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APPENDIX A TO PART 81—AIR QUALITY CONTROL REGIONS (AQCR'S)—Continued

	AQCR No.
U.S. Virgin Islands:	
U.S. Virgin Islands	247

PART 82—PROTECTION OF STRATOSPHERIC OZONE

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Subpart A—Production and Consumption Controls

SOURCE: 60 FR 24986, May 10, 1995, unless otherwise noted.

§ 82.1 Purpose and scope.

(a) The purpose of the regulations in this subpart is to implement the Montreal Protocol on Substances that Deplete the Ozone Layer and sections 603, 604, 605, 606, 607 and 616 of the Clean Air Act Amendments of 1990, Public Law 101–549. The Protocol and section 604 impose limits on the production and consumption (defined as production plus imports minus exports, excluding transhipments and used controlled substances) of certain ozone-depleting substances, according to specified schedules. The Protocol also requires each nation that becomes a Party to the agreement to impose certain restrictions on trade in ozone-depleting substances with non-Parties.

(b) This subpart applies to any person that produces, transforms, destroys, imports or exports a controlled substance or imports a controlled product.

§ 82.2 Effective date.

(a) The regulations under this subpart take effect May 10, 1995. Amendments to the requirements specifically addressing 1995 apply to the entire control period.

(b) The regulations under this subpart that were effective prior to May 10, 1995, continue to apply for purposes of enforcing the provisions that were applicable prior to January 1, 1995.

§82.3 Definitions.

As used in this subpart, the term:

Administrator means the Administrator of the Environmental Protection Agency or his authorized representative.

Article 5 allowances means the allowances apportioned under §82.9(a).

Baseline consumption allowances means the consumption allowances apportioned under §82.6.

Baseline production allowances means the production allowances apportioned under §82.5.

Calculated level means the weighted amount of a controlled substance determined by multiplying the amount (in kilograms) of the controlled substance by that substance's ozone depletion potential (ODP) weight listed in appendix A or appendix B to this subpart.

Class I refers to the controlled substances listed in appendix A to this subpart.

Class II refers to the controlled substances listed in appendix B to this subpart.

Completely destroy means to cause the expiration of a controlled substance at a destruction efficiency of 98 percent or greater, using one of the destruction technologies approved by the Parties.

Complying with the Protocol, when referring to a foreign state not Party to the 1987 Montreal Protocol, the London Amendments, or the Copenhagen Amendments, means that the non-Party has been determined as complying with the Protocol, as indicated in appendix C to this subpart, by a meeting of the Parties as noted in the records of the directorate of the United Nations Secretariat.

Consumption means the production plus imports minus exports of a controlled substance (other than transhipments, or used controlled substances).

Consumption allowances means the privileges granted by this subpart to produce and import class I controlled substances; however, consumption allowances may be used to produce class I controlled substances only in conjunction with production allowances. A person's consumption allowances are the total of the allowances obtained under §§82.6 and 82.7 and 82.10, as may be modified under §82.12 (transfer of allowances).

Control period means the period from January 1, 1992 through December 31, 1992, and each twelve-month period from January 1 through December 31, thereafter.

Controlled product means a product that contains a controlled substance listed as a Class I, Group I or II substance in appendix A to this subpart. Controlled products include, but are not limited to, those products listed in appendix D to this subpart.

Controlled products belong to one or more of the following six categories of products:

(1) Automobile and truck air conditioning units (whether incorporated in vehicles or not);

(2) Domestic and commercial refrigeration and air-conditioning/heat pump equipment (whether containing controlled substances as a refrigerant and/or in insulating material of the product), e.g. Refrigerators, Freezers, Dehumidifiers, Water coolers, Ice machines, Air-conditioning and heat pump units;

(3) Aerosol products, except medical aerosols;

(4) Portable fire extinguishers;

(5) Insulation boards, panels and pipe covers;

(6) Pre-polymers.

Controlled substance means any substance listed in appendix A or appendix B to this subpart, whether existing alone or in a mixture, but excluding any such substance or mixture that is in a manufactured product other than a container used for the transportation or storage of the substance or mixture. Thus, any amount of a listed substance in appendix A or appendix B to this subpart that is not part of a use system containing the substance is a controlled substance. If a listed substance or mixture must first be transferred from a bulk container to another container, vessel, or piece of equipment in order to realize its intended use, the listed substance or mixture is a ''controlled substance.'' The inadvertent or coincidental creation of insignificant quantities of a listed substance in appendix A or appendix B to this subpart; during a chemical manufacturing process, resulting from unreacted feedstock, from the listed substance's use

as a process agent present as a trace quantity in the chemical substance being manufactured, or as an unintended byproduct of research and development applications, is not deemed a controlled substance. Controlled substances are divided into two classes, Class I in appendix A to this subpart, and Class II listed in appendix B to this subpart. Class I substances are further divided into seven groups, Group I, Group II, Group III, Group IV, Group V, Group VI, and Group VII, as set forth in appendix A to this subpart.

Copenhagen Amendments means the Montreal Protocol on Substances That Deplete the Ozone Layer, as amended at the Fourth Meeting of the Parties to the Montreal Protocol in Copenhagen in 1992.

Destruction means the expiration of a controlled substance to the destruction efficiency actually achieved, unless considered completely destroyed as defined in this section. Such destruction does not result in a commercially useful end product and uses one of the following controlled processes approved by the Parties to the Protocol:

(1) Liquid injection incineration;
(2) Reactor cracking;
(3) Gaseous/fume oxidation;
(4) Rotary kiln incineration; or
(5) Cement kiln.

Destruction Credits means those privileges that may be obtained under § 82.9 to produce controlled substances.

Essential-Uses means those uses of controlled substances designated by the Parties to the Protocol to be necessary for the health and safety of, or critical for the functioning of, society; and for which there are no available technically and economically feasible alternatives or substitutes that are acceptable from the standpoint of environment and health. Beginning January 1, 2000 (January 1, 2002 for methyl chloroform) the essential use designations for class I substances must be made in accordance with the provisions of the Clean Air Act Amendments of 1990.

Essential-Use Allowances means the privileges granted by § 82.4(r) to produce class I substances, effective January 1, 1996 until January 1, 2000, as determined by allocation decisions made by the Parties to the Montreal Protocol and in accordance with the restrictions delineated in the Clean Air Act Amendments of 1990.

Export means the transport of virgin or used controlled substances from inside the United States or its territories to persons outside the United States or its territories, excluding United States military bases and ships for on-board use.

Exporter means the person who contracts to sell controlled substances for export or transfers controlled substances to his affiliate in another country.

Facility means any process equipment (e.g., reactor, distillation column) used to convert raw materials or feedstock chemicals into controlled substances or consume controlled substances in the production of other chemicals.

Foreign state means an entity which is recognized as a sovereign nation or country other than the United States of America.[1]

Foreign state not Party to or *Non-Party* means a foreign state that has not deposited instruments of ratification, acceptance, or other form of approval with the Directorate of the United Nations Secretariat, evidencing the foreign state's ratification of the provisions of the 1987 Montreal Protocol, the London Amendments, or of the Copenhagen Amendments, as specified.

Heel means the amount of a controlled substance that remains in a container after it is discharged or offloaded (that is no more than ten percent of the volume of the container) and that the person owning or operating the container certifies the residual amount will remain in the container and be included in a future shipment, or be recovered for transformation, destruction or a non-emissive purpose.

Import means to land on, bring into, or introduce into, or attempt to land on, bring into, or introduce into any place subject to the jurisdiction of the United States whether or not such landing, bringing, or introduction constitutes an importation within the meaning of the customs laws of the United States, with the following exemptions:

[1] Taiwan is not considered a foreign state.

(1) Off-loading used or excess controlled substances or controlled products from a ship during servicing,

(2) Bringing controlled substances into the U.S. from Mexico where the controlled substance had been admitted into Mexico in bond and was of U.S. origin, and

(3) Bringing a controlled product into the U.S. when transported in a consignment of personal or household effects or in a similar non-commercial situation normally exempted from U.S. Customs attention.

Importer means any person who imports a controlled substance or a controlled product into the United States. ''Importer'' includes the person primarily liable for the payment of any duties on the merchandise or an authorized agent acting on his or her behalf. The term also includes, as appropriate:

(1) The consignee;

(2) The importer of record;

(3) The actual owner; or

(4) The transferee, if the right to draw merchandise in a bonded warehouse has been transferred.

London Amendments means the Montreal Protocol, as amended at the Second Meeting of the Parties to the Montreal Protocol in London in 1990.

Montreal Protocol means the Montreal Protocol on Substances that Deplete the Ozone Layer, a protocol to the Vienna Convention for the Protection of the Ozone Layer, including adjustments adopted by the Parties thereto and amendments that have entered into force.

1987 Montreal Protocol means the Montreal Protocol, as originally adopted by the Parties in 1987.

Nations complying with, but not joining, the Protocol means any nation listed in appendix C, annex 2, to this subpart.

Party means any foreign state that is listed in appendix C to this subpart (pursuant to instruments of ratification, acceptance, or approval deposited with the Depositary of the United Nations Secretariat), as having ratified the specified control measure in effect under the Montreal Protocol. Thus, for purposes of the trade bans specified in § 82.4(k)(2) pursuant to the London Amendments, only those foreign states that are listed in appendix C to this subpart as having ratified both the 1987 Montreal Protocol and the London Amendments shall be deemed to be Parties.

Person means any individual or legal entity, including an individual, corporation, partnership, association, state, municipality, political subdivision of a state, Indian tribe; any agency, department, or instrumentality of the United States; and any officer, agent, or employee thereof.

Plant means one or more facilities at the same location owned by or under common control of the same person.

Production means the manufacture of a controlled substance from any raw material or feedstock chemical, but does not include:

(1) The manufacture of a controlled substance that is subsequently transformed;

(2) The reuse or recycling of a controlled substance;

(3) Amounts that are destroyed by the approved technologies; or

(4) Amounts that are spilled or vented unintentionally.

Production allowances means the privileges granted by this subpart to produce controlled substances; however, production allowances may be used to produce controlled substances only in conjunction with consumption allowances. A person's production allowances are the total of the allowances obtained under §§ 82.7, 82.5 and 82.9, and as may be modified under § 82.12 (transfer of allowances).

Transform means to use and entirely consume (except for trace quantities) a controlled substance in the manufacture of other chemicals for commercial purposes.

Transformation Credits means those privileges that may be obtained under § 82.9 to produce controlled substances.

Transhipment means the continuous shipment of a controlled substance from a foreign state of origin through the United States, its territories, to a second foreign state of final destination, as long as the shipment does not enter into United States jurisdiction.

