

TABLE 52.1167—EPA-APPROVED RULES AND REGULATIONS

State citation	Title/subject	Date submitted by State	Date approved by EPA	Federal Register citation	52.1120(c)	Comments/unapproved sections
310 CMR 7.00 .....	Definitions .....	07/25/95 08/09/00 9/11/00	12/18/00	[Insert FR citation from published date].	116	Definitions associated with State II vapor recovery rule.
310 CMR 7.24(6) .....	Dispensing Motor Vehicle Fuel.	08/09/00 09/11/00	12/18/00	[Insert FR citation from published date].	116	Rule revised to include annual compliance testing and certification.

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## ENVIRONMENTAL PROTECTION AGENCY

### 40 CFR Part 82

[FRL–6918–4]

#### Protection of Stratospheric Ozone: Notice 14 for Significant New Alternatives Policy Program

**AGENCY:** Environmental Protection Agency.

**ACTION:** Notice of Acceptability; Request for Information.

**SUMMARY:** The Environmental Protection Agency (EPA) is expanding the list of acceptable substitutes for ozone-depleting substances (ODS) under our Significant New Alternatives Policy (SNAP) program. Substitutes are for the refrigeration and air conditioning, foams, non-aerosol solvent cleaning, and aerosol solvents and propellants sectors. Today's action also requests information from readers on the composition and safety of certain refrigerants for motor vehicle air conditioners; the possible expansion of the SNAP program to include review of, and potentially to establish use conditions for, operations that involve manual (hand) cleaning with solvents for precision, electronics, and metals cleaning; and the possible restriction of non-aerosol solvent substitutes to equipment that meets the cleaning equipment standards in the National Emission Standards for Halogenated Solvent Cleaning. Finally, this action updates readers on the SNAP program's review of n-propyl bromide for use as a substitute for ozone-depleting solvents used in the non-aerosol solvents cleaning, aerosol solvents and

propellants, and adhesives, coatings and inks sectors.

**EFFECTIVE DATE:** December 18, 2000.

**ADDRESSES:** Information relevant to this document is contained in Air Docket A–91–42, Room M–1500, Waterside Mall, U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460, telephone: (202) 260–7548. You may inspect the docket between 8:00 a.m. and 5:30 p.m. weekdays. As provided in 40 CFR Part 2, a reasonable fee may be charged for photocopying.

**FOR FURTHER INFORMATION CONTACT:** Margaret Sheppard by telephone at (202) 564–9163, by fax at (202) 565–2141, by e-mail at sheppard.margaret@epa.gov, or by mail at U.S. Environmental Protection Agency, Mail Code 6205J, Washington, D.C. 20460. Overnight or courier deliveries should be sent to the office location at 501 3rd Street, N.W., Washington, D.C., 20001. Further information can be found by calling the Stratospheric Protection Hotline at (800) 296–1996, or by viewing EPA's Ozone Depletion World Wide Web site at [www.epa.gov/ozone/title6/snap/](http://www.epa.gov/ozone/title6/snap/).

#### SUPPLEMENTARY INFORMATION:

- I. Listing of Acceptable Substitutes
  - A. Refrigeration and Air Conditioning
  - B. Foams
  - C. Non-Aerosol Solvent Cleaning
  - D. Aerosol Solvents and Propellants
- II. Request for Information on Refrigerants for Motor Vehicle Air Conditioners
- III. Request for Information on Expanding SNAP Non-Aerosol Solvent Cleaning Program Review to Include Operations that Involve Manual Precision, Electronics, or Metals Cleaning with Solvents
- IV. Request for Information on Restricting SNAP Acceptability Decisions in the Non-Aerosol Solvent Cleaning Sector to Operations that Involve the Use of Equipment that Meets Equipment Standards in the National Emission Standards for Halogenated Solvent Cleaning

- V. Status of EPA Review of n-Propyl Bromide
- VI. Section 612 Program
  - A. Statutory Requirements
  - B. Regulatory History
- VII. Additional Information
- VIII. References
- Appendix A—Summary of Acceptable Decisions

#### I. Listing of Acceptable Substitutes

This section presents EPA's most recent acceptable listing decisions for substitutes in the refrigeration and air conditioning, non-aerosol solvent cleaning, and aerosol solvents and propellants sectors. For copies of the full list of SNAP decisions in all industrial sectors, contact the EPA Stratospheric Protection Hotline at (800) 296–1996. You also can find a complete chronology of SNAP decisions and the appropriate **Federal Register** citations at EPA's Ozone Depletion World Wide Web site at [www.epa.gov/ozone/title6/snap/chron.html](http://www.epa.gov/ozone/title6/snap/chron.html).

The sections below present a detailed discussion of the acceptability decisions EPA is making today. The table summarizing today's listing decisions is in Appendix A. The comments contained in the table in Appendix A provide additional information, but are not legally binding under section 612 of the Clean Air Act. Thus, adherence to recommendations in the comments section of the table is not mandatory for use of a substitute, unless the comments refer to applicable regulatory requirements. Nevertheless, EPA strongly encourages users to use these substitutes in a manner consistent with the recommendations in the comments section. In many instances, the comments simply refer to standard operating practices that have already been identified in existing industry and/or building-code standards. Thus, many of these recommendations, if adopted, would not require significant changes in existing operating practices for the affected industry. In addition, such

recommendations should not be considered comprehensive with respect to other legal obligations pertaining to the use of the substitute.

#### A. Refrigeration and Air Conditioning

##### 1. HFE-7100

###### EPA's Decision

*Hydrofluoroether 7100 is acceptable for use as a secondary heat transfer fluid in new equipment for not-in-kind replacements of systems using:*

- CFC-11, CFC-12, CFC-114, CFC-115, HCFC-22 and R-502 in industrial process refrigeration;
- CFC-12 and R-502 in retail food refrigeration; and
- CFC-113, R-13B1, and R-503 in very low temperature refrigeration.

*HFE-7100 is also acceptable as a substitute for CFC-11, CFC-12, CFC-114, CFC-115, and HCFC-22 in retrofit and new equipment in non-mechanical heat transfer.* Hydrofluoroether 7100 is also known as HFE-7100; C<sub>4</sub>F<sub>9</sub>OCH<sub>3</sub>; C<sub>6</sub>F<sub>9</sub>OH<sub>5</sub>; methoxynonafluorobutane, iso and normal; and methyl nonafluorobutyl ether.

###### Environmental Information

HFE-7100 does not deplete the ozone layer since it does not contain chlorine or bromine. It has a 4.1-year atmospheric lifetime and a global warming potential (GWP) of 390 over a 100-year time horizon. These values are lower than the atmospheric lifetime and GWP of the substances HFE-7100 would be replacing.

###### Flammability Information

HFE-7100 is non-flammable.

###### Toxicity and Exposure Data

HFE-7100 exhibits low toxicity, with a workplace environmental exposure limit (WEEL) of 750 ppm established by the American Industrial Hygiene Association (AIHA).

##### 2. HFE-7200

###### EPA's Decision

*Hydrofluoroether 7200 is acceptable for use as a secondary heat transfer fluid in new equipment for not-in-kind replacements of systems using:*

- CFC-11, CFC-12, CFC-114, CFC-115, HCFC-22 and R-502 in industrial process refrigeration;
- CFC-12 and R-502 in retail food refrigeration; and
- CFC-113, R-13B1, and R-503 in very low temperature refrigeration.

*HFE-7200 is also acceptable as a substitute for CFC-11, CFC-12, CFC-114, CFC-115, and HCFC-22 in retrofit and new equipment in non-mechanical*

*heat transfer.* Hydrofluoroether 7200 is also known as HFE-7200; C<sub>4</sub>F<sub>9</sub>OC<sub>2</sub>H<sub>5</sub>; C<sub>5</sub>F<sub>10</sub>H<sub>2</sub>; and ethoxynonafluorobutane, iso and normal.

###### Environmental Information

HFE-7200 does not deplete the ozone layer since it does not contain chlorine or bromine. It has a 0.9 year atmospheric lifetime and a GWP of 55 over a 100-year time horizon. These values are much lower than the atmospheric lifetime and GWP of the substances HFE-7200 would be replacing.

###### Flammability Information

The flammability range in air is 2.4–12.4%. HFE-7200 has no flashpoint.

###### Toxicity and Exposure Data

The manufacturer's recommended exposure guideline for HFE-7200 is 200 ppm over an eight-hour time-weighted average. EPA expects HFE-7200 users to follow all recommendations specified in the manufacturer's Material Safety Data Sheets (MSDSs). The Agency also expects that users of HFE-7200 will adhere to any acceptable exposure limits set by any voluntary consensus standards organization, including the American Conference of Governmental Industrial Hygienists' (ACGIH) threshold limit values (TLVs) or the AIHA's WEELs.

