should report the purchase price paid for subject single-component HFC imports, unless the importer is a distributor that resells the product without change. In addition, for products 1, 2, 3 and 4, blenders that rely primarily on imported components should not report their sales as "domestic." Such sales should be treated a resales of the imported components.

c. Subject imports from China are underselling U.S. producers' prices

As shown by **Exhibit II-7**, [importer activity

], routinely circulated price lists offering HFC blends in the U.S. market during the period of investigation. These prices are aimed at the replacement market, particularly for wholesalers that supply R-410A and R-404A to service contractors for residential air conditioning or commercial refrigeration. Table 6 summarizes the comparison of these Chinese list prices with domestic prices for proposed pricing products 2, 3 and 4. It should be noted that the U.S. producers' prices shown in Table 6 are net prices – that is, net of any early payment discounts, rebates or other discounts. The import prices, by comparison, are list prices for truckload quantities.

Table 6:—HFC Blends and Components, Underselling of Domestic Producers' Prices by Imports of Selected HCF Blends and Components from China2012-2014 and 1st Qtr 2015

($/lb)	2012	2013	2014	1st Qtr 2015
Product 2: R-410A in 25-lb. cylinders				
US producers' net price	[3.50]	[ ]	[2.50]	[ ]
Chinese offered price	2.62	2.12	2.10	1.82
% margin under- or (over)-selling	[ ]	[ ]	[ ]	[ ]
Product 3: R-404A in 24-lb. cylinders				
US producers' net price	[ ]	[3,30]	[ ]	[ ]
Chinese offered price	3.95	2.99	2.91	2.50
% margin under- or (over)-selling	[ ]	[ ]	[ ]	[ ]
Product 4: R-407C in 25-lb. cylinders				
US producers' net price	[5,00]	[ ]	[ ]	[ ]
Chinese offered price	4.41	3.32	2.73	2.40
% margin under- or (over)-selling	[ ]	[ ]	[ ]	[ ]

Source: **Exhibits II-7** and **II-8**.

d. Average unit values indicate that subject imports undersell domestic producers' prices

Table 7 compares the average unit value of the domestic producers' U.S. sales of HFC blends with the average unit value of HFC blend imports based on the Census statistics. As

shown, subject imports consistently undersold domestic producers' prices for HFC blends in 2013, 2014 and the first quarter 2015.

Table 7:—HFC Blends and Components, Domestic and Import Average Unit Values, 2012-2014 and 1st Qtr 2015

($/kg)	2012	2013	2014	1st Qtr 2015	%-change 2012-2014
Blends (404A, 407A, 407C, 410A, 507A):					
US producers' AUVs	[ ]	[6.50]	[5.90]	[ ]	[ ]
Chinese imports AUVs	7.597	5.085	3.779	3.584	-50.3%
Underselling (%)	[ ]	[ ]	[ ]	[ ]	

Source: American HFC Coalition and Census.

2. The rising volume of Chinese HFC blends have steadily depressed U.S. producer prices

The statute requires the Commission to consider the effect of imports on prices in the United States for the domestic like product, including "whether the effect of imports of such merchandise … depresses prices to a significant degree or prevents price increases which otherwise would have occurred, to a significant degree." Section 771(7)(C)(II) of the Act, 19 U.S.C. § 1677(7)(C)(II). First, as shown by Table 6, Table 7, and **Exhibit II-5**, U.S. producers' prices for HFC blends steadily declined over the period 2012 – 2014 and first quarter 2014 - 2015.

Second, analysis of domestic producers' average unit revenues in relation to average unit costs establishes that domestic prices have been falling relative to costs of goods sold. Overall, COGS have been declining. Nevertheless, the ratio of COGS to sales has risen sharply. Table 8 summarizes the data based on individual company data reported by the members of the American HFC Coalition.

Table 8:—HFC Blends and Components, Average Unit Values, Average Unit Costs, and Ratios, 2012-2014 and 1st Qtr 2014-2015					
($/kg)	2012	2013	2014	1st Qtr 2014	1st Qtr 2015
Average Revenues per kg	[100]	[ ]	[ ]	[ ]	[100]
Average COGS per kg	[ ]	[ ]	[ ]	[ ]	[ ]
COGS/sales	[70]	[ ]	[ ]	[ ]	[90]

Source: **Exhibit II-12**.