Unexpended Article 5 allowances means Article 5 allowances that have not been used. At any time in any control period

a person's unexpended Article 5 allowances are the total of the level of Article 5 allowances the person has authorization under this subpart to hold at that time for that control period, minus the level of controlled substances that the person has produced in that control period until that time.

Unexpended consumption allowances means consumption allowances that have not been used. At any time in any control period a person's unexpended consumption allowances are the total of the level of consumption allowances the person has authorization under this subpart to hold at that time for that control period, minus the level of controlled substances that the person has produced or imported (not including transhipments and used controlled substances) in that control period until that time.

Unexpended destruction and transformation credits means destruction and transformation credits that have not been used. At any time in any control period a person's unexpended destruction and transformation credits are the total of the level of destruction and transformation credits the person has authorization under this subpart to hold at that time for that control period, minus the level of controlled substances that the person has produced or imported (not including transhipments and used controlled substances) in that control period until that time.

Unexpended essential-use allowances means essential-use allowances that have not been used. At any time in any control period a person's unexpended essential-use allowances are the total of the level of essential-use allowances the person has authorization under this subpart to hold at that time for that control period, minus the level of controlled substances that the person has produced or imported (not including transhipments and used controlled substances) in that control period until that time.

Unexpended production allowances means production allowances that have not been used. At any time in any control period a person's unexpended production allowances are the total of the level of production allowances he has authorization under this subpart to hold at that time for that control period, minus the level of controlled substances that the person has produced in that control period until that time.

Used controlled substances means controlled substances that have been recovered from their intended use systems (may include controlled substances that have been, or may be subsequently, recycled or reclaimed).

§ 82.4 Prohibitions.

(a) Prior to January 1, 1996, for all Groups of class I controlled substances, and prior to January 1, 2001, for class I, Group VI controlled substances, no person may produce, at any time in any control period, (except that are transformed or destroyed domestically or by a person of another Party) in excess of the amount of unexpended production allowances or unexpended Article 5 allowances for that substance held by that person under the authority of this subpart at that time for that control period. Every kilogram of excess production constitutes a separate violation of this subpart.

(b) Effective January 1, 1996, for any class I, Group I, Group II, Group III, Group IV, Group V, or Group VII controlled substances, no person may produce, at any time in any control period, (except that are transformed or destroyed domestically or by a person of another Party) in excess of the amount of conferred unexpended essential-use allowances or exemptions under this section, the amount of unexpended Article 5 allowances as allocated under § 82.9, or the amount of conferred unexpended destruction and transformation credits as obtained under § 82.9 for that substance held by that person under the authority of this subpart at that time for that control period. Every kilogram of excess production constitutes a separate violation of this subpart.

(c) Prior to January 1, 1996, for all Groups of class I controlled substances, and prior to January 1, 2001, for class I, Group VI controlled substances, no person may produce or (except for transhipments, heels, or used controlled substances) import, at any time in any control period, (except for controlled substances that are transformed or destroyed) in excess of the

amount of unexpended consumption allowances held by that person under the authority of this subpart at that time for that control period. Every kilogram of excess production or importation (other than transhipments, heels or used controlled substances) constitutes a separate violation of this subpart.

(d) Effective January 1, 1996, for any class I, Group I, Group II, Group III, Group IV, Group V, or Group VII controlled substances, no person may import (except for transhipments, heels, or used controlled substances), at any time in any control period, (except for controlled substances that are transformed or destroyed) in excess of the amount of unexpended essential-use allowances or exemption as allocated under this section held by that person under the authority of this subpart at that time for that control period. Every kilogram of excess importation (other than transhipments, heels or used controlled substances) constitutes a separate violation of this subpart.

(e) Effective January 1, 1996, no person may place an order for the production or importation of the class I controlled substance, at any time in any control period, in excess of the amount of unexpended essential-use allowances, or unexpended destruction and transformation credits, held by that person under the authority of this subpart at that time for that control period. No person may place an order for the production or importation of a class I controlled substance with essential-use allowances or destruction and transformation credits, at any time in any control period, other than for the class I controlled substance(s) for which they received essential-use allowances as under paragraph (r) of this section, or for which they were nominated for that control period by the U.S. Government to the Protocol for an essential-use exemption. Every kilogram of excess production or importation ordered constitutes a separate violation of this subpart.

(f) Effective January 1, 1996, the U.S. total production and importation of a class I controlled substance (except Group VI) as allocated under this section for essential-use allowances and exemptions, and as obtained under §82.9 for destruction and transformation credits, may not, at any time, in any control period until January 1, 2000, exceed the percent limitation of baseline production in appendix H of this subpart, as set forth in the Clean Air Act Amendments of 1990. No person shall cause or contribute to the U.S. exceedance of the national limit for that control period.

(g) In addition to total production permitted under paragraph (f) of this section, effective January 1, 1996, for class I, Group I, Group III, Group IV and Group V controlled substances, and effective January 1, 1995, for class I, Group II, a person may, at any time, in any control period until January 1, 2000, produce 10 percent of baseline production as apportioned under §82.5 for export to Article 5 countries. No person may, at any time, in any control period until January 1, 2000, produce class I, Group I, Group II, Group III, Group IV, and Group V controlled substances for export to Article 5 countries in excess of the Article 5 allowances allocated under §82.9(a). No person may sell in the U.S. any class I controlled substance produced explicitly for export to an Article 5 country.

(h) Effective January 1, 1995, no person may import, at any time in any control period, a heel of any class I controlled substance that is greater than 10 percent of the volume of the container in excess of the amount of unexpended consumption allowances, or unexpended destruction and transformation credits held by that person under the authority of this subpart at that time for that control period. Every kilogram of excess importation constitutes a separate violation of this subpart.

(i) Effective January 1, 1995, no person may import, at any time in any control period, a used class I controlled substance, without complying with the petition procedures as under §82.13(g)(2) and (3).

(j) Prior to January 1, 1996, for all Groups of class I controlled substances, and prior to January 1, 2001, for class I, Group VI controlled substances, a person may not use production allowances to produce a quantity of a class I controlled substance unless that person

holds under the authority of this subpart at the same time consumption allowances sufficient to cover that quantity of class I controlled substances nor may a person use consumption allowances to produce a quantity of class I controlled substances unless the person holds under authority of this subpart at the same time production allowances sufficient to cover that quantity of class I controlled substances. However, prior to January 1, 1996, for all class I controlled substances, and prior to January 1, 2001, for class I, Group VI controlled substances, only consumption allowances are required to import, with the exception of transhipments, heels and used controlled substances. Effective January 1, 1996, for all Groups of class I controlled substances, except Group VI, only essential-use allowances or exemptions are required to import class I controlled substances, with the exception of transhipments, heels and used controlled substances.

(k) Every kilogram of a controlled substance, and every controlled product, imported or exported in contravention of this subpart constitutes a separate violation of this subpart, thus no person may:

(1) Import or export any quantity of a controlled substance listed in Class I, Group I or Group II, in appendix A to this subpart from or to any foreign state not listed as a Party to the 1987 Montreal Protocol unless that foreign state is complying with the 1987 Montreal Protocol (See appendix C, Annex 2 of this subpart);

(2) Import or export any quantity of a controlled substance listed in Class I, Group III, Group IV or Group V, in appendix A to this subpart, from or to any foreign state not Party to the London Amendments (as noted in appendix C, Annex l, to this subpart), unless that foreign state is complying with the London Amendments (as noted in appendix C, Annex 2, to this subpart); or

(3) Import a controlled product, as noted in appendix D, Annex 1 to this subpart, from any foreign state not Party to the 1987 Montreal Protocol (as noted in appendix C, Annex 1, to this subpart), unless that foreign state is complying with the Protocol (as noted in appendix C, Annex 2, to this subpart).

(l) Effective January 1, 2003, no person may produce HCFC–141b except in a process resulting in its transformation, use in a process resulting in destruction, or for exceptions stated in paragraph (s) of this section.

(m) Effective January 1, 2003, no person may import HCFC–141b except for use in a process resulting in its transformation, use in a process resulting in destruction, or for exceptions stated in paragraph (s) of this section.

(n) Effective January 1, 2010, no person may produce or consume (as defined under § 82.3 HCFC–22 or HCFC–142b for any purpose other than for use in a process resulting in their transformation, use in a process resulting in their destruction, for use in equipment manufactured prior to January 1, 2010, or for exceptions stated in paragraph (s) of this section in excess of baseline allowances allocated in § 82.5(h) and § 82.6(h).

(o) Effective January 1, 2020, no person may produce or consume (as defined under § 82.3 of this subpart) HCFC–22 or HCFC–142b for any purpose other than for use in a process resulting in their transformation, use in a process resulting in their destruction or for exceptions stated in paragraph (s) of this section.

(p) Effective January 1, 2015, no person may produce or consume (as under defined under § 82.3) class II substances not previously controlled, for any purpose other than for use in a process resulting in its transformation, use in a process resulting in their destruction, as a refrigerant in equipment manufactured before January 1, 2020, or for exceptions stated in paragraph (s) of this section, in excess of baseline production and consumption levels defined in §§ 82.5(h) and 82.6(h).

(q) Effective January 1, 2030, no person may produce or consume class II substances, for any purpose other than for use in a process resulting in their transformation, use in a process resulting in their destruction, or for exceptions stated in paragraph (s) of this section.

(r) Effective January 1, 1996, essential-use allowances are apportioned to a person for the exempted production

or importation of specified class I (except class I, Group VI) controlled substances.

(1) Essential-uses for the production or importation of controlled substances as agreed to by the Parties to the Protocol and subject to the periodic revision of the Parties are:

(i) Metered Dose Inhalers—aerosols.

(ii) Space Shuttle—solvents.

(iii) Laboratory and Analytical Applications (see appendix G of this subpart).

(2) Persons in the following list are allocated essential-use allowances or exemptions for quantities of a specific class I controlled substance for a specific essential-use (the Administrator reserves the right to revise the allocations based on future decisions of the Parties).

TABLE I.—ESSENTIAL USES AGREED TO BY THE PARTIES TO THE PROTOCOL FOR 1998 AND ESSENTIAL USE ALLOWANCES

Company/entity	Class I controlled substance	Quantity (metric tonnes)
(i) Metered Dose Inhalers for Treatment of Asthma and Chronic Obstructive Pulmonary Disease		
International Pharmaceutical Aerosol Consortium (IPAC)[1]—Abbott Laboratories, Armstrong Laboratories, Boehringer Ingelheim, Glaxo Wellcome, 3M, Rhone Poulenc Rorer, Schering—Plough Corporation.	CFC–11	1043.6
	CFC–12	2512.2
	CFC–114	338.0
Medisol	CFC–11	78.0
	CFC–12	132.0
	CFC–114	11.0
	CFC–11	83.0
Aeropharm	CFC–12	166.7
(ii) Cleaning, Bonding and Surface Activation Applications for the Space Shuttle Rockets and Titan Rockets		
National Aeronautics and Space Administration (NASA)/Thiokol Rocket	Methyl Chloroform	56.7
United States Air Force/Titan Rocket	Methyl Chloroform	3.4
(iii) Laboratory and Analytical Applications		
Global Exemption (Restrictions in Appendix G Apply)	All Class I Controlled Substances (except Group VI).	([2])

[1] IPAC consolidated requests for an essential use exemption to be nominated to the Protocol as an agent of its member companies for administrative convenience. By means of a confidential letter to each of the companies listed above, EPA will allocate essential-use allowances separately to each company in the amount requested by it for the nomination.