##### 3. and 4. FOR12A and FOR12B

###### EPA Decision

*The chemical blends submitted to EPA with the unregistered trade names of FOR12A and FOR12B are acceptable as substitutes for CFC-12 in the following end-uses:*

- industrial process refrigeration and air-conditioning
- cold storage warehouses
- refrigerated transport
- retail food refrigeration
- ice machines
- vending machines
- water coolers
- centrifugal chillers
- reciprocating chillers
- household refrigerators and freezers

Inha University of Incheon, Korea and TechnoChem Co., Ltd, the joint submitters of FOR12A and FOR12B, claim that the compositions of these blends are confidential business information.

###### Environmental Information

The blends do not contain any significant ozone-depleting chemical, but do contain constituents with a GWP. The GWP for the FOR12A blend is approximately 1100 and the GWP for

the FOR12B blend is approximately 1000. These values are lower than the GWP of the substances that FOR12A and FOR12B would be replacing. The contribution of these constituents to global warming will be minimized in each end-use through the implementation of the venting prohibition under section 608(c)(2) of the Clean Air Act. This section prohibits venting or release of substitutes for class I and class II ozone depleting substances used in refrigeration and requires proper disposal of these substances, such as recycling or recovery.

###### Flammability and Fractionation Information

Fractionation and flammability tests by the submitters have determined that although a constituent of each blend is flammable, FOR12A and FOR12B as blended are not flammable. Further testing has shown that FOR12A and FOR 12B do not become flammable after leakage.

###### Toxicity and Exposure Data

Both blends have low toxicity. Only one of the constituents of the blends exhibits toxicity, and this substance has an 8-hour acceptable exposure limit of 150 to 170 ppm.

##### 5. NU-22

###### EPA Decision

*NU-22, an HFC blend, is acceptable as a substitute for HCFC-22 in new and retrofit applications in the following end-uses:*

- industrial process refrigeration and air-conditioning
- centrifugal chillers
- reciprocating chillers
- residential air conditioning and heat pumps
- residential dehumidifiers
- refrigerated transport
- motor vehicle air conditioning (buses only)

ICOR International, the submitter of NU-22, claims that its composition is confidential business information.

###### Environmental Information

The blend has no ozone-depleting potential. The blend contains constituents exhibiting GWPs, with the highest GWP being 1600. This value is lower than the GWP of the substance that NU-22 would be replacing. The contribution of this blend to global warming will be minimized in each end-use through the implementation of the venting prohibition under section 608(c)(2) of the Clean Air Act. This section prohibits venting or release of substitutes for class I and class II ozone

depleting substances used in refrigeration and requires proper disposal of these substances, such as recycling or recovery.

**Flammability and Fractionation Information**

Fractionation and flammability tests by the submitter have determined that although one component of this blend is flammable, this refrigerant blend is not flammable.

**Toxicity and Exposure Data:**

This blend's constituents are all non-toxic.

**6. SP34E**

**EPA's Decision**

SP34E is acceptable for use as a substitute for CFC-12 in the following end uses:

- Household refrigerators and freezers (retrofit and new)
- Refrigerated transport (retrofit and new)

- Retail food refrigeration (retrofit and new)
- Cold storage warehouses (retrofit and new)
- Vending machines (retrofit and new)
- Water coolers (retrofit and new)
- Reciprocating chillers (retrofit and new)

SP34E is acceptable for use as a substitute for CFC-12, subject to use conditions for motor vehicle air conditioning (retrofit and new).

SP34E is an HFC refrigerant with additives. Solpower, the submitter, has claimed the composition is confidential business information.

**Conditions for use in Motor Vehicle Air Conditioning Systems:**

Regulations regarding recycling and prohibiting venting issued under section 609 of the Clean Air Act apply to this blend.

On October 16, 1996, (61 FR 54029), EPA promulgated a final rule that prospectively applied certain conditions

on the use of any refrigerant used as a substitute for CFC-12 in motor vehicle air conditioning systems (Appendix D of subpart G of 40 CFR part 82). That rule provided that EPA would list new refrigerants in future notices of acceptability. Therefore, the use of SP34E as a CFC-12 substitute in motor vehicle air conditioning systems must follow the standard conditions imposed on previous refrigerants, including:

- The use of unique fittings designed by the refrigerant manufacturer,
- The application of a detailed label,
- The removal of the original refrigerant prior to charging with SP34E, and
- The installation of a high-pressure compressor cutoff switch on systems equipped with pressure relief devices.

The October 16, 1996 rule gives full details on these use conditions.

You must use the following fittings to use SP34E in motor vehicle air conditioning systems:

Fitting type	Diameter (inches)	Thread Pitch (threads/inch)	Thread Direction
Low-side service port .....	.5 (9/16) .....	18	Left
High-side service port .....	.4375 (7/16) ..	14	Right
Large containers (>20 lb.) .....	.5 (9/16) .....	18	Left

Currently, there is no fitting for small cans. Thus, small cans may not be used for distribution of this product until either cans are developed that can use the fittings above or EPA issues a future acceptability notice identifying an alternative fitting. The labels will have a tan background and black text.

**Required Changes in Technology**

When using this refrigerant, you would need to use a filter dryer appropriate for use with R-134a. The submitter claims that SP34E is a replacement for CFC-12 that allows the use of mineral oil instead of synthetic oil. EPA has not evaluated any claims about the effectiveness of SP34E or whether it may be used with mineral oil. You may find materials in Docket A-91-42 concerning these claims.

**Environmental Information**

SP34E has an ozone depletion potential (ODP) of zero. Some of the constituents of SP34E have GWPs, with the highest GWP over 100 years being 1300. This value is lower than the GWP of the substance that SP34E would be replacing. The longest-lived constituent has an atmospheric lifetime of 14.6 years. The contribution of this blend to global warming will be minimized through requirements under sections

608(c)(2) and 609 of the Clean Air Act. Section 608(c)(2) prohibits venting or release of substitutes for class I and class II ozone depleting substances used in refrigeration and requires proper disposal of these substances, such as recycling or recovery. Section 609 requires refrigerant recycling and training and certification for people repairing or servicing motor vehicle air conditioning systems.

**Flammability Information**

Some constituents of the blend are flammable. Flammability testing by an independent laboratory has determined that SP34E as blended is not flammable. SP34E has no flash point.

**Toxicity and Exposure Data**

SP34E exhibits low toxicity. Two of its constituents have manufacturer acceptable exposure limits (AELs) of 1000 ppm over an 8-hour time-weighted average. For the remaining constituent, the Occupational Safety and Health Administration (OSHA) has issued a permissible exposure limit of 1000 ppm over an 8-hour time-weighted average. SP34E was submitted to the Agency as a Premanufacture Notice (PMN) under the Toxic Substances Control Act.

**7. Correction: "Furan" Corrected to Perfluoro (oxacyclopentane)**

The April 11, 2000 notice of acceptability at 65 FR 19327 incorrectly said that EPA was approving "furan" as a substitute for CFC-114 for use in uranium isotope separation processing (retrofit uses). The proper name of the substitute approved for this purpose is perfluoro (oxacyclopentane). It may also be called octafluorotetrahydrofuran or furan, octafluorotetrahydro. Its formula is C<sub>4</sub>F<sub>8</sub>O. Perfluoro (oxacyclopentane) is a cyclic perfluoroether (PFE), with similar atmospheric properties to those of perfluorocarbons (PFCs): long atmospheric lifetime and high global warming potential. Therefore, the same care as recommended for PFCs should be applied in handling this cyclic PFE in order to minimize emissions.

**B. Foams**

**1. Methyl Formate**

**EPA Decision**

Methyl formate is acceptable as a substitute for CFCs and HCFCs in the following end-uses:

- Rigid polyurethane and polyisocyanurate laminated boardstock;
- Rigid polyurethane appliance;

- Rigid polyurethane slabstock and other foams;
- Rigid polyurethane commercial refrigeration and sandwich panels; and
- Polyurethane integral skin foam.

#### Environmental Information

Methyl formate has no ODP and very low or zero global warming potential (GWP). Users should be aware that methyl formate is a volatile organic compound (VOC) and may be subject to state or federal requirements developed under Title I of the Clean Air Act. Also, because methyl formate is considered hazardous, spills and disposal should be handled in accordance with requirements of the Resource Conservation and Recovery Act (RCRA).

#### Flammability Information

Methyl formate is flammable and should be handled with proper precautions. Use of methyl formate will require safe handling and shipping as prescribed by OSHA and DOT (for example, using personal safety equipment and following requirements for shipping hazardous materials at 49 CFR parts 170 through 173).