As shown by Table 8, U.S. producers' average prices are declining and are depressed relative to the cost of goods sold. Coupled with the evidence that Chinese imports of HFC blends and components are steadily increasing and capturing a growing share of the market, as well as the evidence of underselling of U.S. producers' prices, the evidence establishes that dumped imports have a negative impact on domestic prices within the meaning of Section 771(7)(C)(ii) of the Act.

3. Widespread market penetration by subject imports prevents U.S. producers from obtaining price increases

As shown by Table 8, above, the COGS/sales ratio with respect to domestic operations producing HFC blends and components increased from [range] over the period 2012 to 2014. Given that average revenues have fallen much faster than the cost of goods sold, domestic producers repeatedly attempted to increase prices. For example, as illustrated by the correspondence included in **Exhibit II-9**, and by Figure 1, below, [company] attempted to resist the negative impact of Chinese imports on market prices levels throughout the period of investigation:

Source: [name].

Exhibit II-10 includes a series of similar charts, illustrating both the decline in prices, by HFC blend, and the failed attempts to increase those prices. In short, dumped imports of HFC blends and components from China "prevent{ed} price increases, which otherwise would have occurred, to a significant degree," within the meaning of Section 771(C)(ii)(II) of the Act.

4. U.S. producers have lost sales and suffered declining revenues at specific customer accounts in head-to-head competition with subject imports

U.S. producers have lost a significant volume of sales to imports of Chinese HFCs and blends. As set forth in **Exhibit II-11,** U.S. producers have also lost significant revenues, as they have been forced to lower their prices in order to retain sales to a number of their key customers. As demonstrated, these price reductions resulted in an estimated loss of at least [millions] associated with price reductions on [thousands] metric tons of HFCs and blends sold.

Sales of HFC blends in 25-lb. cylinders or similar non-bulk containers are typically made on a spot or short-term basis. Domestic producers offer early payment discounts of [%], as well as rebates and discounts. For example, [discussion of prices] as a result of the supply of low-priced Chinese imports. Despite these efforts to maintain market specific customer accounts, however, subject imports have captured an increasing share of the U.S. market. And, even at accounts where the domestic producers are able to retain the business, they have been forced to reduce prices.

5. Increasing Chinese imports of HFC blends and components have had a negative impact on domestic industry capacity, capacity utilization and employment

Table 9 sets forth aggregate domestic industry capacity and production for the integrated producers of HFC blends and components. As shown, capacity utilization rates are low for an industry with high fixed costs. Overall capacity is persistently under-utilized, notwithstanding that apparent consumption continues to increase over the period of investigation.

Table 9.—HFC Blends and Components, Domestic Industry Capacity, Production, Capacity Utilization, 2012-2014 and 1st Quarter 2014-2015

	2012	2013	2014	1st Qtr 2014	1st Qtr 2015
Operations producing HFC Blends and Components:					
Capacity (mt)	[100]	[ ]	[ ]	[ ]	[100]
Production (mt)	[ ]	[ ]	[ ]	[ ]	[ ]
Capacity Utilization (%)	[60]	[ ]	[ ]	[ ]	[50]

Source: American HFC Coalition.

On May 12, 2014, Chemours (then DuPont) decided to shut down the R-125 production facilities located at the Chambers Works site in Deepwater, N.J. The shut-down occurred in June 2014, causing [ ] production and related workers to resign or retire or to be transferred to other business units. Given the rising imports of various blends and components, Chemours' capacity [relative to industry].

6. Depressed prices and lost market share have had a negative impact on domestic industry sales revenues and operating profits

Table 10 sets forth industry profit and loss data for U.S. operations producing HFC blends and components. As shown, even though the volume of production and shipments of HFC blends and components increased over the period 2012 – 2014, revenues on these shipments declined. These results reflect the substantial depression of U.S. producers' prices caused by the increasing volume of HFC blends and components from China. For the reasons discussed above, subject imports caused price levels to fall across the market. At the same time, costs of goods sold [trend]. Considering operations producing HFC blends, industry operating profits fell from over [ ] percent of sales to a loss in 2014.