[2] No quantity specified.

(s) The following exemptions apply to the production and consumption restrictions under paragraphs (l), (m), (n), (o), (p) and (q) of this section:

(1) Medical Devices [Reserved]

(2) Exports to developing countries [Reserved]

[60 FR 24986, May 10, 1995, as amended at 63 FR 4363, Jan. 28, 1998]

§ 82.5 Apportionment of baseline production allowances.

Persons who produced controlled substances in Group I or Group II in 1986 are apportioned baseline production allowances as set forth in paragraphs (a) and (b) of this section. Persons who produced controlled substances in Group III, IV, or V in 1989 are apportioned baseline production allowances as set forth in paragraphs (c), (d), and (e) of this section. Persons who produced controlled substances in Group VI and VII in 1991 are apportioned baseline allowances as set forth in paragraphs (f) and (g) of this section.

Controlled substance	*Person*	*Allowances* (kg)
(a) For Group I controlled substances:		
CFC–11	Allied-Signal, Inc	23,082,358
	E.I. DuPont de Nemours & Co	33,830,000
	Elf Atochem, N.A	21,821,500

Controlled substance	*Person*	*Allowances (kg)*
CFC–12	Laroche Chemicals	12,856,364
	Allied-Signal, Inc	35,699,776
	E.I. DuPont de Nemours & Co	64,849,000
	Elf Atochem, N.A	31,089,807
CFC–113	Laroche Chemicals	15,330,909
	Allied-Signal, Inc	21,788,896
CFC–114	E.I. DuPont de Nemours & Co	58,553,000
	Allied-Signal, Inc	1,488,569
CFC–115	E.I. DuPont de Nemours & Co	4,194,000
	E.I. DuPont de Nemours & Co	4,176,000
(b) For Group II controlled substances:		
Halon-1211	Great Lakes Chemical Corp	826,487
	ICI Americas, Inc	2,135,484
Halon-1301	E.I. DuPont de Nemours & Co	3,220,000
	Great Lakes Chemical Corp	1,766,850
Halon-2402		
(c) For Group III controlled substances:		
CFC–13	Allied-Signal, Inc	127,125
	E.I. DuPont de Nemours & Co	187,831
	Elf Atochem, N.A	3,992
	Great Lakes Chemical Corp	56,381
	Laroche Chemicals	29,025
CFC–111		
CFC–112		
CFC–211	E.I. DuPont de Nemours & Co	11
CFC–212	E.I. DuPont de Nemours & Co	11
CFC–213	E.I. DuPont de Nemours & Co	11
CFC–214	E.I. DuPont de Nemours & Co	11
CFC–215	E.I. DuPont de Nemours & Co	511
	Halocarbon Products Corp	1,270
CFC–216	E.I. DuPont de Nemours & Co	170,574
CFC–217	E.I. DuPont de Nemours & Co	511
(d) For Group IV controlled substances:		
CCl_4	Akzo Chemicals, Inc	7,873,615
	Degussa Corporation	26,546
	Dow Chemical Company, USA	18,987,747
	E.I. DuPont de Nemours & Co	9,099
	Hanlin Chemicals-WV, Inc	219,616
	ICI Americas, Inc	853,714
	Occidental Chemical Corp	1,059,358
	Vulcan Chemicals	21,931,987
(e) For Group V controlled substances:		
Methyl Chloroform	Dow Chemical Company, USA	168,030,117
	E.I. DuPont de Nemours & Co	2
	PPG Industries, Inc	57,450,719
	Vulcan Chemicals	89,689,064
(f) For Group VI controlled substances:		
Methyl Bromide	Great Lakes Chemical Corporation	19,945,788
	Ethyl Corporation	8,233,894
(g) For Group VII controlled substances:		
HBFC 22B1–1	Great Lakes Chemical Corporation	46,211
(h) For class II controlled substances: [Reserved]		

§ 82.6 Apportionment of baseline consumption allowances.

Persons who produced, imported, or produced and imported controlled substances in Group I or Group II in 1986 are apportioned chemical-specific baseline consumption allowances as set forth in paragraphs (a) and (b) of this

section. Persons who produced, imported, or produced and imported controlled substances in Group III, Group IV, or Group V in 1989 are apportioned chemical-specific baseline consumption allowances as set forth in paragraphs (c), (d) and (e) of this section. Persons who produced, imported, or produced and imported controlled substances in Group VI or VII in 1991 are apportioned chemical specific baseline consumption allowances as set forth in paragraphs (f) and (g) of this section.

Controlled substance	*Person*	*Allowances* (kg)
(a) For Group I controlled substances:		
CFC–11	Allied-Signal, Inc	22,683,833
	E.I. DuPont de Nemours & Co	32,054,283
	Elf Atochem, N.A	21,740,194
	Hoechst Celanese Corporation	185,396
	ICI Americas, Inc	1,673,436
	Kali-Chemie Corporation	82,500
	Laroche Chemicals	12,695,726
	National Refrigerants, Inc	693,707
	Refricentro, Inc	160,697
	Sumitomo Corporation of America	5,800
CFC–12	Allied-Signal, Inc	35,236,397
	E.I. DuPont de Nemours & Co	61,098,726
	Elf Atochem, N.A	32,403,869
	Hoechst Celanese Corporation	138,865
	ICI Americas, Inc	1,264,980
	Kali-Chemie Corporation	355,440
	Laroche Chemicals	15,281,553
	National Refrigerants, Inc	2,375,384
	Refricentro, Inc	242,526
CFC–113	Allied-Signal, Inc	18,241,928
	E.I. DuPont de Nemours & Co	49,602,858
	Elf Atochem, N.A	244,908
	Holchem	265,199
	ICI Americas, Inc	2,399,700
	Refricentro, Inc	37,385
	Sumitomo Corp. of America	280,163
CFC–114	Allied-Signal, Inc	1,429,582
	E.I. DuPont de Nemours & Co	3,686,103
	Elf Atochem, N.A	22,880
	ICI Americas, Inc	32,930
CFC–115	E.I. DuPont de Nemours & Co	2,764,109
	Elf Atochem, N.A	633,007
	Hoechst Celanese Corporation	8,893
	ICI Americas, Inc	2,366,351
	Laroche Chemicals	135,520
	Refricentro, Inc	27,337
(b) For Group II controlled substances:		
Halon-1211	Elf Atochem, N.A	411,292
	Great Lakes Chemical Corp	772,775
	ICI Americas, Inc	2,116,641
	Kali-Chemie Corporation	330,000
Halon-1301	E.I. DuPont de Nemours & Co	2,772,917
	Elf Atochem, N.A	89,255
	Great Lakes Chemical Corp	1,744,132
	Kali-Chemie Corporation	54,380
Halon-2402	Ausimont	34,400
	Great Lakes Chemical Corp	15,900
(c) For Group III controlled substances:		
CFC–13	Allied-Signal, Inc	127,124
	E.I. DuPont de Nemours & Co	158,508
	Elf Atochem, N.A	3,992
	Great Lakes Chemical Corp	56,239
	ICI Americas, Inc	5,855

Controlled substance	*Person*	*Allowances (kg)*
	Laroche Chemicals	29,025
	National Refrigerants, Inc	16,665
CFC–111		
CFC–112	Sumitomo Corp of America	5,912
	TG (USA) Corporation	9,253
CFC–211	E.I. DuPont de Nemours & Co	11
CFC–212	E.I. DuPont de Nemours & Co	11
CFC–213	E.I. DuPont de Nemours & Co	11
CFC–214	E.I. DuPont de Nemours & Co	11
CFC–215	E.I. DuPont de Nemours & Co	511
	Halocarbon Products Corp	1,270
CFC–216	E.I. DuPont de Nemours & Co	170,574
CFC–217	E.I. DuPont de Nemours & Co	511
(d) For Group IV controlled substances:		
CCl_4	Crescent Chemical Co	56
	Degussa Corporation	12,466
	Dow Chemical Company, USA	8,170,561
	E.I. DuPont de Nemours & Co	26,537
	Elf Atochem, N.A	41
	Hanlin Chemicals-WV, Inc	103,133
	Hoechst Celanese Corporation	3
	ICC Chemical Corp	1,173,723
	ICI Americas, Inc	855,466
	Occidental Chemical Corp	497,478
	Sumitomo Corporation of America	9
(e) For Group V controlled substances:		
Methyl Chloroform	3V Chemical Corp	3,528
	Actex, Inc	50,171
	Atochem North America	74,355
	Dow Chemical Company, USA	125,200,200
	E.I. DuPont de Nemours & Co	2
	IBM	2,026
	ICI Americas, Inc	14,179,850
	Laidlaw	420,207
	PPG Industries	45,254,115
	Sumitomo	1,954
	TG (USA) Corporation	7,073
	Unitor Ships Service, Inc	14,746
	Vulcan Chemicals	70,765,072
(f) For Group VI controlled substances:		
Methyl Bromide	Great Lakes Chemical Corporation	15,514,746
	Ethyl Corporation	6,379,906
	AmeriBrom, Inc	3,524,393
	TriCal, Inc	109,225
(g) For Group VII controlled substances:		
HBFC 22B1–1	Great Lakes Chemical Corporation	40,110
(h) For class II controlled substances: [Reserved]		

§ 82.7 Grant and phased reduction of baseline production and consumption allowances for class I controlled substances.

For each control period specified in the following table, each person is granted the specified percentage of the baseline production and consumption allowances apportioned to him under §§ 82.5 and 82.6.

[In percent]

Control period	Class I substances in groups I and III	Class I substances in group II	Class I substances in group IV	Class I substances in group V	Class I substances in group VI	Class I substances in group VII
1994	25	0	50	50	100	100
1995	25	0	15	30	100	100
1996	0	0	0	0	100	0
1997	0	0	0	0	100	0
1998	0	0	0	0	100	0
1999	0	0	0	0	100	0
2000	0	0	0	0	100	0
2001	0	0	0	0	0	0

§82.8 Grant and phased reduction of baseline production and consumption allowances for class II controlled substances. [Reserved]

§82.9 Availability of production allowances in addition to baseline production allowances.