#### Toxicity and Exposure Data

Methyl formate is toxic and should be handled with proper precautions. Use of methyl formate will require safe handling and shipping as prescribed by OSHA and DOT (for example, using personal safety equipment, observing permissible exposure limits, and following requirements for shipping hazardous materials at 49 CFR parts 170 through 173). OSHA established a permissible exposure limit for methyl formate of 100 ppm for a time-weighted average over an eight-hour work shift. The National Institute of Occupational Safety and Health and the American Conference of Governmental Industrial Hygienists recommend a 15-minute short term exposure limit (STEL) of 150 ppm.

#### C. Non-Aerosol Solvent Cleaning

##### 1. HFE-7100

#### EPA Decision

*Hydrofluoroether 7100 is acceptable as a substitute for HCFC-141b and HCFC-22 in metals cleaning, precision cleaning, and electronics cleaning applications.* Hydrofluoroether 7100 is also known as HFE-7100; C<sub>4</sub>F<sub>9</sub>OCH<sub>3</sub>; C<sub>6</sub>F<sub>9</sub>OH<sub>5</sub>; methoxynonafluorobutane, iso and normal; and methyl nonafluorobutyl ether. EPA previously found HFE-7100 acceptable as a substitute for CFC-113 and methyl chloroform in metals cleaning, precision

cleaning, and electronics cleaning applications (61 FR 47015).

#### Environmental Information

HFE-7100 does not deplete the ozone layer since it does not contain chlorine or bromine. It has a 4.1-year atmospheric lifetime and a global warming potential (GWP) of 390 over a 100-year time horizon. These values are lower than the atmospheric lifetime and GWP of the substances HFE-7100 would be replacing.

#### Flammability Information

HFE-7100 is non-flammable.

#### Toxicity and Exposure Data

HFE-7100 exhibits low toxicity, with a workplace environmental exposure limit (WEEL) of 750 ppm established by the American Industrial Hygiene Association (AIHA).

##### 2. HFE-7200

#### EPA Decision

*Hydrofluoroether 7200 is acceptable as a substitute for HCFC-141b and HCFC-22 in metals cleaning, precision cleaning, and electronics cleaning applications.* Hydrofluoroether 7200 is also known as HFE-7200; C<sub>4</sub>F<sub>9</sub>OC<sub>2</sub>H<sub>5</sub>; C<sub>5</sub>F<sub>10</sub>H<sub>2</sub>; and ethoxynonafluorobutane, iso and normal. EPA previously found HFE-7200 acceptable as a substitute for CFC-113 and methyl chloroform in metals cleaning, precision cleaning, and electronics cleaning applications (64 FR 68039).

#### Environmental Information

HFE-7200 does not deplete the ozone layer since it does not contain chlorine or bromine. It has a 0.9 year atmospheric lifetime and a GWP of 55 over a 100-year time horizon. These values are much lower than the atmospheric lifetime and GWP of the substances HFE-7200 would be replacing.

#### Flammability Information

The flammability range in air is 2.4–12.4%. HFE-7200 has no flashpoint.

#### Toxicity and Exposure Data

The manufacturer's recommended exposure guideline for HFE-7200 is 200 ppm over an eight-hour time-weighted average. EPA expects HFE-7200 users to follow all recommendations specified in the manufacturer's Material Safety Data Sheets (MSDSs). The Agency also expects that users of HFE-7200 will adhere to any acceptable exposure limits set by any voluntary consensus standards organization, including the American Conference of Governmental Industrial Hygienists' (ACGIH)

threshold limit values (TLVs) or the AIHA's WEELs.

##### 3. Heptafluorocyclopentane

#### EPA Decision

*Heptafluorocyclopentane is acceptable as a substitute for CFC-113, methyl chloroform, and HCFC-141b in precision cleaning, electronics cleaning, and metals cleaning applications within the non-aerosol solvent cleaning sector.* Heptafluorocyclopentane is also known as HFCPA and C<sub>5</sub>H<sub>3</sub>F<sub>7</sub>, and by the trade name Zeorara-H®.

#### Environmental Information

HFCPA is a hydrofluorocarbon, and thus has no ozone-depleting potential. The GWP is 250 over a 100-year time horizon, and the atmospheric lifetime is 1.8 years. These values are either lower or comparable to the GWPs and atmospheric lifetimes of the substances HFCPA would be replacing.

#### Flammability Information

HFCPA has no flash point below its boiling point.

#### Toxicity and Exposure Data

Although this acceptability determination is not subject to any use conditions or narrowed use restrictions, EPA expects users to adhere to the manufacturer's recommended exposure guideline of 123 ppm over an eight-hour time-weighted average, with a ceiling of 500 ppm.

##### 4. HFC-365mfc

#### EPA Decision

*HFC-365mfc is acceptable as a substitute for CFC-113, methyl chloroform, and HCFC-141b in precision cleaning, electronics cleaning, and metals cleaning applications within the non-aerosol solvent cleaning sector.* HFC-365mfc is a halogenated alkane.

#### Environmental Information

HFC-365mfc contains no chlorine or bromine and does not contribute to ozone depletion. The GWP is 790 over a 100-year time horizon and the atmospheric lifetime is 10.2 years. These values are either lower or comparable to the GWPs and atmospheric lifetimes of the substances HFC-365mfc would be replacing.

#### Flammability Information

HFC-365mfc has no flash point. The lower and upper flammability limits are 3.8% and 13.3%, respectively.

#### Toxicity and Exposure Data

The submitting manufacturer has set a preliminary acceptable exposure limit (AEL) of 500 ppm.

*D. Aerosol Solvents and Propellants*

## 1. HFE-7100

*EPA Decision*

*Hydrofluoroether 7100 is acceptable as a substitute for CFC-11 and HCFC-141b as a solvent in aerosol products.* Hydrofluoroether 7100 is also known as HFE-7100; C<sub>4</sub>F<sub>9</sub>OCH<sub>3</sub>; C<sub>6</sub>F<sub>9</sub>OH<sub>5</sub>; methoxynonafluorobutane, iso and normal; and methyl nonafluorobutyl ether. EPA previously found HFE-7100 acceptable as a substitute for CFC-113 and methyl chloroform in aerosol solvents (61 FR 47015).

*Environmental Information*

HFE-7100 does not deplete the ozone layer since it does not contain chlorine or bromine. It has a 4.1-year atmospheric lifetime and a global warming potential (GWP) of 390 over a 100-year time horizon. These are lower than the atmospheric lifetime and GWP of the substances HFE-7100 would be replacing.

*Flammability Information*

HFE-7100 is non-flammable.

*Toxicity and Exposure Data*

HFE-7100 exhibits low toxicity, with a workplace environmental exposure limit (WEEL) of 750 ppm established by the American Industrial Hygiene Association (AIHA).

## 2. HFE-7200

*EPA Decision*

*Hydrofluoroether 7200 is acceptable as a substitute for CFC-11, and HCFC-141b as a solvent in aerosol products.* Hydrofluoroether 7200 is also known as HFE-7200; C<sub>4</sub>F<sub>9</sub>OC<sub>2</sub>H<sub>5</sub>; C<sub>5</sub>F<sub>10</sub>H<sub>2</sub>; and ethoxynonafluorobutane, iso and normal. EPA previously found HFE-7200 acceptable as a substitute for CFC-113 and methyl chloroform in aerosol solvents (64 FR 68039).

*Environmental Information*

HFE-7200 does not deplete the ozone layer since it does not contain chlorine or bromine. It has a 0.9 year atmospheric lifetime and a GWP of 55 over a 100-year time horizon. These values are much lower than the atmospheric lifetime and GWP of the substances HFE-7200 would be replacing.

*Flammability Information*

The flammability range in air is 2.4–12.4%. HFE-7200 has no flashpoint.

*Toxicity and Exposure Data*

The manufacturer's recommended exposure guideline for HFE-7200 is 200

ppm over an eight-hour time-weighted average. EPA expects HFE-7200 users to follow all recommendations specified in the manufacturer's Material Safety Data Sheets (MSDSs). The Agency also expects that users of HFE-7200 will adhere to any acceptable exposure limits set by any voluntary consensus standards organization, including the American Conference of Governmental Industrial Hygienists' (ACGIH) threshold limit values (TLVs) or the AIHA's WEELS.

## 3. HFC-365mfc

*EPA Decision*

*HFC-365mfc is acceptable as a substitute for CFC-113, methyl chloroform, and HCFC-141b as an aerosol solvent.* HFC-365mfc is a halogenated alkane.