Table 10.—HFC Blends and Components, Domestic Industry Profit and Loss on Integrated Operations, 2012-2014 and 1st Quarter 2014-2015

	2012	2013	2014	1st Qtr 2014	1st Qtr 2015	%-change 2012-2014
Net Sales ($000)	[100]	[ ]	[80]	[ ]	[ ]	[ ]
COGS ($000)	[100]	[ ]	[100]	[ ]	[ ]	[ ]
SG&A ($000)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Op profit ($000)	[ ]	[ ]	[ ]	[ ]	[ ]	[-100]
Op profit (%/sales)	[ ]	[ ]	[ ]	[ ]	[ ]	

Source: American HFC Coalition, **Exhibit II-12**.

On an aggregate basis, operations producing HFC blends and components earned operating profits of [ ] as recently as 2012. Yet, as surging imports have depressed

prices across the market, the domestic industry's profits have turned into a [millions] loss. In other words, the integrated producers suffered a decline of [millions] in operating profits in two years. As a percent of sales, profits dropped from [ ] percent in 2012 to a loss in 2014. And, without relief, full-year 2015 results will be worse than 2014.

E. HFC Blends and Components from China Further Threaten to Cause Material Injury

In addition to analyzing present material injury, the statute requires the Commission to determine whether the domestic industry is threatened with material injury by reason of the unfairly-traded imports.[54] When making its threat determination, the Commission is required to examine a number of factors set forth in the statute, including any increase in the foreign producers' productive capacity or existing unused capacity, a significant rate of increase of the volume or market penetration of the subject imports, and the likelihood that imports of the subject merchandise are entering at prices that will have a significant depressing effect on domestic prices.[55] Here, all of the key threat of injury criteria are satisfied.

First, it should be noted that the domestic industry, if not presently suffering material injury, is vulnerable to any increase in imports. As shown above, aggregate industry operating profits fell from [ ] in 2012 to a [ ] loss in 2014. This decline in profits was due to falling revenues caused by the surge in HFC blends and components from China, which forced domestic producers to choose between shipping less or reducing prices. And, if even a single U.S. producer exits the market, the industry [operations

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

[55] Section 771(7)(F)(i) of the Act, 19 U.S.C. § 1677(7)(F)(i).

] single-component HFCs to supply the current levels of demand for HFC blends. For these reasons, even a small increase in subject imports or another reduction in price levels will have an immediate, negative impact on the domestic industry.

Second, regarding Chinese capacity, since 2008 China's HFC capacity has rapidly expanded. As shown by **Exhibit II-13**, established producers expanded capacity and two new producers commenced operations. Yet, demand for HFC blends in China has not kept pace with expanding capacity. **Exhibit II-13** indicates that China's exports of R-32 and R-125 exceeded domestic consumption in 2012. By 2018, the same source projects that China's exports will grow some 30,000 mt. Moreover, production HFC blends has been targeted at export markets, particularly the United States, which was the largest destination for Chinese HFCs in 2012, accounting for 26.2 percent of total exports.[56]

Third, China has sufficient capacity to support a substantial increase in exports to the United States. **Exhibit II-13** reports that Chinese producers had 97,000 mt capacity to produce R-32 and 105,000 mt capacity to produce R-125 in 2013.[57] In addition, China had 217,000 mt capacity to produce R-134a. Given that R-410A is a 50/50 blend of R-32 and R-125, China therefore had capacity to produce nearly 200,000 mt of R-410A in 2013. Alternatively, China could have produced 200,000 mt of R-507A (50/50 R-125 and R-134a) or nearly 400,000 tons of R-407C (a blend of R-32, R-125 and R-134a). Although Chinese producers could not have elected to produce these amounts of all three blends, it is nevertheless clear that China's capacity in 2013 was sufficient to produce up to 200,000 mt of HFC blends in some combination. In

[56] **Exhibit II-13** at 133.

[57] **Exhibit II-13** at 114.

2013, however, Chinese production of HFC components was only about 60 percent of that capacity (68,400 mt).[58] In other words, China's apparently unused capacity in 2013 was more than sufficient to supply the entire U.S. market for HFC blends – [60000] mt in 2014.