(a) Every person apportioned baseline production allowances for class I controlled substances under §82.5 (a) through (f) is also granted Article 5 allowances equal to:

(1) 15 percent of their baseline production allowances for class I, Group II controlled substances listed under §82.5 for each control period beginning January 1, 1994 until January 1, 2003;

(2) 10 percent of their baseline production allowance listed for class I, Group I, Group III, Group IV, and Group V controlled substances listed under §82.5 for each control period ending before January 1, 1996;

(3) 15 percent of their baseline production allowances for class I, Group I, Group III, Group IV, and Group V controlled substances listed under §82.5 for each control period beginning January 1, 1996 until January 1, 2006.

(b) Effective January 1, 1995, a person allocated Article 5 allowances may produce class I controlled substances for export to Article 5 countries as under §82.11 and transfer Article 5 allowances as under §82.12.

(c) Until January 1, 1996, a company may also increase or decrease its production allowances by trading with another Party to the Protocol according to the provision under this paragraph (c) of this section. A nation listed in appendix C to this subpart (Parties to the Montreal Protocol) must agree either to transfer to the person for the current control period some amount of production that the nation is permitted under the Montreal Protocol or to receive from the person for the current control period some amount of production that the person is permitted under this subpart. If the controlled substance is to be returned to the Party from whom allowances are received, the request for production allowances shall also be considered a request for consumption allowances under §82.10(c). If the controlled substance is to be sold in the United States or to another Party (not the Party from whom the allowances are received), the U.S. company must expend its consumption allowances allocated under §§82.6 and 82.7 in order to produce with the additional production allowances.

(1) For trades from a Party, the person must obtain from the principal diplomatic representative in that nation's embassy in the United States a signed document stating that the appropriate authority within that nation has established or revised production limits for the nation to equal the lesser of the maximum production that the nation is allowed under the Protocol minus the amount transferred, the maximum production that is allowed under the nation's applicable domestic law minus the amount transferred, or the average of the nation's actual national production level for the three years prior to the transfer minus the production allowances transferred. The person must submit to the Administrator a transfer request that includes a true copy of this document and that sets forth the following:

(i) The identity and address of the person;

(ii) The identity of the Party;

(iii) The names and telephone numbers of contact persons for the person and for the Party;

(iv) The chemical type and level of production being transferred;

(v) The control period(s) to which the transfer applies; and

(vi) For increased production intended for export to the Party from whom the allowances would be received, a signed statement of intent to export to the Party.

(2) For trades to a Party, a person must submit a transfer request that sets forth the following:

(i) The identity and address of the person;

(ii) The identity of the Party;

(iii) The names and telephone numbers of contact persons for the person and for the Party;

(iv) The chemical type and level of allowable production to be transferred; and

(v) The control period(s) to which the transfer applies.

(3) After receiving a transfer request that meets the requirements of paragraph (c)(2) of this section, the Administrator may, at his discretion, consider the following factors in deciding whether to approve such a transfer:

(i) Possible creation of economic hardship;

(ii) Possible effects on trade;

(iii) Potential environmental implications; and

(iv) The total amount of unexpended production allowances held by United States entities.

(4) The Administrator will issue the person a notice either granting or deducting production allowances and specifying the control period to which the transfer applies, provided that the request meets the requirement of paragraph (c)(1) of this section for trades from Parties and paragraphs (c)(2) of this section for trades to Parties, unless the Administrator has decided to disapprove the trade under paragraph (c)(3) of this section for trades to Parties. For a trade from a Party, the Administrator will issue a notice that revises the allowances held by the person to equal the unexpended production allowances held by the person under this subpart plus the level of allowable production transferred from the Party. For a trade to a Party, the Administrator will issue a notice that revises the production limit for the person to equal the lesser of:

(i) The unexpended production allowances held by the person under this subpart minus the amount transferred; or

(ii) The unexpended production allowances held by the person under this subpart minus the amount by which the United States average annual production of the controlled substance being traded for the three years prior to the transfer is less than the total allowable production allowable for that substance under this subpart minus the amount transferred. The change in allowances will be effective on the date that the notice is issued.

(5) If after one person obtains approval for a trade of allowable production of a controlled substance to a Party, one or more other persons obtain approval for trades involving the same controlled substance and the same control period, the Administrator will issue notices revising the production limits for each of the other persons trading that controlled substance in that control period to equal the lesser of:

(i) The unexpended production allowances held by the person under this subpart minus the amount transferred; or

(ii) The unexpended production allowances held by the person under this subpart minus the amount by which the United States average annual production of the controlled substance being traded for the three years prior to the transfer is less than the total allowable production for that substance under this subpart multiplied by the amount transferred divided by the total amount transferred by all the other persons trading the same controlled substance in the same control period minus the amount transferred by that person.

(iii) The Administrator will also issue a notice revising the production limit for each person who previously obtained approval of a trade of that substance in that control period to equal the unexpended production allowances held by the person under this subpart plus the amount by which the

United States average annual production of the controlled substance being traded for the three years prior to the transfer is less than the total allowable production under this subpart multiplied by the amount transferred by that person divided by the amount transferred by all of the persons who have traded that controlled substance in that control period. The change in production allowances will be effective on the date that the notice is issued.

(d) Effective January 1, 1996, there will be no trade in production or consumption allowances with other Parties to the Protocol for class I controlled substances, except for class I, Group VI, methyl bromide.

(e) Until January 1, 1996, for all class I controlled substances, except Group VI, and until January 1, 2001, for class I, Group VI, a person may obtain production allowances for that controlled substance equal to the amount of that controlled substance produced in the United States that was transformed or destroyed within the United States, or transformed or destroyed by a person of another Party, in the cases where production allowances were expended to produce such substance in the U.S. in accordance with the provisions of this paragraph. A request for production allowances under this section will be considered a request for consumption allowances under §82.10(b).

(1) Until January 1, 1996, for all class I controlled substances, except Group VI, and until January 1, 2001, for class I, Group VI, a person must submit a request for production allowances that includes the following:

(i) The name, address, and telephone number of the person requesting the allowances, and the Employer Identification Number if the controlled substance is being exported;

(ii) The name, quantity, and level of controlled substance transformed or the name, quantity and volume destroyed, and the commodity code if the substance was exported;

(iii) A copy of the invoice or receipt documenting the sale of the controlled substance, including the name, address, contact person and telephone number of the transformer or destroyer;

(iv) A certification that production allowances were expended for the production of the controlled substance, and the date of purchase, if applicable;

(v) If the controlled substance is transformed, the name, quantity, and verification of the commercial use of the resulting chemical and a copy of the IRS certificate of intent to use the controlled substance as a feedstock; and,

(vi) If the controlled substance is destroyed, the verification of the destruction efficiency.

(2) Until January 1, 1996, for all class I controlled substances, except Group VI, and until January 1, 2001, for class I, Group VI, the Administrator will review the information and documentation submitted under paragraph (e)(1) of this section and will assess the quantity of class I controlled substance that the documentation and information verifies was transformed or destroyed. The Administrator will issue the person production allowances equivalent to the controlled substances that the Administrator determines were transformed or destroyed. For controlled substances completely destroyed under this rule, the Agency will grant allowances equal to 100 percent of volume intended for destruction. For those controlled substances destroyed at less than a 98 percent destruction efficiency, the Agency will grant allowances commensurate with that percentage of destruction efficiency that is actually achieved. The grant of allowances will be effective on the date that the notice is issued.

(3) Until January 1, 1996, for all class I controlled substances, except Group VI, and until January 1, 2001, for class I, Group VI, if the Administrator determines that the request for production allowances does not satisfactorily substantiate that the person transformed or destroyed controlled substances as claimed, or that modified allowances were not expended, the Administrator will issue a notice disallowing the request for additional production allowances. Within ten working days after receipt of notification, the person may file a notice of appeal, with supporting reasons, with the Administrator. The Administrator may affirm the disallowance or grant an allowance, as she/he finds appropriate in light of the available evidence. If no appeal is

taken by the tenth day after notification, the disallowance will be final on that day.

(f) Effective January 1, 1996, and until January 1, 2000, a person who was nominated by the United States to the Secretariat of the Montreal Protocol for an essential use exemption may obtain destruction and transformation credits for a class I controlled substance (except class I, Group VI) equal to the amount of that controlled substance produced in the United States that was destroyed or transformed within the United States in cases where the controlled substance was produced for other than destruction or transformation in accordance with the provisions of this subpart, subtracting an offset of 15 percent.

(1) Effective January 1, 1996, and until January 1, 2000, a person must submit a request for destruction and transformation credits that includes the following:

(i) The identity and address of the person and the essential-use exemption and years for which the person was nominated to the Secretariat of the Montreal Protocol;

(ii) The name, quantity and volume of controlled substance destroyed or transformed;

(iii) A copy of the invoice or receipt documenting the sale or transfer of the controlled substance to the person;

(iv) A certification of the previous use of the controlled substance;

(v) For destruction credits, a certification that the controlled substance was destroyed and a certification of the efficiency of the destruction process; and

(vi) For transformation credits, an IRS certificate of feedstock use or transformation of the controlled substance.

(2) Effective January 1, 1996, and until January 1, 2000, the Administrator will issue the person destruction and transformation credits equivalent to the class I controlled substance (except class I, Group VI) recovered from a use system in the United States, that the Administrator determines were destroyed or transformed, subtracting the offset of 15 percent. For controlled substances completely destroyed under this rule, the Agency will grant destruction credits equal to 100 percent of volume destroyed minus the offset. For those controlled substances destroyed at less than a 98 percent destruction efficiency, the Agency will grant destruction credits commensurate with that percentage of destruction efficiency that is actually achieved minus the offset. The grant of credits will be effective on the date that the notice is issued.

(3) Effective January 1, 1996, and until January 1, 2000, if the Administrator determines that the request for destruction and transformation credits does not satisfactorily substantiate that the person was nominated for an essential-use exemption by the United States to the Secretariat for the Montreal Protocol for the control period, or that the person destroyed or transformed a class I controlled substance as claimed, or that the controlled substance was not recovered from a U.S. use system the Administrator will issue a notice disallowing the request for additional destruction and transformation credits. Within ten working days after receipt of notification, the person may file a notice of appeal, with supporting reasons, with the Administrator. The Administrator may affirm the disallowance or grant an allowance, as she/he finds appropriate in light of the available evidence. If no appeal is taken by the tenth day after notification, the disallowance will be final on that day.

§ 82.10 Availability of consumption allowances in addition to baseline consumption allowances.

(a) Until January 1, 1996, for all class I controlled substances, except Group VI, and until January 1, 2001 for class I, Group VI, any person may obtain, in accordance with the provisions of this subsection, consumption allowances equivalent to the level of class I controlled substances (other than used controlled substances or transhipments) that the person has exported from the United States and its territories to a Party (as listed in appendix C to this subpart).