*Environmental Information*

HFC-365mfc contains no chlorine or bromine and does not contribute to ozone depletion. The GWP is 790 over a 100-year time horizon and the atmospheric lifetime is 10.2 years. These values are either lower or comparable to the GWPs and atmospheric lifetimes of the substances HFC-365mfc would be replacing.

*Flammability Information*

HFC-365mfc has no flash point. The lower and upper flammability limits are 3.8% and 13.3%, respectively.

*Toxicity and Exposure Data*

The submitting manufacturer has set a preliminary acceptable exposure limit (AEL) of 500 ppm.

**II. Request for Information on Refrigerants for Motor Vehicle Air Conditioners**

EPA requests information on the refrigerants Enviro-Safe, Red Tek, Maxi-Frig, ES-12A, and Auto Cool. EPA has received numerous inquiries regarding the SNAP acceptability of the above refrigerants for use in motor vehicle air conditioners (MVACs). Materials disseminated through mailings and the internet (Air Docket A-91-42, item IX-B-60) have made consumers question whether the products listed above are acceptable substitutes under the SNAP program for CFC-12 (R12 or freon) and other ozone-depleting CFC-12 substitutes. Under Section 612(e) of the CAA, any person who produces a substitute for a CFC is required to submit information to EPA at least 90 days before the substitute is introduced into interstate commerce. The refrigerants listed above have not been submitted to EPA for review under the SNAP program. Therefore, the Agency

believes that they cannot be sold as replacements for CFC-12 or other ozone-depleting CFC substitutes in MVACs.

Additionally, based on advertising materials, Material Safety Data Sheets (MSDSs) and independent laboratory testing (Air Docket A-91-42, item IX-B-60), EPA believes the refrigerants listed above may be flammable hydrocarbon-based blends. In June 1995, flammable refrigerants were listed as unacceptable as substitutes for CFC-12 in MVACs because a comprehensive risk assessment on the use of flammable refrigerants had not been submitted to EPA (60 FR 31092). EPA welcomes the submission of such a risk assessment. However, until EPA receives sufficient information on the potential risks of flammable refrigerants in MVACs, all flammable refrigerants are unacceptable as substitutes for CFC-12 and ozone-depleting freon substitutes in MVACs, unless specifically listed as acceptable. Consumers should also be aware that the following 19 states ban the use of flammable refrigerants in MVACs: Arkansas, Arizona, Connecticut, Florida, Idaho, Indiana, Iowa, Kansas, Louisiana, Maryland, Nebraska, North Dakota, Oklahoma, Texas, Utah, Virginia, Wisconsin, Washington, and the District of Columbia. For further information about flammable refrigerants, see EPA's web site (<http://www.epa.gov/spdpublic/title6/snap/hc12alng.html>).

EPA requests information on the composition and the flammability of Enviro-Safe, Red Tek, Maxi-Frig, ES-12A, and Auto Cool. We also would welcome any formal risk assessment on these refrigerants.

**III. Request for Information on Expanding SNAP Program Review of the Non-Aerosol Solvent Cleaning Sector to Include and Potentially to Establish Use Conditions for Operations that Involve Manual Precision, Electronics, or Metals Cleaning**

In the non-aerosol solvent cleaning sector, EPA has historically applied SNAP review only to large industrial cleaning applications, including cold cleaning and vapor degreasing and defluxing operations, where ozone-depleting substances have been historically used. Within industrial cleaning, the three main applications that in the past used ozone-depleting solvents are precision cleaning, electronics cleaning, or general metals cleaning, and solvents used in those applications are subject to SNAP

review.<sup>1</sup> The preamble language to the original SNAP rule of March 18, 1994 provided EPA's interpretation that its SNAP regulation excludes some applications within metals, precision and electronics cleaning. Specifically, the preamble stated that:

The SNAP determinations issued in the solvent cleaning sector focus on substitutes for CFC-113 and methyl chloroform (MCF) when used in industrial cleaning equipment, since this application comprises the largest use of ozone-depleting solvents. . . . Other applications for ozone-depleting solvents exist as well, such as in dry cleaning of textiles or in hand cleaning or maintenance cleaning as a spray. In addition, these solvents are used as bearer media (such as lubricant carriers), mold release agents, component testing agents, or in other non-cleaning applications. CFC-11 is also occasionally used as a cleaning solvent in specialized applications. . . . The Agency intends to exclude cleaning substitutes for CFC-113, MCF and CFC-11 in these applications—with the exception of aerosol substitutes—from the SNAP determinations at this time. As a result, the Agency is not at this time issuing any determinations on acceptability of such substitutes, and will neither approve nor restrict their uses.

(59 FR 13090) Based on this language, EPA has not required SNAP review of substitutes for CFC-113, methyl chloroform and other ozone-depleting solvents when those substitutes are used in the following specific manual cleaning applications for metals, electronics or precision cleaning:

- Bearer media (e.g., substitutes for CFC-113 in depositing lubricants on medical catheters);

<sup>1</sup> In a February 24, 1998 Notice of Acceptability in the *Federal Register* (63 FR 9151), EPA clarified the definitions of these applications as follows:

“(1) Electronics Cleaning. Primarily the removal of flux residues from wiring assemblies after a soldering operation has been completed. This is considered a high value end use application where performance is critical.

“(2) Metals Cleaning. The removal of a wide variety of contaminants from metal objects during a manufacturing or maintenance process. At each stage in the manufacturing process contaminants must be removed from the piece to ensure a clean metal surface for the next step in the production process or for final consumption. These parts tend to be metal objects ranging from fully assembled aircraft down to small metal parts stamped out in high volume. These contaminants are most often greases, cutting oils, coatings, large particles, and metal chips.

“(3) Precision Cleaning. Applies to components and surfaces of any composition for which an extremely high level of cleanliness is necessary to ensure satisfactory performance during the manufacturing process or in final consumption. This end use is characterized as very high value end use segment based on a non-cost criteria. Examples of such criteria would be: high value products, protection or safeguarding of human life, compatibility concerns with plastics, temperature and mechanical stress limitations, precision mechanical assemblies/components with demanding machining tolerances or complex geometrics, and base or mix of metals readily pitted, corroded, eroded or otherwise compromised”.

- Plasma etching;
- Mold release agents (for nonaerosol applications);
- Motor vehicle air conditioning flushing;
- Hand wiping or maintenance cleaning with a non-aerosol spray;
- Dry cleaning of textiles;
- Substitutes for CFC-11 (although note that EPA reviews substitutes to CFC-11 when it is used as an aerosol propellant); and
- Flushing of oxygen systems.

There are a wide variety of cleaning operations. Some of these operations are more emissive, and present more risks to workers handling the equipment, than others. EPA is concerned that for certain solvents reviewed under the SNAP program, it may not make sense to determine that use of that compound is acceptable without conditions or restrictions, or alternatively that it is unacceptable, in both manual and machine cleaning operations. EPA is considering pursuing the use of certain narrowed use restrictions on SNAP acceptability decisions for manual metals, electronics, or precision cleaning. We believe that this would better implement the intent of the Clean Air Act Section 612 mandate to evaluate the overall health and environmental risks associated with potential substitutes to ozone-depleting substances.

Because of the emissive nature of many manual cleaning operations and relatively high volumes of ozone-depleting solvents and their substitutes used in manual cleaning,<sup>2</sup> EPA is now considering expanding the scope of SNAP review in the non-aerosol solvent cleaning sector to include one or more of the manual cleaning applications above for metals cleaning, electronics cleaning, or precision cleaning.<sup>3</sup> In most manual cleaning operations, solvent use is not contained within equipment, and the potential for soil and groundwater contamination is a major issue. Contamination is also a concern where solvents are allowed to fall on concrete or other porous floors. In addition to solvents causing soil and groundwater contamination, the evaporation of solvents often results in atmospheric damage. Many solvents used in manual cleaning are volatile organic compounds (VOCs), which contribute to ground-level ozone pollution. In addition, a significant number of solvents

<sup>2</sup> EPA uses the terms “hand cleaning” and “manual cleaning” synonymously.

<sup>3</sup> Manual cleaning has never been excluded from the scope of SNAP in the aerosol solvents and propellants sector, or in the adhesives, coatings and inks sector.

contribute to global warming and/or to stratospheric ozone depletion. Human health risk is another concern: cleaning manually rather than with automated processes will more likely result in significant worker exposures to solvents, some of which have been assigned, either by manufacturers, governmental agencies, or voluntary standard-setting organizations, relatively low exposure limits due to their potential short-term or long-term toxicity. Other potential hazards to workers from manual cleaning include skin absorption of solvents, contact dermatitis, contact burns, exposure to flammable vapors, and exposure to compounds that may react with chemicals from other processes.