Fourth, as shown by Table 4, above, U.S. imports of HFC blends and components increased over 80 percent from 2012 to 2014 and continued to increase from first quarter 2014 to 2015.

Fifth, domestic prices are already falling as a result of the surge in HFC blends and components from China. As illustrated by the price lists and price quotes found in **Exhibits II-7 and II-8**, low-priced Chinese R-404A, R-407A, R-407C and R-410 are being continuously offered by U.S. importers at prices substantially below U.S. producers' prices. Table 8, above, demonstrates that the U.S. producers' average revenues per ton on sales of HFC blends declined by [ ] percent from 2012 to 2014. The quarterly pricing data found in **Exhibit II-8** further demonstrate that domestic producers' prices are rapidly falling. The lost sales and lost revenue allegations found in **Exhibit II-11** recount that dumped imports are offered a price levels below U.S. producers' prices at specific customer accounts across the entire U.S. market. Given the widespread offers of Chinese HFC blends at prices well below the domestic producers' average prices, without relief it is inevitable that domestic producers' prices will continue to be depressed.

For these reasons, even assuming that subject imports have not already caused material injury, the threat of material injury is imminent.

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[58] **Exhibit II-13** at 118.

IV. SALES AT LESS THAN FAIR VALUE

A. The Chinese Industry Producing HFCs and Blends

Based on the CEH report,[59] as well as additional information concerning specific Chinese producers supplying the U.S. market that were not identified in the CEH report, **Exhibit III-1** identifies producers of HFC blends and components in China. In the fourth quarter 2014 and first quarter 2015, the largest exporters of HFC blends include [

names

].

B. Normal Value

1. Thailand is an appropriate primary surrogate for China for purposes of calculating normal value

Thailand was selected as the surrogate for China in the 2013-14 antidumping investigation of *1,1,1,2-Tetrafluoroethane from the People's Republic of China* ("R-134a from China").[60] Since the R-134a investigation, and following the publication of updated data identifying per capita gross domestic product of individual countries (GDP), the list of potential surrogate countries has changed. However, Thailand remains on the Department's most recent

[59] **Exhibit II-13** at 114.

[60] Memorandum to Paul Piquado from Christian Marsh, "1,1,1,2- Tetrafluoroethane from the People's Republic of China: Issues and Decision Memorandum for the Final Determination of Sales at Less Than Fair Value Antidumping Duty Investigation," at 23-26 (October 14, 2014) (hereinafter "*R-134a I&D Memo*").

lists of potential surrogates.[61] In other words, Thailand continues to be "comparable" to China in terms of economic development and within the meaning of Section 773(c)(4)(A) of the Act.

Given that Thailand remains on the list of potential surrogates, it is next appropriate to consider whether "comparable merchandise" is produced in Thailand for purposes of Section 773(c)(4)(B) of the Act. Here, comparable merchandise includes both the component HFCs considered in the R-134a case, as well as HFC blends. HFC blends are classified under HTS subheading 3824.78. **Exhibit III-3** includes export statistics for the six countries currently considered by the Department as potential surrogates. As shown, exports from Thailand under HTS subheading 3824.78 accounted for the largest volume of exports from any potential surrogate country. Indeed, Thailand exported 195 metric tons of PFC and HFC blends during the period of investigation. South Africa, with the next largest volume, only exported 12 metric tons over the same period.

Moreover, as explained in greater detail below, publicly available, reliable factor value data have been identified from Thai sources with respect to the large majority of the factors of production. Coupled with the fact that Thailand is "comparable" in terms of economic development and in terms of production of like merchandise, it may be relied upon as a primary surrogate for purposes of this antidumping petition for the same reasons articulated in the *R-134a I&D Memo.*

[61] The most recent list of potential surrogates includes Romania, Bulgaria, South Africa, Ecuador, Thailand and Ukraine. *See, e.g.,* Letter to Interested Parties, "Sixth Administrative Review of Steel Wire Garment Hangers from the People's Republic of China: Deadlines for the Surrogate Country and Surrogate Value Comments," Inv. No. A-570-918, Attachment (March 30, 2015) (included in **Exhibit III-2**).