(1) Until January 1, 1996, for all class I controlled substances, except Group VI, and until January 1, 2001 for class I,

Group VI, to receive consumption allowances in addition to baseline consumption allowances, the exporter of the class I controlled substances must submit to the Administrator a request for consumption allowances setting forth the following:

(i) The identities and addresses of the exporter and the recipient of the exports;

(ii) The exporter's Employer Identification Number;

(iii) The names and telephone numbers of contact persons for the exporter and the recipient;

(iv) The quantity and type of controlled substances exported;

(v) The source of the controlled substance and the date purchased;

(vi) The date on which, and the port from which, the controlled substances were exported from the United States or its territories;

(vii) The country to which the controlled substances were exported;

(viii) A copy of the bill of lading and the invoice indicating the net quantity of controlled substances shipped and documenting the sale of the controlled substances to the purchaser.

(ix) The commodity code of the controlled substance exported; and

(x) Written statement from the producer that the controlled substance was produced with expended allowances.

(2) The Administrator will review the information and documentation submitted under paragraph (a)(1) of this section and will assess the quantity of controlled substances that the documentation verifies was exported. The Administrator will issue the exporter consumption allowances equivalent to the level of controlled substances that the Administrator determined were exported. The grant of the consumption allowances will be effective on the date the notice is issued. If the Administrator determines that the information and documentation does not satisfactorily substantiate that the person exported controlled substances as claimed the Administrator will issue a notice that the consumption allowances are not granted.

(b) Until January 1, 1996, a person may obtain consumption allowances for a class I controlled substance (and until January 1, 2001 for class I, Group VI) equal to the amount of a controlled substance either produced in, or imported into, the United States that was transformed or destroyed in the case where consumption allowances were expended to produce or import such substance in accordance with the provisions of this paragraph. However, a person producing or importing a controlled substance (except class I, Group VI) that was transformed or destroyed must submit to the Administrator the information described under § 82.13 (f)(3) (i) and (ii).

(c) A company may also increase its consumption allowances by receiving production from another Party to the Protocol for class I, Group I through Group V and Group VII controlled substances until January 1, 1996, and for class I, Group VI controlled substances until January 1, 2001. A nation listed in appendix C to this subpart (Parties to the Montreal Protocol) must agree to transfer to the person for the current control period some amount of production that the nation is permitted under the Montreal Protocol. If the controlled substance is to be returned to the Party from whom allowances are received, the request for consumption allowances shall also be considered a request for production allowances under § 82.9(c). For trades from a Party, the person must obtain from the principal diplomatic representative in that nation's embassy in the United States a signed document stating that the appropriate authority within that nation has established or revised production limits for the nation to equal the lesser of the maximum production that the nation is allowed under the Protocol minus the amount transferred, the maximum production that is allowed under the nation's applicable domestic law minus the amount transferred, or the average of the nation's actual national production level for the three years prior to the transfer minus the production allowances transferred. The person must submit to the Administrator a transfer request that includes a true copy of this document and that sets forth the following:

(1) The identity and address of the person;

(2) The identity of the Party;

(3) The names and telephone numbers of contact persons for the person and for the Party;

(4) The chemical type and level of production being transferred;

(5) The control period(s) to which the transfer applies; and

(6) For increased production intended for export to the Party from whom allowances would be received, a signed statement of intent to export to this Party.

(d) On the first day of each control period, until January 1, 1996, the Agency will grant consumption allowances to any person that produced and exported a Group IV controlled substance in the baseline year and that was not granted baseline consumption allowances under § 82.5.

(1) The number of consumption allowances any such person will be granted for each control period will be equal to the number of production allowances granted to that person under § 82.7 for that control period.

(2) Any person granted allowances under this paragraph must hold the same number of unexpended consumption allowances for the control period for which the allowances were granted by February 15 of the following control period. Every kilogram by which the person's unexpended consumption allowances fall short of the amount the person was granted under this paragraph constitutes a separate violation.

§ 82.11 Exports to Article 5 Parties.

(a) If apportioned Article 5 allowances under § 82.9(a), a person may produce class I controlled substances, in accordance with the prohibitions in § 82.4, to be exported (not including exports resulting in transformation or destruction, or used controlled substances) to foreign states listed in appendix E to this subpart (Article 5 countries).

(1) A person must submit a notice to the Administrator of exports to Article 5 countries (except exports resulting in transformation or destruction, or used controlled substances) at the end of the quarter that includes the following:

(i) The identities and addresses of the exporter and the Article 5 country recipient of the exports;

(ii) The exporter's Employee Identification Number;

(iii) The names and telephone numbers of contact persons for the exporter and for the recipient;

(iv) The quantity and the type of controlled substances exported, its source and date purchased;

(v) The date on which, and the port from which, the controlled substances were exported from the United States or its territories;

(vi) The Article 5 country to which the controlled substances were exported;

(vii) A copy of the bill of lading and invoice indicating the net quantity shipped and documenting the sale of the controlled substances to the Article 5 purchaser;

(viii) The commodity code of the controlled substance exported; and

(ix) A copy of the invoice or sales agreement covering the sale of the controlled substances to the recipient Article 5 country that contains provisions forbidding the reexport of the controlled substance in bulk form and subjecting the recipient or any transferee of the recipient to liquidated damages equal to the resale price of the controlled substances if they are reexported in bulk form.

(2) [Reserved]

(b) [Reserved]

§ 82.12 Transfers.

(a) Inter-company transfers.

(1) Until January 1, 1996, for all class I controlled substances, except for Group VI, and until January 1, 2001, for Group VI, any person (''transferor'') may transfer to any other person (''transferee'') any amount of the transferor's consumption allowances or production allowances, and effective January 1, 1995, for all class I controlled substances any person (''transferor'') may transfer to any other person (''transferee'') any amount of the transferor's Article 5 allowances, as follows:

(i) The transferor must submit to the Administrator a transfer claim setting forth the following:

(A) The identities and addresses of the transferor and the transferee;

(B) The name and telephone numbers of contact persons for the transferor and the transferee;

(C) The type of allowances being transferred, including the names of the controlled substances for which allowances are to be transferred;

(D) The group of controlled substances to which the allowances being transferred pertains;

(E) The amount of allowances being transferred;

(F) The control period(s) for which the allowances are being transferred;

(G) The amount of unexpended allowances of the type and for the control period being transferred that the transferor holds under authority of this subpart as of the date the claim is submitted to EPA; and

(H) The amount of the one percent offset applied to the unweighted amount traded that will be deducted from the transferor's allowance balance (except for trades from transformers and destroyers to producers or importers for the purpose of allowance reimbursement).

(ii) The Administrator will determine whether the records maintained by EPA, taking into account any previous transfers and any production, allowable imports and exports of controlled substances reported by the transferor, indicate that the transferor possesses, as of the date the transfer claim is processed, unexpended allowances sufficient to cover the transfer claim (i.e., the amount to be transferred plus, in the case of transferors of production or consumption allowances, one percent of that amount). Within three working days of receiving a complete transfer claim, the Administrator will take action to notify the transferor and transferee as follows:

(A) If EPA's records show that the transferor has sufficient unexpended allowances to cover the transfer claim, the Administrator will issue a notice indicating that EPA does not object to the transfer and will reduce the transferor's balance of unexpended allowances by the amount to be transferred plus, in the case of transfers of production or consumption allowances, one percent of that amount. When EPA issues a no objection notice, the transferor and the transferee may proceed with the transfer. However, if EPA ultimately finds that the transferor did not have sufficient unexpended allowances to cover the claim, the transferor and transferee will be held liable for any violations of the regulations of this subpart that occur as a result of, or in conjunction with, the improper transfer.

(B) If EPA's records show that the transferor has insufficient unexpended allowances to cover the transfer claim, or that the transferor has failed to respond to one or more Agency requests to supply information needed to make a determination, the Administrator will issue a notice disallowing the transfer. Within 10 working days after receipt of notification, either party may file a notice of appeal, with supporting reasons, with the Administrator. The Administrator may affirm or vacate the disallowance. If no appeal is taken by the tenth working day after notification, the disallowance shall be final on that day.

(iii) In the event that the Administrator does not respond to a transfer claim within the three working days specified in paragraph (a)(1)(ii) of this section, the transferor and transferee may proceed with the transfer. EPA will reduce the transferor's balance of unexpended allowances by the amount to be transferred plus, in the case of transfers of production or consumption allowances, one percent of that amount. However, if EPA ultimately finds that the transferor did not have sufficient unexpended allowances to cover the claim, the transferor and transferee will be held liable for any violations of the regulations of this subpart that occur as a result of, or in conjunction with, the improper transfer.

(2) Effective January 1, 1996, any person (''transferor'') may transfer to an eligible person (''transferee'') as defined in § 82.9 any amount of the transferor's destruction and transformation credits. The transfer proceeds as follows:

(i) The transferor must submit to the Administrator a transfer claim setting forth the following:

(A) The identities and addresses of the transferor and the transferee;

(B) The name and telephone numbers of contact persons for the transferor and the transferee;

(C) The type of credits being transferred, including the names of the controlled substances for which credits are to be transferred;

(D) The group of controlled substances to which the credits being transferred pertains;

(E) The amount of destruction and transformation credits being transferred;

(F) The control period(s) for which the destruction and transformation credits are being transferred;

(G) The amount of unexpended destruction and transformation credits for the control period being transferred that the transferor holds under authority of this subpart as of the date the claim is submitted to EPA; and

(H) The amount of the one-percent offset applied to the unweighted amount traded that will be deducted from the transferor's balance.

(ii) The Administrator will determine whether the records maintained by EPA, taking into account any previous transfers and any production of controlled substances reported by the transferor, indicate that the transferor possesses, as of the date the transfer claim is processed, unexpended destruction and transformation credits sufficient to cover the transfer claim (i.e., the amount to be transferred plus one percent of that amount). Within three working days of receiving a complete transfer claim, the Administrator will take action to notify the transferor and transferee as follows:

(A) If EPA's records show that the transferor has sufficient unexpended destruction and transformation credits to cover the transfer claim, the Administrator will issue a notice indicating that EPA does not object to the transfer and will reduce the transferor's balance of unexpended or credits by the amount to be transferred plus one percent of that amount. When EPA issues a no objection notice, the transferor and the transferee may proceed with the transfer. However, if EPA ultimately finds that the transferor did not have sufficient unexpended credits to cover the claim, the transferor and transferee will be held liable for any violations of the regulations of this subpart that occur as a result of, or in conjunction with, the improper transfer.