Manual cleaning occurs in electronic and precision cleaning as well as in metals cleaning. Manual cleaning encompasses a diverse set of cleaning operations. It can involve organic solvents, water-based cleaners, impingement cleaning, and/or mechanical cleaning. It is generally, but not always, cold cleaning (i.e., cleaning where the removal of soils is accomplished by solvents, solvent blends, or water-based cleaners that are at room temperature or are otherwise below their boiling points). Sometimes the applications are small-scale; in some applications, the part to be cleaned may be several stories high. Manual cleaning may be one or a few steps of an overall cleaning process that involves hundreds or thousands of cleaning steps. Techniques of manual cleaning include:

- Non-automated wiping, swabbing, scraping, sanding, brushing, pressure-washing or abrasively blasting surfaces with a cloth, swab, brush, sponge, pad or other implement that is moistened with solvent or other cleaner, manually applying the solvent or other cleaner directly to surfaces to agitate the surface soils, and then wiping, swabbing, brushing or pressure-washing the surfaces;
- Submerging parts in a solution that includes water, solvents and/or surfactants (this may include ultrasonic cleaning); and
- Using spraying equipment, whether the spray is from an aerosol can, other pressurized can, or non-pressurized container (such as a pump).

Swabs are generally used in specific spots, wipers can cover a larger specific area, and sprays are used over a more general area. Manual cleaning can be performed with either aqueous or solvent-based cleaning fluids or sprays, and includes the following operations:

- Spot cleaning,

- Cleaning large metal surfaces such as milking machines and other tanks and vessels,
- Cleaning small batches of parts, and
- Cleaning articles such as medical examination instruments, optical instruments, labware or circuit boards, and process equipment.

Examples of applications that involve manual cleaning include:

- Removal of paints, mineral deposits, dirt and oils during the overhauling, repairing, or rebuilding of automotive parts, machinery parts or instruments,
- Removal of residual rosin flux during the manufacture and service of electronics assemblies,
- Removal of rosin flux, oil, dirt, and mineral deposits during the repair of heavy-use military assemblies,
- Removal of burnt-on carbonized and/or caramelized oil during the repair of compressors after burnout,
- Removal of flux, oils, polishing compounds and fingerprints from large, critical aerospace components,
- Removal of oils, fluxes and fingerprints from high-value, critical biomedical devices, and
- Removal of residue polishing compounds in precision optics and in semiconductor manufacturing wafer fabrication.

EPA has previously regulated manual cleaning with solvents in the National Emission Standards for Hazardous Air Pollutants (NESHAPs) under § 112(b) of the Act. The September 1, 1995 NESHAP for Aerospace Manufacturing and Reworking Facilities defines "hand-wipe cleaning operation" as "the removal of contaminants such as dirt, grease, oil, and coatings from an aerospace vehicle or component by physically rubbing it with a material such as a rag, paper, or cotton swab that has been moistened with a cleaning solvent." (60 FR 45958) The NESHAP rule differentiates between hand-wipe cleaning operations, spray gun cleaning, and "flush cleaning," in which contaminants are removed by "passing solvent over, into, or through the item being cleaned." (60 FR 45958) Similarly, EPA is considering differentiating between manual cleaning and other methods for solvent cleaning under the SNAP program.

As part of EPA's efforts to comply with the intent of the mandate in Section 612 of the Clean Air Act to evaluate the overall health and environmental risks associated with potential substitutes to ozone depleting substances, we are interested in receiving comments and information on the following:

- Appropriateness of SNAP review of ODS substitutes used in manual cleaning,
- Potential health and environmental benefits from SNAP review of solvents used in manual cleaning,
- Other solvent applications not currently reviewed under SNAP, but where SNAP review of solvents used in these applications may result in environmental benefits, and
- Consequences of the expansion of SNAP review into manual cleaning. For example, since HCFC-141b is already listed as unacceptable in all non-aerosol solvent cleaning applications (i.e., in precision, electronics, and metals cleaning), the use of HCFC-141b as a substitute for CFC-113 or methyl chloroform in manual wiping would automatically become prohibited if EPA were to promulgate a final rule expanding the scope of SNAP to include manual cleaning. In addition, when EPA promulgates rules in the future that list acceptability determinations for particular solvents, we could prohibit the use of those solvents in manual cleaning.

The Agency hopes that today's action will give the public an opportunity to provide input at an early stage in this decision-making process. If EPA pursues this expansion of the scope of SNAP review, we will do so through notice-and-comment rulemaking.

#### **IV. Request for Information on Restricting SNAP Acceptability Decisions in the Non-Aerosol Solvent Cleaning Sector to Operations That Involve the Use of Equipment That Meets Equipment Standards in the National Emission Standards for Halogenated Solvent Cleaning**

As discussed in the previous section of this action, EPA has historically applied SNAP review in the non-aerosol solvent cleaning sector only to large industrial cleaning applications where ozone-depleting substances have been historically used. Within industrial cleaning, the three main applications that in the past used ozone-depleting solvents are precision cleaning, electronics cleaning, or general metals cleaning. Solvents used in these applications are subject to SNAP review.

Each of these applications includes a wide range of cleaning operations and equipment: cold cleaning methods such as pail-and-brush, hand wipe, recirculating over-spray ("sink-on-a-drum") parts washers, immersion cleaning into dip tanks with manual parts handling, automated immersion cleaning using multiple dip tanks, and either automated or manual immersion

cleaning that incorporates ultrasonic or mechanical agitation, and heated cleaning methods such as heated dip tanks and vapor degreasing. Some of these operations are more emissive, and present more risks to workers handling the equipment, than others. The Agency is interested in pursuing regulatory options within the SNAP decisionary framework in order to better account for these differences. In other words, for certain solvents reviewed under the SNAP program, it may not make sense to determine that use of that compound is acceptable without conditions or restrictions, or alternatively that it is unacceptable, in all precision (or electronic, or metals) cleaning operations. EPA is interested in pursuing the use of certain narrowed use restrictions on SNAP acceptability decisions that would better implement the intent of the Clean Air Act Section 612 mandate to evaluate the overall health and environmental risks associated with potential substitutes to ozone-depleting substances.

EPA is specifically interested in receiving comments and information on the appropriateness of restricting SNAP acceptability decisions for newly submitted non-aerosol solvents to operations that involve the use of equipment that meets the requirements set forth in 40 CFR 63.462, Batch cold cleaning machine standards, and 40 CFR 63.463, Batch vapor and in-line cleaning machine standards, which are set forth in the national emission standards for halogenated solvent cleaning ("HSC NESHAP").<sup>4</sup> Does it

<sup>4</sup> For reference, the HSC NESHAP provisions at 40 CFR 63.461 (July 1, 1999 revision) include the following definitions:

*Batch cleaning machine* means a solvent cleaning machine in which individual parts or a set of parts move through the entire cleaning cycle before new parts are introduced into the solvent cleaning machine. An open-top vapor cleaning machine is a type of batch cleaning machine. A solvent cleaning machine, such as a ferris wheel cleaner, that cleans multiple batch loads simultaneously and is manually loaded is a batch cleaning machine.

*Cold cleaning machine* means any device or piece of equipment that contains and/or uses liquid solvent, into which parts are placed to remove soils from the surfaces of the parts or to dry the parts. Cleaning machines that contain and use heated, nonboiling solvent to clean the parts are classified as cold cleaning machines.

*Open-top vapor cleaning machine* means a batch solvent cleaning machine that has its upper surface open to the air and boils solvent to create solvent vapor used to clean and/or dry parts.

*Immersion cold cleaning machine* means a cold cleaning machine in which the parts are immersed in the solvent when being cleaned.

*In-line cleaning machine or continuous cleaning machine* means a solvent cleaning machine that uses an automated parts handling system, typically a conveyor, to automatically provide a continuous supply of parts to be cleaned. These units are fully

Continued

make sense to add a narrowed use restriction to SNAP "acceptable" or "acceptable subject to use conditions" determinations that would permit the use of the solvent in the appropriate application (i.e., precision cleaning, electronics cleaning, or metals cleaning) only if the solvent is used in conjunction with equipment that meets the HSC NESHAP? This restriction might be stated as follows: "May only be used in conjunction with batch cold cleaning machines or batch vapor or in-line cleaning machines that conform to 40 CFR 63.462 or 40 CFR 63.463." If an acceptability decision were restricted in this manner, and if EPA were to regulate manual cleaning as discussed in the previous section of the preamble, then the solvent presumably could not be used in (a) manual cleaning in that application, (b) any other cleaning process in that application not subject to the HSC NESHAP, or (c) any cleaning process in that application subject to the HSC NESHAP but not in conformance with the NESHAP.