2. Factors of Production and calculation of normal values

Normal values were calculated for HFC blends and components based on the operations of U.S. manufacturers of HFC blends and components in accordance with Section 773(c) of the Act, and 19 C.F.R. § 351.202(7)(i)(B). Calculations for each HFC blend and components are set forth in **Exhibit III-4**.

a. Factors of production are based on domestic producer's usage rates with respect to production of HFC components and blends

Exhibit III-5 includes the bills of materials showing the usage rates for each factor of production utilized by U.S. producers of HFC blends and components. Four HFC components are used to make the subject HFC blends: R-32, R-125, R-134a and R-143a. To calculate the normal value for the HFC blends, first the normal values were calculated for the components. Then, these values were combined in the proportions used to make each blend. So, for example, to calculate the normal value for R-410A, first the normal values were calculated for R-32 and R-125. Then, these normal values were combined to yield a 50 percent R-32 and 50 percent R-125 blend.[62] These calculations are found in **Exhibit III-4**.

Of the starting HFC components, [

discussion of company operations

].[63]

Hence, factor usage rates for [Source].

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[62] The total volume of R-32 and R-125 blended to make one kg. of R-410A is slightly higher than one kg. due to yield loss.

[63] [

]. *See* CEH Report, **Exhibit II-13**, at 118 (indicating the production process used by Chinese manufacturers in the case of R-134a).

Similarly, [source], so its usage rates were used to calculate the normal value for [company operations] was used as the basis for calculating surrogate factor usage rates.

b. Raw material values were generally based on Thai import statistics

To calculate raw material costs, **Exhibit III-6** summarizes the factor values and identifies the sources for each element of value. Values were based primarily on import statistics of Thailand over the period October 2014 through March 2015, published by Global Trade Atlas ("GTA"). These data are included in **Exhibit III-7** and provide values for the six-month period of investigation relied upon by the Department. **Exhibit III-8** includes the exchange rates for the period of investigation. These rates were applied to convert Thai baht to U.S. dollars.

c. In certain cases Thai imports were aberrational or did not exist, and raw material values were based on other potential surrogate countries

As shown by **Exhibits III-7** and **III-9**, there were no imports of 1,1,1-trichloroethane into Thailand or any other potential surrogate country during the relevant period, except Bulgaria.[64] **Exhibit III-9** also shows that there were no imports of chlorine into Thailand during the period of investigation. Although there were relatively small quantities of chlorine imports into Ecuador, Romania and South Africa, Bulgaria again accounted for the largest volume of imports.

[64] The most recent data available for imports into Bulgaria covered the period January-June 2014.

And, chlorine imports into Bulgaria were within the range of prices for the various potential surrogate countries.

Turning to hydrogen chloride, **Exhibit III-9** indicates that there were only 118 metric tons imported into Thailand during the period of investigation. By comparison, 10,256 metric tons were imported into Bulgaria. Moreover, the small quantity of imports of hydrogen chloride into Thailand were made at prices over 40 times higher than the prices of imports into Bulgaria. As such, the Thai import statistics are aberrational.

Regarding hydrogen chloride, it should be noted, that hydrogen chloride is a byproduct of the production of HFC components. However, it is not always the case that hydrogen chloride recovered from HFC production is sold. Indeed, the product recovered from the production process may not be salable without further processing. And, in the case of large multi-product chemical manufacturing plants, any recovered hydrogen chloride may be recycled or consumed internally. As such, it is not clear that any by-product offset should be permitted with respect to hydrogen chloride.[65]

For these reasons, imports into Bulgaria (GTA statistics) were used to value 1,1,1-trichloroethane, chlorine, and hydrogen chloride. *See* **Exhibit III-6.**

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[65] *R-134a I&D Memo* at 27. *See also, e.g., Arch Chemicals, Inc. v. United States*, 33 CIT 954, 956 (2009) (the Department will ordinarily grant an adjustment for a byproduct only "if the respondent can demonstrate that the by-product is either resold or has commercial value and re-enters the respondent's production process").