(B) If EPA's records show that the transferor has insufficient unexpended destruction and transformation credits to cover the transfer claim, or that the transferor has failed to respond to one or more Agency requests to supply information needed to make a determination, the Administrator will issue a notice disallowing the transfer. Within 10 working days after receipt of notification, either party may file a notice of appeal, with supporting reasons, with the Administrator. The Administrator may affirm or vacate the disallowance. If no appeal is taken by the tenth working day after notification, the disallowance shall be final on that day.

(iii) In the event that the Administrator does not respond to a transfer claim within the three working days specified in paragraph (a)(2)(ii) of this section, the transferor and transferee may proceed with the transfer. EPA will reduce the transferor's balance of unexpended destruction and transformation credits by the amount to be transferred plus one percent of that amount. However, if EPA ultimately finds that the transferor did not have sufficient unexpended credits to cover the claim, the transferor and transferee will be held liable for any violations of the regulations of this subpart that occur as a result of, or in conjunction with, the improper transfer.

(b) Inter-pollutant conversions.

(1) Until January 1, 1996, for all class I controlled substances, except Group VI, and until January 1, 2001 for Group VI, any person (''convertor'') may convert consumption allowances or production allowances for one class I controlled substance to the same type of allowance for another class I controlled substance within the same Group as the first as listed in appendix A of this subpart, following the procedures described in paragraph (b)(4) of this section.

(2) Effective January 1, 1995, any person (''convertor'') may convert Article 5 allowances for one class I controlled

substance to the same type of allowance for another class I controlled substance within the same Group of controlled substances as the first as listed in appendix A of this subpart, following the procedures described in paragraph (b)(4) of this section.

(3) Effective January 1, 1996, any person (''convertor'') may convert destruction and/or transformation credits for one class I controlled substance to the same type of credits for another class I controlled substance within the same Group of controlled substances as the first as listed in appendix A of this subpart, following the procedures in paragraph (b)(4) of this section.

(4) The convertor must submit to the Administrator a conversion claim.

(i) The conversion claim would include the following:

(A) The identity and address of the convertor;

(B) The name and telephone number of a contact person for the convertor;

(C) The type of allowances or credits being converted, including the names of the controlled substances for which allowances or credits are to be converted;

(D) The group of controlled substances to which the allowances or credits being converted pertains;

(E) The amount and type of allowances or credits to be converted;

(F) The amount of allowances or credits to be subtracted from the convertor's unexpended allowances or credits for the first controlled substance, to be equal to 101 percent of the amount of allowances or credits converted;

(G) The amount of allowances or credits to be added to the convertor's unexpended allowances or credits for the second controlled substance, to be equal to the amount of allowances or credits for the first controlled substance being converted multiplied by the quotient of the ozone depletion factor of the first controlled substance divided by the ozone depletion factor of the second controlled substance, as listed in appendix A to this subpart;

(H) The control period(s) for which the allowances or credits are being converted; and

(I) The amount of unexpended allowances or credits of the type and for the control period being converted that the convertor holds under authority of this subpart as of the date the claim is submitted to EPA.

(ii) The Administrator will determine whether the records maintained by EPA, taking into account any previous conversions, any transfers, any credits, and any production, imports (not including transhipments or used controlled substances), or exports (not including transhipments or used controlled substances) of controlled substances reported by the convertor, indicate that the convertor possesses, as of the date the conversion claim is processed, unexpended allowances or credits sufficient to cover the conversion claim (i.e., the amount to be converted plus one percent of that amount). Within three working days of receiving a complete conversion claim, the Administrator will take action to notify the convertor as follows:

(A) If EPA's records show that the convertor has sufficient unexpended allowances or credits to cover the conversion claim, the Administrator will issue a notice indicating that EPA does not object to the conversion and will reduce the convertor's balance of unexpended allowances or credits by the amount to be converted plus one percent of that amount. When EPA issues a no objection notice, the convertor may proceed with the conversion. However, if EPA ultimately finds that the convertor did not have sufficient unexpended allowances or credits to cover the claim, the convertor will be held liable for any violations of the regulations of this subpart that occur as a result of, or in conjunction with, the improper conversion.

(B) If EPA's records show that the convertor has insufficient unexpended allowances or credits to cover the conversion claim, or that the convertor has failed to respond to one or more Agency requests to supply information needed to make a determination, the Administrator will issue a notice disallowing the conversion. Within 10 working days after receipt of notification, the convertor may file a notice of appeal, with supporting reasons, with the Administrator. The Administrator may affirm or vacate the disallowance. If no appeal is taken by the tenth

working day after notification, the disallowance shall be final on that day.

(iii) In the event that the Administrator does not respond to a conversion claim within the three working days specified in paragraph (b)(4)(ii) of this section, the convertor may proceed with the conversion. EPA will reduce the convertor's balance of unexpended allowances or credits by the amount to be converted plus one percent of that amount. However, if EPA ultimately finds that the convertor did not have sufficient unexpended allowances or credits to cover the claims, the convertor will be held liable for any violations of the regulations of this subpart that occur as a result of, or in conjunction with, the improper conversion.

(5) Effective January 1, 1995, and for every control period thereafter, inter-pollutant trades will be permitted during the 45 days after the end of a control period.

(c) Inter-company transfers and Inter-pollutant conversions.

(1) Until January 1, 1996, for production and consumption allowances; effective January 1, 1995, for Article 5 allowances; and effective January 1, 1996, for destruction and/or transformation credits; if a person requests an inter-company transfer and an inter-pollutant conversion simultaneously, the amount subtracted from the convertor-transferor's unexpended allowances or unexpended credits for the first controlled substance will be equal to 101 percent of the amount of allowances or credits that are being converted and transferred.

(2) [Reserved]

§ 82.13 Recordkeeping and reporting requirements.

(a) Unless otherwise specified, the recordkeeping and reporting requirements set forth in this section take effect on January 1, 1995.

(b) Reports and records required by this section may be used for purposes of compliance determinations. These requirements are not intended as a limitation on the use of other evidence admissible under the Federal Rules of Evidence. Failure to provide the reports and records required by this section, and to certify the accuracy of the information in the reports and records required by this section, will be considered a violation of this subpart.

(c) Unless otherwise specified, reports required by this section must be mailed to the Administrator within 45 days of the end of the applicable reporting period.

(d) Records and copies of reports required by this section must be retained for three years.

(e) In reports required by this section, quantities of controlled substances must be stated in terms of kilograms.

(f) Every person (''producer'') who produces class I controlled substances during a control period must comply with the following recordkeeping and reporting requirements:

(1) Within 120 days of May 10, 1995, or within 120 days of the date that a producer first produces a class I controlled substance, whichever is later, every producer who has not already done so must submit to the Administrator a report describing:

(i) The method by which the producer in practice measures daily quantities of controlled substances produced;

(ii) Conversion factors by which the daily records as currently maintained can be converted into kilograms of controlled substances produced, including any constants or assumptions used in making those calculations (e.g., tank specifications, ambient temperature or pressure, density of the controlled substance);

(iii) Internal accounting procedures for determining plant-wide production;

(iv) The quantity of any fugitive losses accounted for accounted for in the production figures; and

(v) The estimated percent efficiency of the production process for the controlled substance. Within 60 days of any change in the measurement procedures or the information specified in the above report, the producer must submit a report specifying the revised data or procedures to the Administrator.

(2) Every producer of a class I controlled substance during a control period must maintain the following records:

(i) Dated records of the quantity of each controlled substance produced at each facility;

(ii) Dated records of the quantity of controlled substances produced for use in processes that result in their transformation or for use in processes that result in their destruction and quantity sold for use in processes that result in their transformation or for use in processes that result in their destruction;

(iii) Dated records of the quantity of controlled substances produced for an essential-use and quantity sold for use in an essential-use process;

(iv) Dated records of the quantity of controlled substances produced with expended destruction and/or transformation credits;

(v) Dated records of the quantity of controlled substances produced with Article 5 allowances;

(vi) Copies of invoices or receipts documenting sale of controlled substance for use in processes resulting in their transformation or for use in processes resulting in destruction;

(vii) Dated records of the quantity of each controlled substance used at each facility as feedstocks or destroyed in the manufacture of a controlled substance or in the manufacture of any other substance, and any controlled substance introduced into the production process of the same controlled substance at each facility;

(viii) Dated records identifying the quantity of each chemical not a controlled substance produced within each facility also producing one or more controlled substances;

(ix) Dated records of the quantity of raw materials and feedstock chemicals used at each facility for the production of controlled substances;

(x) Dated records of the shipments of each controlled substance produced at each plant;

(xi) The quantity of controlled substances, the date received, and names and addresses of the source of used materials containing controlled substances which are recycled or reclaimed at each plant;

(xii) Records of the date, the controlled substance, and the estimated quantity of any spill or release of a controlled substance that equals or exceeds 100 pounds;

(xiii) Internal Revenue Service Certificates in the case of transformation, or the destruction verification in the case of destruction (as in §82.13(k)), showing that the purchaser or recipient of a controlled substance, in the United States or in another country that is a Party, certifies the intent to either transform or destroy the controlled substance, or sell the controlled substance for transformation or destruction in cases when production and consumption allowances were not expended;

(xiv) Written verifications that essential-use allowances were conveyed to the producer for the production of specified quantities of a specific controlled substance that will only be used for the named essential-use;

(xv) Written certifications that quantities of controlled substances, meeting the purity criteria in Appendix G of this subpart, were purchased by distributors of laboratory supplies or by laboratory customers to be used only for an essential-use laboratory application, and not to be resold or used in manufacturing.

(xvi) Written verifications from a U.S. purchaser that the controlled substance was exported to an Article 5 country in cases when Article 5 allowances were expended during production.

(3) For each quarter, each producer of a class I controlled substance must provide the Administrator with a report containing the following information:

(i) The production by company in that quarter of each controlled substance, specifying the quantity of any controlled substance used in processing, resulting in its transformation by the producer;

(ii) The amount of production for use in processes resulting in destruction of controlled substances by the producer;

(iii) The levels of production (expended allowances and credits) for each controlled substance;

(iv) The producer's total of expended and unexpended production allowances, consumption allowances, Article 5 allowances, and amount of essential-use allowances and destruction and transformation credits conferred at the end of that quarter;

(v) The quantity of used material received containing controlled substances that are recycled or reclaimed;

(vi) The amount of controlled substance sold or transferred during the quarter to a person other than the producer for use in processes resulting in its transformation or eventual destruction;

(vii) A list of the quantities and names of controlled substances exported, by the producer and or by other U.S. companies, to a Party to the Protocol that will be transformed or destroyed and therefore were not produced expending production or consumption allowances;

(viii) For transformation in the United States or by a person of another Party, one copy of an IRS certification of intent to transform the same controlled substance for a particular transformer and a list of additional quantities shipped to that same transformer for the quarter;

(ix) For destruction in the United States or by a person of another Party, one copy of a destruction verification (as under § 82.13(k)) for a particular destroyer, destroying the same controlled substance, and a list of additional quantities shipped to that same destroyer for the quarter;

(x) A list of U.S. purchasers of controlled substances that exported to an Article 5 country in cases when Article 5 allowances were expended during production;

(xi) A list of the essential-use allowance holders, distributors of laboratory supplies and laboratory customers from whom orders were placed and the quantity of specific essential-use controlled substances requested and produced;

(xii) The certifications from essential-use allowance holders and laboratory customers stating that the controlled substances were purchased solely for specified essential uses and will not be resold or used in manufacturing; and

(xiii) In the case of laboratory essential uses, a certification from distributors of laboratory supplies that controlled substances were purchased for sale to laboratory customers who certify that the substances will only be used for laboratory applications and will not be resold or used in manufacturing.