Another alternative would be to restrict a solvent's use to some subset of the applications mentioned above. For example, there could be conditions prohibiting the solvent's use for any cleaning machines in that application not subject to the HSC NESHAP, or for any cleaning process in that application subject to the HSC NESHAP but not in conformance with the NESHAP. This alternative restriction might be stated as follows: "If used in cleaning machines, may only be used in conjunction with batch cold cleaning machines or batch vapor or in-line cleaning machines that conform to 40 CFR 63.462 or 40 CFR 63.463." Or, the restriction could apply to cleaning processes that are subject to the HSC NESHAP and to manual cleaning applications. Under this second alternative, the narrowed use restriction might be stated as follows: "If used in conjunction with batch cold cleaning machines or batch vapor or in-line cleaning machines that are subject to 40 CFR 63.462 or 40 CFR 63.463, may only be used in conjunction with equipment that meets the requirements set forth in these provisions. Also may

enclosed except for the conveyor inlet and exit portals. In-line cleaning machines can be either cold or vapor cleaning machines.

*Solvent cleaning machine* means any device or piece of equipment that uses halogenated HAP solvent liquid or vapor to remove soils from the surfaces of materials. Types of solvent cleaning machines include, but are not limited to, batch vapor, in-line vapor, in-line cold, and batch cold solvent cleaning machines.

*Vapor cleaning machine* means a batch or in-line solvent cleaning machine that boils liquid solvent generating solvent vapor that is used as a part of the cleaning or drying cycle.

not be used in manual cleaning operations."

EPA is also interested in receiving comments and information on the following:

- What are the potential health and environmental benefits from the SNAP program adding these types of restrictions to future SNAP acceptability determinations?
- Which solvents submitted to the SNAP program in the future, if any, should be subject to the HSC NESHAP restriction? For example, should this restriction be attached to acceptability determinations for any compound for which the eight-hour time-weighted average exposure limit, whether set by the chemical manufacturer, a voluntary industry organization, or a federal or state health or safety agency, is 100 ppm or less? 150 ppm or less? 50 ppm or less?
- Should any solvents that EPA has already listed as "acceptable" be subject to this type of restriction, in order to prevent worker exposures or atmospheric emissions?

The Agency hopes that today's action will give the public an opportunity to provide input at an early stage in this decision-making process. If EPA pursues this expansion of the scope of SNAP review, we will do so through notice-and-comment rulemaking.

#### V. Status of EPA Review of n-Propyl Bromide

EPA is in the process of reviewing n-propyl bromide (nPB) as a potential substitute for CFC-113, methyl chloroform and HCFC-141b in the non-aerosol solvent cleaning sector for general metals, precision, and electronics cleaning applications, as well as in adhesive and coatings applications, and aerosol propellant and solvent applications. On February 18, 1999, EPA published an Advanced Notice of Proposed Rulemaking (ANPRM) in the **Federal Register** at 64 FR 8043, which requested comment and information on nPB, particularly with regard to its ozone-depletion potential (ODP) and its toxicity, in order to assist in the development of effective regulatory options.

Through the publication of the ANPRM, EPA summarized and made publicly available the information it had received on nPB so that interested parties could evaluate these data. The ANPRM noted that EPA will supplement the public docket with new information as received, and issue an additional notice of data availability. Today's action serves to provide the public with an update on the

information EPA has received to date (which has been added to the public docket), and provides a summary of anticipated next steps in developing regulations under SNAP for nPB.

The discussion below presents this new information for each of the main areas previously identified in the February 1999 ANPRM where significant uncertainties existed or data were incomplete.

**Ozone Depletion Potential.** Since the publication of the ANPRM, EPA has received new information about ongoing modeling efforts to estimate nPB's ODP. These new efforts involve development and refinement of three-dimensional (3-D) chemical transport models that account for the relatively short-atmospheric lifetime of nPB (11–14 days according to Nelson et al. 1997; Wuebbles et al., 1998; 1999a, and 19–20 days according to Wuebbles et al., 2000) and for the location and timing of emissions. While two-dimensional models can treat longer-lived gases (e.g., CFCs, halons) that are well-mixed in the atmosphere as if they are uniformly emitted at all latitudes and longitudes, they are not designed to adequately account for variations in concentrations and transport of short-lived compounds and their degradation products. As discussed in a March 1999 workshop on short-lived compounds sponsored by EPA and NASA (Wuebbles and Ko, 1999), the ODPs for short-lived compounds ideally would be defined as a function of location and perhaps time of emission. 3-D models can examine questions related to convective transport rates of these short-lived compounds and their degradation products at different latitudes, and the relative importance of transient versus steady-state effects. Using the most recent version of the MOZART2 3-D model and considering the full degradation chemistry of nPB in the atmosphere, Wuebbles et al. 2000 (available from the EPA Air Docket) derived a range of ODP values that are strongly dependent on location of the emissions, especially with respect to latitude. For example, the ODP averaged for all global emissions is estimated to range from 0.033 to 0.040, but the ODP for emissions from the tropics (India, Southeast Asia, and Indonesia) is estimated to be much larger, 0.87 to 0.105. The authors attribute the difference to the strong effect of the deep convective transport in the tropics in rapidly moving gases to the upper troposphere. Assuming that emissions occur only over the contiguous United States, the ODP is estimated to range from 0.016 to 0.019. While many of the previously identified uncertainties with

respect to the potential impacts of nPB on stratospheric ozone are addressed in this study, the authors note that considerable uncertainties remain related to the lack of empirical data on reaction rate constants and products for the degradation chemistry associated with nPB. Additional uncertainties also remain that are common to any 3-D modeling of short-lived gases related to the treatment of convective processes, boundary layer processes, surface deposition, and rainout.

The Agency remains interested in receiving from the public any other information pertaining to the atmospheric effects and ozone depletion potential of short-lived atmospheric chemicals (e.g., shorter than three months), and any additional information on the ODP of nPB, specifically. EPA will make any new information accessible to the public as it becomes available by placing it in the docket identified in the Addresses section of this document, and if appropriate, will issue a notice of data availability in the **Federal Register** to insure that the public is aware of any new information.

Toxicity. As with other solvents, occupational exposure to nPB may occur via both inhalation and skin absorption. Potential health effects related to overexposure to nPB (and many other solvents) may include irritation of the eyes, mucous membranes, upper respiratory tract, and skin. At higher exposure levels, central nervous system effects (characterized by headache and dizziness, possibly leading to loss of consciousness) may occur. Animal studies indicate that exposure to nPB at concentrations above 400 parts per million for "sub-chronic" durations of 28–90 days is associated with liver toxicity and reproductive system effects (reduced sperm counts and motility). Reproductive system effects have also been observed in both rats and humans exposed to 2-bromopropane (iPB), an isomer of nPB which also has tested positive in some *in vitro* cancer assays.

As discussed in the February 1999 ANPRM, the reproductive and developmental effects of nPB are especially uncertain, and require additional data before the Agency issues a proposed regulation. In cooperation with EPA, a consortium of nPB manufacturers conducted a study to evaluate the effects of nPB exposures on the developmental and reproductive systems in two generations of rats. This study was recently completed, and we expect that its results will be available for Agency review early in 2001.

EPA is also aware of recent Japanese studies that have shown adverse neurotoxicological and reproductive toxicological effects in rats exposed to nPB levels as low as 200 ppm, which is a lower level for adverse effects than has been previously demonstrated (Ichihara et al., 2000a, b). The Agency intends to review the protocols followed in these studies in order to estimate the significance of the findings.

EPA plans on issuing a proposed nPB regulation as soon as possible once we have had an opportunity to evaluate the results of these recent toxicological studies. In the event that EPA lists uses of nPB in certain applications as acceptable, we expect that the final action will include a recommended exposure limit. In the February 1999 ANPRM, EPA recommended that until exposure levels are set, either on a voluntary basis by a standard-setting organization such as the American Conference of Governmental Industrial Hygienists (ACGIH) or the American Industrial Hygienists Association (AIHA), or on a mandatory basis by OSHA, nPB users should adhere to a preliminary exposure limit of 50–100 ppm over an eight-hour time-weighted average. The nPB manufacturers' current company-set limit at that time was 100 ppm. However, based on the preliminary review of the two-year study discussed above, one manufacturer of nPB has revised its recommended exposure limit to 25 ppm on an 8-hour, time-weighted average basis (see docket A-91-42, item IX-B-61). As indicated by at least one manufacturer's decision and as noted in the February 1999 ANPRM, the results from developmental and reproductive testing may require a lower limit than EPA's preliminary recommendation of 50–100 ppm to be protective.