d. Electricity rates were based on EGAT data used in the R-134a investigation

In the R-134a investigation, electricity costs were based on published rates by the Electricity Generating Authority of Thailand (EGAT).[66] **Exhibit III-10** contains the EGAT electricity rates, which were adjusted for inflation using the IMF producer price index also included in **Exhibit III-10**. Because EGAT sells electricity to other utilities, namely MEA and PEA, as well as to foreign countries, these rates were eliminated to yield the electricity cost charged to industrial customers. The worksheet in **Exhibit III-10** calculates the weighted average rate (Bht/kWh) to "direct customers," "standby power" and "minor customers." Also included in **Exhibit III-10** are worksheets showing the conversion of electricity and natural gas from MMBTUs to kWh or kg.

e. Labor costs are based on Thai NSO data

Labor hours were estimated based on the actual labor hours used by [company]. As discussed in **Exhibit III-5**, [

source opinion

].

Use of U.S. producer labor rates is therefore conservative.

In the R-134a investigation, the Department valued labor costs using data published by Thailand's National Statistics Office.[67] **Exhibit III-11** includes calculation worksheets and supporting detail for surrogate labor costs in Thailand. The most recent data available from the

[66] Memorandum to Paul Piquado from Christian Marsh, "Decision Memorandum for Preliminary Determination of the Antidumping Duty Investigation of 1,1,1,2-Tetrafluoroethane from the People's Republic of China," at 21 (May 21, 2014) (hereinafter "*R-134a Prelim. Decision Memo*").

[67] *R-134a Prelim. Decision Memo* at 20-21.

Thai NSO cover the fourth quarter of 2014. Thus, the labor costs are contemporaneous to the period of investigation.

Exhibit III-12 includes the [company] labor costs to produce [products]. These costs were calculated using the total labor hours worked, divided by the quantity of each component produced. **Exhibit III-12** next applies the NSO labor rate to calculate the cost per kg. [Source] was unable to identify labor hours associated with production of [products and operations]. Hence, [name] labor hours to produce [products] were used to estimate the labor usage for [products]. Given that Chinese labor utilization is higher than in U.S. plants, this results in a conservative calculation of labor costs. Moreover, no labor was added in calculating the cost to produce blends.

f. Financial ratios are based on 2013 annual reports of Air Liquide, Air Products, Bangkok Industrial Gas and Linde

In the R-134a investigation, the Department found that production of industrial gases was "comparable" to the production of refrigerants for purposes of identifying a surrogate company.[68] Here, likewise, industrial gases are comparable merchandise for purposes of identifying overhead, SG&A expenses, and profit ratios. As shown by its website, Linde (Thailand) PLC is a manufacturer and distributor of industrial gases, including refrigerant blends. Likewise, Air Liquide, Air Products, and Bangkok Industrial Gas are producers of industrial

[68] *R-134a I&D Memo* at 24.

gases. Accordingly, for purposes of this petition, financial ratios are based on the most recent annual reports for these companies.[69]

Worksheets showing the calculation of ratios for overhead, SG&A expenses and profits for each company are included in **Exhibit III-13**. Annual reports of Air Liquide, Air Products, Bangkok Industrial Gas and Linde are included in **Exhibits III-14** through **III-17**.

In the R-134a investigation, the Department relied upon the 2012 annual report of Thai Japan to calculate financial ratios and rejected the Linde (Thailand) annual report.[70] However, here, the Department should not use the Thai Japan report; it should, moreover, use the Linde report.

Regarding the 2012 Thai-Japan financial statement, it is readily apparent that Thai-Japan is a distributor and selling agent, as well as a provider of gas distribution services.[71] Note 1 to its financial statement declares: "Thai-Japan Gas Co., Ltd. has objective to import-export, produce and distribute industrial gases, medical gases and special gases."[72] With respect to its sales of bulk gases, including nitrogen, argon, oxygen ad ammonia, the company "profile" states that Thai-Japan "is a distributor" and that it is "an agent to sell fuel gases for industries such as LPG, Propane and Butane."[73] Regarding "chemical products" in particular, the profile again states

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[69] It may be noted that the Department used financial ratios from Thai-Japan in the R-134a case. *R-134a from China I&D Memo* at 43-44.

[70] *R-134a I&D Memo* at 43-47.

[71] The 2012 Thai-Japan annual report is available on ACCESS, Barcode 3197028-03, Exhibit 14B.