(4) For any person who fails to maintain the records required by this paragraph, or to submit the report required by this paragraph, the Administrator may assume that the person has produced at full capacity during the period for which records were not kept, for purposes of determining whether the person has violated the prohibitions at § 82.4.

(g) Importers of class I controlled substances during a control period must comply with record-keeping and reporting requirements specified in this paragraph (g).

(1) Recordkeeping—Importers. Any importer of a class I controlled substance (including used, recycled and reclaimed controlled substances) must maintain the following records:

(i) The quantity of each controlled substance imported, either alone or in mixtures, including the percentage of each mixture which consists of a controlled substance;

(ii) The quantity of those controlled substances imported that are used (including recycled or reclaimed) and the information provided with the petition as under § 82.13(g)(2);

(iii) The quantity of controlled substances other than transhipments or used, recycled or reclaimed substances imported for use in processes resulting in their transformation or destruction and quantity sold for use in processes that result in their destruction or transformation;

(iv) The date on which the controlled substances were imported;

(v) The port of entry through which the controlled substances passed;

(vi) The country from which the imported controlled substances were imported;

(vii) The commodity code for the controlled substances shipped;

(viii) The importer number for the shipment;

(ix) A copy of the bill of lading for the import;

(x) The invoice for the import;

(xi) The quantity of imports of used, recycled or reclaimed class I controlled substances and class II controlled substances;

(xii) The U.S. Customs entry form;

(xiii) Dated records documenting the sale or transfer of controlled substances for use in processes resulting in transformation or destruction;

(xiv) Copies of IRS certifications that the controlled substance will be transformed or destruction verifications that it will be destroyed (as in § 82.13(k));

(xv) Dated records of the quantity of controlled substances imported for an essential-use or imported with destruction and transformation credits; and

(xvi) Copies of documents conveying the right to import controlled substances for specific essential uses, or certifications that imported controlled substances are being purchased for essential laboratory and analytical applications or being purchased for eventual sale to laboratories that certify the controlled substances are for essential laboratory applications.

(2) Petitioning—Importers of Used, Recycled or Reclaimed Controlled Substances and Transhipments. For each individual shipment (not to be aggregated) over 150 pounds of a used, recycled or reclaimed controlled substance as defined in § 82.3, an importer must submit to the Administrator, at least 15 working days before the shipment is to leave the foreign port of export, the following information in a petition:

(i) The name and quantity of the used, recycled or reclaimed controlled substance to be imported (including material that has been recycled or reclaimed);

(ii) The name and address of the importer, the importer ID number, the contact person, and the phone and fax numbers;

(iii) Name and address of the source(s) of the used, recycled or reclaimed controlled substance, including a description of the previous use(s), when possible;

(iv) Name and address of the exporter and/or foreign owner of the material,

(v) The U.S. port of entry for the import, the expected date of shipment and the vessel transporting the chemical;

(vi) The intended use of the used, recycled or reclaimed controlled substance;

(vii) The name, address and contact person of the U.S. reclamation facility, where applicable;

(viii) A certification that the purchaser of the used, recycled or reclaimed controlled substance being imported is liable for payment of the tax;

(ix) If the imported controlled substance was reclaimed in a foreign Party, the name and address of the foreign reclamation facility, the contact person at the facility, and the phone and fax number;

(x) If the imported used controlled substance is intended to be sold as a refrigerant in the U.S., the name and address of the U.S. reclaimer who will bring the material to the standard required under section 608 (§ 82.152(g)) of the CAA, if not already reclaimed to those specifications.

(xi) Rules stayed for reconsideration. Notwithstanding any other provisions of this subpart, the effectiveness of 40 CFR 82.13(g)(2)(viii) is stayed from July 11, 1996 until the completion of the reconsideration of 40 CFR 82.13(g)(2)(viii).

(3) The Administrator will review the information submitted under paragraph (g)(2) of this section and assess the completeness and accuracy of the petition for the import of the used, recycled or reclaimed controlled substance. If the Administrator determines that the information is insufficient, or there is reason to disallow the import, the Administrator will issue an objection notice before the shipment is to leave the foreign port of export (the end of the 15 working days). In the event that the Administrator does not respond to the petition within the 15 working days, the importer may proceed with the import. The importer may re-petition the Agency, if the Administrator indicated insufficient information to make a determination.

(3) Reporting Requirements—Importers. For each quarter, every importer of a class I controlled substance (including importers of used, recycled or reclaimed controlled substances) must submit to the Administrator a report containing the following information:

(i) Summaries of the records required in paragraphs (g)(1) (i) through (xvi) of this section for the previous quarter;

(ii) The total quantity imported in kilograms of each controlled substance for that quarter;

(iii) The quantity of those controlled substances imported that are used, recycled or reclaimed;

(iv) The levels of import (expended consumption allowances before January 1, 1996) of controlled substances for that quarter and totaled by chemical for the control-period-to-date;

(vii) The importer's total sum of expended and unexpended consumption allowances by chemical as of the end of that quarter;

(viii) The amount of controlled substances imported for use in processes resulting in their transformation or destruction;

(ix) The amount of controlled substances sold or transferred during the quarter to each person for use in processes resulting in their transformation or eventual destruction;

(x) The amount of controlled substances sold or transferred during the quarter to each person for an essential use;

(xi) The amount of controlled substances imported with destruction and transformation credits;

(xii) Internal Revenue Service Certificates showing that the purchaser or recipient of imported controlled substances intends to transform those substances or destruction verifications (as in § 82.13(k)) showing that purchaser or recipient intends to destroy the controlled substances; and

(xiii) A list of the essential-use allowance holder and/or laboratory from whom orders were placed and the quantity of specific essential-use controlled substances requested and imported.

(h) Reporting Requirements—Exporters. For any exports of class I controlled substances not reported under § 82.10 (additional consumption allowances), or under § 82.13(f)(3) (reporting for producers of controlled substances), the exporter who exported a class I controlled substances must submit to the Administrator the following information within 45 days after the end of the control period in which the unreported exports left the United States:

(1) The names and addresses of the exporter and the recipient of the exports;

(2) The exporter's Employee Identification Number;

(3) The type and quantity of each controlled substance exported and what percentage, if any, of the controlled substance is used, recycled or reclaimed;

(4) The date on which, and the port from which, the controlled substances were exported from the United States or its territories;

(5) The country to which the controlled substances were exported;

(6) The amount exported to each Article 5 country;

(7) The commodity code of the controlled substance shipped; and

(8) The sales contract certifying that the controlled substance that was exported to a Party to the Protocol will be transformed or destroyed.

(i) Every person who has requested additional production allowances under § 82.9(e) or destruction and transformation credits under § 82.9(f) or consumption allowances under § 82.10(b) or who transforms or destroys class I controlled substances not produced by that person must maintain the following:

(1) Dated records of the quantity and level of each controlled substance transformed or destroyed;

(2) Copies of the invoices or receipts documenting the sale or transfer of the controlled substance to the person;

(3) In the case where those controlled substances are transformed, dated records of the names, commercial use, and quantities of the resulting chemical(s);

(4) In the case where those controlled substances are transformed, dated records of shipments to purchasers of the resulting chemical(s);

(5) Dated records of all shipments of controlled substances received by the person, and the identity of the producer or importer of the controlled substances;

(6) Dated records of inventories of controlled substances at each plant on the first day of each quarter; and

(7) A copy of the person's IRS certification of intent to transform or the purchaser's or recipient's destruction verification of intent to destroy (as under § 82.13(k)), in the case where substances were purchased or transferred for transformation or destruction purposes.

(j) Persons who destroy class I controlled substances shall, following promulgation of this rule, provide EPA with a one-time report stating the destruction unit's destruction efficiency and the methods used to record the volume destroyed and those used to determine destruction efficiency and the name of other relevant federal or state regulations that may apply to the destruction process. Any changes to the unit's destruction efficiency or methods used to record volume destroyed and to determine destruction efficiency must be reflected in a revision to this report to be submitted to EPA within 60 days of the change.

(k) Persons who purchase or receive and subsequently destroy controlled class I substances that were originally produced without expending allowances shall provide the producer or importer from whom they purchased or received the controlled substances with a verification that controlled substances will be used in processes that result in their destruction.

(1) The destruction verification shall include the following:

(i) Identity and address of the person intending to destroy controlled substances;

(ii) Indication of whether those controlled substances will be completely destroyed, as defined in §82.3 of this rule, or less than completely destroyed, in which case the destruction efficiency at which such substances will be destroyed must be included;

(iii) Period of time over which the person intends to destroy controlled substances; and

(iv) Signature of the verifying person.

(2) If, at any time, any aspects of this verification change, the person must submit a revised verification reflecting such changes to the producer from whom that person purchases controlled substances intended for destruction.

(l) Persons who purchase class I controlled substances and who subsequently transform such controlled substances shall provide the producer or importer with the IRS certification that the controlled substances are to be used in processes resulting in their transformation.

(m) Any person who transforms or destroys class I controlled substances who has submitted an IRS certificate of intent to transform or a destruction verification (as under §82.13(k)) to the producer of the controlled substance, must report the names and quantities of class I controlled substances transformed and destroyed for each control period within 45 days of the end of such control period.

(n) Every person who produces, imports, or exports class II chemicals must report its quarterly level of production, imports, and exports of these chemicals within 45 days of the end of each quarter (including those substances transformed or destroyed).

(o) Every person who imports or exports used class II controlled substances must report its annual level within 45 days of the end of the control period.

(p) Persons who import or export used controlled substances (including recycled or reclaimed) must label their bill of lading or invoice indicating that the controlled substance is used, recycled or reclaimed.

(q) Persons who import heels of controlled substances must label their bill of lading or invoice indicating that the controlled substance in the container is a heel.