The U.S. Occupational Safety and Health Administration (OSHA) has submitted nPB and iPB to the National Institute of Environmental Health Sciences' National Toxicology Program (NTP) for further assessment. In its submission, OSHA recommended that NTP consider administering the following tests: Carcinogenicity study in both sexes of rats and mice; a multi-generation reproductive study; developmental studies (inhalation by pregnant animals); a subchronic neurotoxicity study; a genotoxicity battery; and toxicokinetic/mechanistic studies. These studies would likely take several years to complete. EPA anticipates that once the assessment is finalized, OSHA will work to develop a mandatory exposure limit for nPB use in the workplace. The results of OSHA's review could result in a limit that is

lower than EPA's preliminary recommendation of 50–100 ppm.

EPA is presenting and making publicly available the information it has received so that interested parties may evaluate these data for themselves and use it as guidance if they choose to use nPB until a proposal and final rule are in place. EPA remains interested in receiving additional information on human health and toxicological risks associated with exposure to nPB. As EPA receives new information, we will add it to the docket, along with a notice of data availability in the **Federal Register**, as appropriate.

## VI. Section 612 Program

### A. Statutory Requirements

Section 612 of the Clean Air Act authorizes EPA to develop a program for evaluating alternatives to ozone-depleting substances. EPA refers to this program as the Significant New Alternatives Policy (SNAP) program. The major provisions of section 612 are:

- **Rulemaking**—Section 612(c) requires EPA to promulgate rules making it unlawful to replace any class I (chlorofluorocarbon, halon, carbon tetrachloride, methyl chloroform, methyl bromide, and hydrobromofluorocarbon) or class II (hydrochlorofluorocarbon) substance with any substitute that the Administrator determines may present adverse effects to human health or the environment where the Administrator has identified an alternative that (1) reduces the overall risk to human health and the environment, and (2) is currently or potentially available.

- **Listing of Unacceptable/Acceptable Substitutes**—Section 612(c) also requires EPA to publish a list of the substitutes unacceptable for specific uses. EPA must publish a corresponding list of acceptable alternatives for specific uses.

- **Petition Process**—Section 612(d) grants the right to any person to petition EPA to add a substance to or delete a substance from the lists published in accordance with section 612(c). The Agency has 90 days to grant or deny a petition. Where the Agency grants the petition, EPA must publish the revised lists within an additional six months.

- **90-day Notification**—Section 612(e) directs EPA to require any person who produces a chemical substitute for a class I substance to notify the Agency not less than 90 days before new or existing chemicals are introduced into interstate commerce for significant new uses as substitutes for a class I substance. The producer must also provide the Agency with the producer's

unpublished health and safety studies on such substitutes.

- **Outreach**—Section 612(b)(1) states that the Administrator shall seek to maximize the use of federal research facilities and resources to assist users of class I and II substances in identifying and developing alternatives to the use of such substances in key commercial applications.

- **Clearinghouse**—Section 612(b)(4) requires the Agency to set up a public clearinghouse of alternative chemicals, product substitutes, and alternative manufacturing processes that are available for products and manufacturing processes which use class I and II substances.

**B. Regulatory History**

On March 18, 1994, EPA published the original rulemaking (59 FR 13044) which described the process for administering the SNAP program and issued EPA's first acceptability lists for substitutes in the major industrial use sectors. These sectors include: refrigeration and air conditioning; foam blowing; solvents cleaning; fire suppression and explosion protection; sterilants; aerosols; adhesives, coatings and inks; and tobacco expansion. These sectors compose the principal industrial sectors that historically consumed the largest volumes of ozone-depleting compounds.

As described in this original rule for the SNAP program, EPA does not believe that rulemaking procedures are required to list alternatives as acceptable with no limitations. Such listings do not impose any sanction, nor do they remove any prior license to use a substance. Consequently, by this action EPA is adding substances to the list of acceptable alternatives without first requesting comment on new listings.

EPA does, however, believe that notice-and-comment rulemaking is required to place any substance on the

list of prohibited substitutes, to list a substance as acceptable only under certain conditions, to list substances as acceptable only for certain uses, or to remove a substance from the lists of prohibited or acceptable substitutes. Updates to these lists are published as separate notices of rulemaking in the **Federal Register**.

The Agency defines a "substitute" as any chemical, product substitute, or alternative manufacturing process, whether existing or new, intended for use as a replacement for a class I or class II substance. Anyone who produces a substitute must provide the Agency with health and safety studies on the substitute at least 90 days before introducing it into interstate commerce for significant new use as an alternative. This requirement applies to substitute manufacturers, but may include importers, formulators, or end-users, when they are responsible for introducing a substitute into commerce.

You can find a complete chronology of SNAP decisions and the appropriate **Federal Register** citations at EPA's Ozone Depletion World Wide Web site at [www.epa.gov/ozone/title6/snap/chron.html](http://www.epa.gov/ozone/title6/snap/chron.html). This information is also available from the Air Docket (see **ADDRESSES** section above for contact information).

**VI. Additional Information**

Contact the Stratospheric Protection Hotline at (800) 296-1996, Monday-Friday, between the hours of 10:00 a.m. and 4:00 p.m. (EST). For more information on the Agency's process for administering the SNAP program or criteria for evaluation of substitutes, refer to the original SNAP rulemaking published in the **Federal Register** on March 18, 1994 (59 FR 13044). Notices and rulemakings under the SNAP program, as well as all EPA publications on protection of stratospheric ozone, are available from EPA's Ozone Depletion World Wide Web site at [www.epa.gov/](http://www.epa.gov/)

[ozone/title6/snap/](http://www.epa.gov/ozone/title6/snap/) and from the Stratospheric Protection Hotline, the toll-free telephone number of which is listed above.

**VII. References**

The following referenced documents are available for inspection and copying at the EPA Docket.

Ichihara, G., et al., "1-Bromopropane, an Alternative to Ozone Layer Depleting Solvents, Is Dose-Dependently Neurotoxic to Rats in Long-Term Inhalation Exposure," *Toxicological Sciences* 55, 116-123 (2000a), available through the EPA Air Docket and at <http://toxsci.oupjournals.org/cgi/content/full/55/1/116>.

Ichihara, G., et al., "Reproductive Toxicity of 1-Bromopropane, a Newly Introduced Alternative to Ozone Layer Depleting Solvents, in Male Rats," *Toxicological Sciences* 54, 416-423 (2000b), available through the EPA Air Docket and at <http://toxsci.oupjournals.org/cgi/content/full/54/2/416>.

Wuebbles, D.J., Patten, K.O., Johnson, M.T., Kotomarthi, R.; *The New Methodology for Ozone Depletion Potentials of Short-Lived Compounds: n-Propyl Bromide as an Example* June 26, 2000 Draft.

Web site for Albemarle Corporation, "Regulatory Status" and "Product Data" for Abzol cleaners, available through the EPA Air Docket and at <http://www.albemarle.com/abztopicsfrm.htm>.

**List of Subjects in 40 CFR Part 82**

Environmental protection, Administrative practice and procedure, Air pollution control, Reporting and recordkeeping requirements.

Dated: December 6, 2000.

**Paul Stolpman,**

*Director, Office of Atmospheric Programs, Office of Air and Radiation.*

**Appendix A: Summary of Acceptable Decisions**

End-Use	Substitute	Decision	Comments
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**REFRIGERATION and AIR CONDITIONING**

industrial process refrigeration, for use as a secondary heat transfer fluid in new equipment for not-in-kind replacements of systems.	Hydrofluoroether 7100 as a substitute for CFC-11, CFC-12, CFC-114, CFC-115, HCFC-22 and R-502.	Acceptable.	
	Hydrofluoroether 7200 as a substitute for CFC-11, CFC-12, CFC-114, CFC-115, HCFC-22 and R-502.	Acceptable.	