[72] Thai-Japan 2012 Annual Report at note 1.

[73] **Exhibit III-18**, Thai-Japan, "Company Profile" at 4, 7, available online at http://www.tjg.co.th/pdf/TJG%20company%20profile.pdf, last accessed June 22, 2015.

"{t}he company is an agent."[74] And, a major segment of its business is "engineering services."[75] Although it does apparently produce some products, Thai-Japan's overall operations are not comparable to Chinese manufacturers of HFC blends and components.[76]

Because of the nature of its operations, the Thai-Japan financial statements are not sufficiently detailed to yield an accurate financial ratio calculation. In particular, the cost of traded goods could not be separated from raw materials.[77] Thus, it is not possible to express the overhead, SG&A or profit ratios in a manner consistent with Department precedent.[78] The ratio of overhead to raw materials costs – merely 1.68 percent – substantially and obviously understates the overhead that is incurred by a manufacturer.

In contrast, the 2013 annual report of Linde (Thailand), **Exhibit III-15**, allows for a more detailed breakout of overhead, depreciation, and other costs. In fact, in the *R-134a from China* investigation, the Department only rejected the Linde annual report because it mentioned IPA benefits. Yet, the 2013 annual report does not indicate that any IPA benefits were received on the basis of an export commitment or the company's location. Unless the IPA funds were provided on this basis, the Department in past cases has not disqualified the company as a

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[74] *Id.* at 8.

[75] *Id.* at 9.

[76] Notably, Thai-Japan's inventories of finished goods in 2012 were over 5.3 times greater than its inventories of raw materials. Thai-Japan 2012 Annual Report at note 6.

[77] ACCESS, Barcode 3197028-03, Exhibit 14A.

[78] *See Wooden Bedroom Furniture From the People's Republic of China,* 75 Fed. Reg. 50992 (Dep't of Commerce Aug. 18, 2010) and accompanying Issues and Decision Memorandum at Comment 30(B)(i)(a).

surrogate.[79] Indeed, Linde's 2013 annual report does not indicate that Linde used IPA privileges or otherwise received any IPA subsidies.[80]

Ultimately, the mere mention of "IPA" by the 2013 Linde annual report does not outweigh the enormous distortion caused by using Thai-Japan statements that do not begin to provide the detail needed to accurately calculate surrogate financial ratios. Accordingly, for purposes of this investigation, the Department should not base financial ratios on the Thai-Japan annual report; it should instead use the annual reports of Linde as well as Air Liquide, Air Products, and Bangkok Industrial Gas.

C. Export Value

1. Export Values based on price lists and export statistics

Exhibit III-19 includes price quotes circulated by Zhejiang Yonghe Refrigerant Co., Ltd., aka Zhejiang Yonghe New Type Refrigerant Co., Ltd., a Chinese producer using the brand name Ice Loong.[81] Yonghe has a subsidiary in Hong Kong, TS Enterprise Limited and Jinhua Factory: Jinhua Yonghe Fluorochemical Co., Ltd. As shown by **Exhibit I-8**, Yonghe offers R-32 and R-125 in large-volume cylinders; R-404A is offered in ISO tanks and disposable tanks;

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[79] *See, e.g., Seamless Refined Copper Pipe and Tube From the People's Republic of China,* 78 Fed. Reg. 35251 (Dep't of Commerce Jun. 12, 2013) (fin. results) and accompanying Issues and Decision Memorandum at Comment 4 ("The Department has found that the IPA is not per se countervailable. Because the IPA contains neither explicit export conditions nor limits to eligibility for IPA programs, the Department determines whether the benefits are countervailable based upon the reason each company's application for such benefits was approved.") *Utility Scale Wind Towers From the People's Republic of China*, 77 Fed. Reg. 75992 (Dep't of Commerce Dec. 26, 2012) (fin. det.) and accompanying Issues and Decision Memorandum at Comment 2.

[80] Even assuming Linde received benefits under the IPA program, the total revenue on which the privileges might be claimed amounts to less than one percent of Linde's total revenues. Such a miniscule amount does not distort Linde's financial ratios.