End-Use	Substitute	Decision	Comments
retail food refrigeration, for use as a secondary heat transfer fluid in new equipment for not-in-kind replacements of systems.	Hydrofluoroether 7100 as a substitute for CFC-12 and R-502.	Acceptable.	
very low temperature refrigeration, for use as a secondary heat transfer fluid in new equipment for not-in-kind replacements of systems.	Hydrofluoroether 7200 as a substitute for CFC-12 and R-502.	Acceptable.	
	Hydrofluoroether 7100 as a substitute for CFC-113, R-13B1, and R-503.	Acceptable.	
	Hydrofluoroether 7200 as a substitute for CFC-113, R-13B1, and R-503.	Acceptable.	
non-mechanical heat transfer, for use in retrofit and new equipment.	Hydrofluoroether 7100 as a substitute for CFC-11, CFC-12, CFC-114, CFC-115, and HCFC-22.	Acceptable.	
	Hydrofluoroether 7200 as a substitute for CFC-11, CFC-12, CFC-114, CFC-115, and HCFC-22.	Acceptable.	
industrial process refrigeration and air-conditioning (retrofit and new).	FOR12A as a substitute for HCFC-22.	Acceptable.	
	FOR12B as a substitute for CFC-12.	Acceptable.	
	NU-22 as a substitute for HCFC-22.	Acceptable.	
industrial process refrigeration (retrofit and new).	SP34E as a substitute for CFC-12.	Acceptable.	
cold storage warehouses (retrofit and new).	FOR12A as a substitute for CFC-12.	Acceptable.	
	FOR12B as a substitute for CFC-12.	Acceptable.	
	SP34E as a substitute for CFC-12.	Acceptable.	
refrigerated transport (retrofit and new).	FOR12A as a substitute for CFC-12.	Acceptable.	
	FOR12B as a substitute for CFC-12.	Acceptable.	
	NU-22 as a substitute for HCFC-22.	Acceptable.	
	SP34E as a substitute for CFC-12.	Acceptable.	
retail food refrigeration (retrofit and new).	FOR12A as a substitute for CFC-12.	Acceptable.	
	FOR12B as a substitute for CFC-12.	Acceptable.	
	SP34E as a substitute for CFC-12.	Acceptable.	
ice machines (new) .....	FOR12A as a substitute for CFC-12.	Acceptable.	
	FOR12B as a substitute for CFC-12.	Acceptable.	
vending machines (retrofit and new).	FOR12A as a substitute for CFC-12.	Acceptable.	
	FOR12B as a substitute for CFC-12.	Acceptable.	
	SP34E as a substitute for CFC-12.	Acceptable.	
water coolers (retrofit and new).	FOR12A as a substitute for CFC-12.	Acceptable.	
	FOR12B as a substitute for CFC-12.	Acceptable.	

End-Use	Substitute	Decision	Comments
centrifugal chillers (retrofit and new).	SP34E as a substitute for CFC-12.	Acceptable.	Users must use the unique fittings and label specified by the manufacturer, as required by Appendix D to subpart G of 40 CFR part 82. Use is subject to requirements under § 609 of the Clean Air Act.
	FOR12A as a substitute for CFC-12.	Acceptable.	
	FOR12B as a substitute for CFC-12.	Acceptable.	
reciprocating chillers (retrofit and new).	NU-22 as a substitute for HCFC-12.	Acceptable.	
	FOR12A as a substitute for CFC-12.	Acceptable.	
	FOR12B as a substitute for CFC-12.	Acceptable.	
household refrigerators and freezers (retrofit and new).	NU-22 as a substitute for HCFC-12.	Acceptable.	
	SP34E as a substitute for CFC-12.	Acceptable.	
	FOR12A as a substitute for CFC-12.	Acceptable.	
residential air conditioning and heat pumps (retrofit and new).	FOR12B as a substitute for CFC-12.	Acceptable.	
	SP34E as a substitute for CFC-12.	Acceptable.	
residential dehumidifiers (retrofit and new).	NU-22 as a substitute for HCFC-22.	Acceptable.	
motor vehicle air conditioning, buses only (retrofit and new).	NU-22 as a substitute for HCFC-22.	Acceptable.	
motor vehicle air conditioning (retrofit and new).	SP34E as a substitute for CFC-12.	Acceptable .....	

**FOAMS**

<ul style="list-style-type: none"> <li>• rigid polyurethane and polyisocyanurate laminated boardstock.</li> <li>• rigid polyurethane appliances.</li> <li>• rigid polyurethane slabstock and other foams.</li> <li>• rigid polyurethane commercial refrigeration and sandwich panels.</li> <li>• polyurethane integral skin foam.</li> </ul>	Methyl formate as a substitute for CFCs and HCFCs.	Acceptable.	
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**NON-AEROSOL SOLVENT CLEANING**

all metals cleaning, precision cleaning, and electronics cleaning applications.	Hydrofluoroether 7100 as a substitute for HCFC-141b and HCFC-22.	Acceptable.	EPA expects users to adhere to an exposure limit of 123 ppm over an eight-hour time-weighted average, with a ceiling of 500 ppm.
	Hydrofluoroether 7200 as a substitute for HCFC-141b and HCFC-22.	Acceptable.	
	Heptafluorocyclopentane as a substitute for CFC-113, methyl chloroform, and HCFC-141b.	Acceptable.	
	HFC-365mfc as a substitute for CFC-113, methyl chloroform, and HCFC-141b.	Acceptable.	

End-Use	Substitute	Decision	Comments
<b>AEROSOL SOLVENTS AND PROPELLANTS</b>			
aerosol solvents .....	Hydrofluoroether 7100 as a substitute for CFC-11 and HCFC-141b. Hydrofluoroether 7200 as a substitute for CFC-11 and HCFC-141b. HFC-365mfc as a substitute for CFC-113, methyl chloroform, and HCFC-141b.	Acceptable.  Acceptable.  Acceptable.	

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**FEDERAL COMMUNICATIONS COMMISSION**

**47 CFR Part 1**

[FCC 00-352]

**Waivers, Reductions and Deferrals of Regulatory Fees**

**AGENCY:** Federal Communications Commission.

**ACTION:** Final rule.

**SUMMARY:** This document amends the Commission's rule regarding petitions for reduction of regulatory fees. The current rule permits a petition for regulatory fee waiver to be submitted with less than full fee payment, which is contrary to the text and intent of the order establishing the regulatory fee waiver rules. The revised rule requires full fee payment to be submitted with any petition for reduction of fee. The revised rule also provides that petitions for reduction that do not include full fee payment will be dismissed unless accompanied by a petition to defer payment due to financial hardship, supported by documentation of the financial hardship.

**DATES:** Effective January 17, 2001.

**FOR FURTHER INFORMATION CONTACT:** Carla Conover, Office of General Counsel, (202) 418-7882.

**SUPPLEMENTARY INFORMATION:** 1. It has come to our attention that our rule on regulatory fee waivers does not conform to the text and intent of our order addressing requests for reductions of fees. On our own motion therefore, we amend and correct our rule on fee waivers. Specifically, in our order

adopting rules on regulatory fee waivers, we concluded that the required fee must be submitted with any request for waiver or reduction of regulatory fees. *Implementation of Section 9 of the Communications Act*. 9 FCC Rcd 5333, 5344 through 5345 (1994) (hereinafter *Order*). We excepted only the rare petitions requesting waiver or reduction based on financial hardship and which present compelling cases of financial hardship. We specifically rejected comments arguing that we should not generally require that fees be paid when requests for waiver or reduction of regulatory fees are filed. The language of the rule adopted in the *Order*, however, inadvertently included the phrase "less the amount of the requested reduction," following "the full fee payment," and did not include language regarding dismissing petitions not accompanied by full fee payment. (The rule was originally designated as 47 CFR 1.1165(a)(4), but has since been redesignated 47 CFR 1.1166(d).) Our correction to the rule deletes the phrase "less the amount of the requested reduction" and adds the final sentence to conform the language of the rule to the text and intent of paragraphs 33 to 35 of the *Order*. We therefore revise paragraph (d) of 47 CFR 1.1166 accordingly.

2. In the interests of fairness, we will ensure that no party that relied on the unamended language of 47 CFR 1.1166(d) will be prejudiced. The amended rule will apply only to petitions filed after the effective date of the amended rule.

3. Accordingly, pursuant to sections 4(i) and (j), 9, and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. 154(i) & (j), 159, & 303(r), part 1 of the Commission's rules,

47 CFR part 1, is amended as set forth and is effective January 17, 2001.

**List of Subjects in 47 CFR Part 1**

Administrative practice and procedure.

Federal Communications Commission.

**Magalie Roman Salas,**  
*Secretary.*

**Rule Changes**

Part 1 of title 47 of the Code of Federal Regulations is amended to read as follows:

**PART 1—PRACTICE AND PROCEDURE**

1. The authority citation for part 1 continues to read as follows:

**Authority:** 47 U.S.C. 151, 154(i), 154(j), 155, 225, 303(4), 309.

2. Section 1.1166 is amended by revising paragraph (d) to read as follows:

**§ 1.1166 Waivers, reductions and deferrals of regulatory fees.**

\* \* \* \* \*

(d) Petitions for reduction of a fee must be accompanied by the full fee payment and Form 159. Petitions for reduction accompanied by a fee payment must be addressed to the Federal Communications Commission, Attention: Petitions, Post Office Box 358835, Pittsburgh, Pennsylvania, 15251-5835. Petitions for reduction that do not include the required fees or forms will be dismissed unless accompanied by a petition to defer payment due to financial hardship, supported by documentation of the financial hardship.

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