[81] *See* **Exhibit III-23** (excerpts from the Ice Loong web site).

and other HFC blends are offered in disposable tanks. Ice Loong offers R-32, R-404A, R-407C, R-410A and R-507A on its website and R-404A, R-407A, R-407C, and R-410A on its price lists.

Prices for single-component HFCs, which are typically sold only in bulk quantities to blenders in the U.S. market, are not widely quoted on price lists distributed to the service and replacement market. Moreover, the components tend to be sold in bulk ISO containers or large volume returnable cylinders. Prices for the HFC components were therefore identified from [source] and discussed in **Exhibit II-3**. These data [trend]. Moreover, the average prices identified in the [source and trend] price levels indicated for other HFCs on the price lists.

2. Adjustments to Export Value for transportation

The price lists found in **Exhibits II-7** and **III-19** quote R-404A, R-407C and R-410A in 24-lb. and 25-lb. disposable tanks, in truckload quantities. Such prices must be adjusted to remove duties and CIF charges. As the seller is located near a port, no adjustment was made for U.S. inland freight. Nor was any adjustment made for inland freight in China. To calculate the cost of duties and CIF charges, **Exhibit III-22** includes an analysis of U.S. imports under subheading 3824.78.0000, HTSUS, for the period October 2014 through March 2015, showing that CIF charges during the period of investigation averaged $0.38/kg. A deduction was also

made for sales commissions and sales mark-up charged by [ ].[82]

This deduction was calculated at 5.0%.[83]

Table 11:—Calculation of Export Value Based on U.S. Prices Offered by Importers from China (October 2014 – March 2015)

Product	Quote $/Kg	Freight ($/kg)	Net Quote	5% markup	Net US Price
R-404A	[3,20]				[3,20]
R-407A	[ ]	0.378	[ ]	[ ]	[ ]
R-407C	[4.00]	0.378	[ ]	[ ]	[3,50]
R-410A	[ ]				[ ]
R-507A	[ ]				[ ]

Freight: US imports from China-Blends (HTS38247800) Landed, duty paid minus Customs Value, **Exhibit III-21**.

Source: **Exhibits II-7, III-19, III-22.**

3. Export Values based on [source]

As discussed in **Exhibit II-3**, [source and support] these data are an alternative source of information concerning actual average export values for HFC blends and components during the period of investigation.

Values from this source are provided on an FOB Chinese port basis and are included in **Exhibit III-20**. Adjustments are not needed to deduct transportation, duties or importer mark-up. These average prices were compared to normal value in the LTFV tables found in **Exhibit III-24**.

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[82] *See, e.g., R-134a Prelim. Decision Memo* at 18; Section C Response of Weitron, dated February 28, 2014, at 27 and Exhibit C-6 (indicating that Weitron paid commissions to U.S. sales agents).

[83] *See* **Exhibit II-7**, [ ].

4. [name] contract prices for sales to [name]

[Discussion of price data

]. **Exhibit III-21** includes the [prices

]. In other words, the reference prices found in **Exhibit III-21** represent the actual prices [customer] R-32, R-125 or R-143a.

Hence, for purposes of calculating LTFV margins in **Exhibit III-24**, these prices also provide a reliable basis for export value.

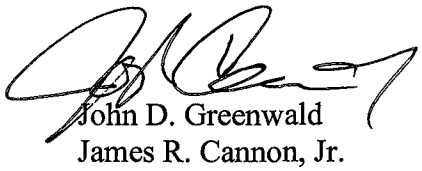
D. The Normal Values and Export Values Established Herein Indicate that Chinese HFC Blends and Components Are Being Sold at Less Than Fair Value

Comparing normal values calculated in Section IV(B) and export prices calculated in Section IV(C) yields the antidumping margins summarized in **Exhibit III-24**. As shown, the margins of dumping range from 103.7 percent to 291.58 percent, depending on the product in question and quoted price.

V. CONCLUSION

For the reasons stated in this petition, the U.S. refrigerants industry has been materially injured and threatened with material injury by the significant and growing volume of imports of HFCs and blends from China, which have been sold at less-than-fair value. Petitioners request that the Department of Commerce and the U.S. International Trade Commission initiate antidumping duty investigations of HFCs and blends from China.

Respectfully submitted,



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