(r) Every person who brings back a container with a heel to the United States, as defined in §82.3, must report quarterly the amount brought into the United States certifying that the residual amount in each shipment is less than 10 percent of the volume of the container and will either:

(1) Remain in the container and be included in a future shipment;

(2) Be recovered and transformed;

(3) Be recovered and destroyed; or

(4) Be recovered for a non-emissive use.

(s) Every person who brings a container with a heel into the United States must report on the final disposition of each shipment within 45 days of the end of the control period.

(t) Every person who transships a controlled substance must maintain records that indicate that the controlled substance shipment originated in a foreign country destined for another foreign country, and does not

enter interstate commerce with the United States.

(u) Any person allocated essential-use allowances who submits an order to a producer or importer for a controlled substance must report the quarterly quantity received from each producer or importer. Any distributor of laboratory supplies receiving controlled substances under the global laboratory essential-use exemption for sale to laboratory customers must report quarterly the quantity received of each controlled substance from each producer or importer.

(v) Any distributor of laboratory supplies who purchased controlled substances under the global laboratory essential-use exemption must submit quarterly copies of certifications received in that quarter from laboratory customers, as under §82.13(w), and the quantity of each controlled substance purchased by each laboratory customer whose certification was previously filed.

(w) A laboratory customer purchasing a controlled substance under the global laboratory essential-use exemption must provide the producer, importer or distributor with a one-time-per-year certification for each controlled substance that the substance will only be used for laboratory applications and not be resold or used in manufacturing. The certification must also include:

(1) The identity and address of the laboratory customer;

(2) The name and phone number of a contact person for the laboratory customer;

(3) The name and quantity of each controlled substance purchased, and the estimated percent of the controlled substance that will be used for each listed type of laboratory application.

[60 FR 24986, May 10, 1995, as amended at 61 FR 3318, Jan. 31, 1996; 61 FR 29486, June 11, 1996]

EFFECTIVE DATE NOTE: At 61 FR 3318, Jan. 31, 1996, §82.13 was amended by staying paragraph (g)(2)(viii), effective Jan. 31, 1996 through Apr. 30, 1996. At 61 FR 29486, June 11, 1996, the stay was extended, effective July 11, 1996.

APPENDIX A TO SUBPART A—CLASS I CONTROLLED SUBSTANCES

Class 1 controlled substances	ODP
A. Group I:	
$CFCl_3$-Trichlorofluoromethane (CFC–ll)	1.0
CF_2 Cl_2-Dichlorofifluoromethane (CFC–12)	1.0
C_2 F_3 Cl_3-Trichlorotrifluoroethane (CFC–113)	0.8
C_2 F_4 Cl_2-Dichlorotetrafluoroethane (CFC–114)	1.0
C_2 F_5 Cl-Monochloropentafluoroethane (CFC–115)	0.6
All isomers of the above chemicals	
B. Group II:	
CF_2 ClBr-Bromochlorodifluoromethane (Halon-1211)	3.0
CF_3 Br-Bromotrifluoromethane (Halon-1301)	10.0
C_2 F_4 Br_2-Dibromotetrafluoroethane (Halon-2402)	6.0
All isomers of the above chemicals	
C. Group III:	
CF_3 Cl-Chlorotrifluoromethane (CFC–13)	1.0
C_2 FCl_5-(CFC–111)	1.0
C_2 F_2 Cl_4-(CFC–112)	1.0
C_3 FCl_7-(CFC–211)	1.0
C_3 F_2 Cl_6-(CFC–212)	1.0
C_3 F_3 Cl_5-(CFC–213)	1.0
C_3 F_4 Cl_4-(CFC–214)	1.0
C_3 F_5 Cl_3-(CFC–215)	1.0
C_3 F_6 Cl_2-(CFC–216)	1.0
C_3 F_7 Cl-(CFC–217)	1.0
All isomers of the above chemicals	
D. Group IV: CCl_4-Carbon Tetrachloride	1.1
E. Group V:	
C_2 H_3 Cl_3-1,1,1 Trichloroethane (Methyl chloroform)	0.1
All isomers of the above chemical except 1,1,2-trichloroethane	
F. Group VI: CH_3 Br—Bromomethane (Methyl Bromide)	0.7
G. Group VII:	
$CHFBR_2$	1.00
CHF_2 Br (HBFC–2201)	0.74
CH_2 FBr	0.73
C_2 $HFBr_4$	0.3–0.8
C_2 HF_2 Br_3	0.5–1.8
C_2 HF_3 Br_2	0.4–1.6
C_2 HF_4 Br	0.7–1.2
C_2 H_2 FBr_3	0.1–1.1
C_2 H_2 F_2 Br_2	0.2–1.5
C_2 H_2 F_3 Br	0.7–1.6
C_2 H_2 FBr_2	0.1–1.7
C_2 H_3 F_2 Br	0.2–1.1
C_2 H_4 FBr	0.07–0.1
C_3 $HFBr_6$	0.3–1.5
C_3 HF_2 Br_5	0.2–1.9
C_3 HF_3 Br_4	0.3–1.8
C_3 HF_4 Br_3	0.5–2.2
C_3 HF_5 Br_2	0.9–2.0
C_3 HF_6 Br	0.7–3.3
C_3 H_2 FBR_5	0.1–1.9
C_3 H_2 F_2 BR_4	0.2–2.1
C_3 H_2 F_3 Br_3	0.2–5.6
C_3 H_2 F_4 Br_2	0.3–7.5
C_3 H_2 F_5 BR	0.9–14
C_3 H_3 FBR_4	0.08–1.9
C_3 H_3 F_2 Br_3	0.1–3.1
C_3 H_3 F_3 Br_2	0.1–2.5
C_3 H_3 F_4 Br	0.3–4.4
C_3 H_4 FBr_3	0.03–0.3
C_3 H_4 F_2 Br_2	0.1–1.0
C_3 H_4 F_3 Br	0.07–0.8
C_3 H_5 FBr_2	0.04–0.4
C_3 H_5 F_2 Br	0.07–0.8
C_3 H_6 FB	0.02–0.7

APPENDIX B TO SUBPART A—CLASS II CONTROLLED SUBSTANCES

Controlled substance	ODP
$CHFCl_2$-Dichlorofluoromethane (HCFC–21)	[Reserved].
CHF_2 Cl-Chlorodifluoromethane (HCFC–22)	0.05
CH_2 FCl-Chlorofluoromethane (HCFC–31)	[Reserved].
C_2 $HFCl_4$-(HCFC–121)	[Reserved].
C_2 HF_2 Cl_3-(HCFC–122)	[Reserved].
C_2 HF_3 Cl_2-(HCFC–123)	0.02
C_2 HF_4 Cl-(HCFC–124)	0.02
C_2 H_2 FCl_3-(HCFC–131)	[Reserved].
C_2 H_2 F_2 Cl_2-(HCFC–132b)	[Reserved].
C_2 H_2 F_3 Cl-(HCFC–133a)	[Reserved].
C_2 H_3 FCl_2-(HCFC–141b)	0.12
C_2 H_3 F_2 Cl-(HCFC–142b)	0.06
C_3 $HCFCl_6$-(HCFC–221)	[Reserved].
C_3 HF2Cl_5-(HCFC–222)	[Reserved].
C_3 HF_3 Cl_4-(HCFC–223)	[Reserved].
C_3 HF_4 Cl_3-(HCFC–224)	[Reserved].
C_3 HF_5 Cl_2-(HCFC–225ca)	[Reserved].
C_3 HF_5 Cl-(HCFC–225cb)	[Reserved].
C_3 HF_6 Cl-(HCFC–226)	[Reserved].
C_3 H_2 FCl_5-(HCFC–231)	[Reserved].
C_3 H_2 F_2 Cl_4-(HCFC–232)	[Reserved].
C_3 H_2 F_3 Cl_3-(HCFC–233)	[Reserved].
C_3 H_2 F_4 Cl_2-(HCFC–234)	[Reserved].
C_3 H_2 F_5 Cl-(HCFC–235)	[Reserved].
C_3 H_3 FCl_4-(HCFC–241)	[Reserved].
C_3 H_3 F_2 Cl_3-(HCFC–242)	[Reserved].
C_3 H_3 F_3 Cl_2-(HCFC–243)	[Reserved].
C_3 H_3 F_4 Cl-(HCFC–244)	[Reserved].
C_3 H_4 FCl_3-(HCFC–251)	[Reserved].
C_3 H_4 F_2 Cl_2-(HCFC–252)	[Reserved].
C_3 H_4 F_3 Cl-(HCFC–253)	[Reserved].
C_3 H_5 FCl_2-(HCFC–261)	[Reserved].
C_3 H_5 F_2 Cl-(HCFC–262)	[Reserved].
C_3 H_6 FCl-(HCFC–271)	[Reserved].
All isomers of the above chemicals	

APPENDIX C TO SUBPART A—PARTIES TO THE MONTREAL PROTOCOL: ANNEX 1—ALL PARTIES

Foreign state	Montreal protocol	London amendments	Copenhagen amendments
Algeria	√	√	.....
Antigua and Barbuda	√	√	√
Argentina	√	√	.....
Australia	√	√	√
Austria	√	√	
Bahamas	√	√	√
Bahrain	√	√	.....
Bangladesh	√	√	.....
Barbados	√	√	√
Belarus	√	.....	.....
Belgium	√	√	.....
Benin	√	.....	.....
Bolivia	√	√	√
Bosnia and Hertsegovina	√	.....	.....
Botswana	√	.....	.....
Brazil	√	√	.....
Brunei Darussalam	√	.....	.....
Bulgaria	√	.....	.....
Burkina Faso	√	√	.....
Cameroon	√	√	.....
Canada	√	√	√
Central African Republic	√	.....	.....
Chad	√	.....	√
Chile	√	√	√
China	√	√	.....
Colombia	√	√	.....
Comoros	√	√	.....
Congo	√	√	.....
Costa Rica	√	.....	.....
Cote Ivoire	√	√	.....
Croatia	√	√	.....
Cuba	√	.....	√
Cyprus	√	√	.....
Czech Republic	√	.....	.....
Denmark	√	√	√
Dominica	√	√	.....
Dominican Republic	√	.....	.....
Ecuador	√	√	√
Egypt	√	√	√
El Salvador	√	.....	.....
Ethiopia	√	.....	.....
European Community	√	√	.....
Fiji	√	√	.....
Finland	√	√	√
France	√	√	.....
Gabon	√	.....	.....
Gambia	√	.....	.....
Germany	√	√	√
Ghana	√	√	.....
Greece	√	√	√
Grenada	√	√	.....
Guatemala	√	.....	.....
Guinea	√	√	.....
Guyana	√	√	.....
Honduras	√	.....	.....
Hungary	√	√	√
Iceland	√	√	√
India	√	√	.....
Indonesia	√	√	.....
Iran	√	.....	.....
Ireland	√	√	.....
Israel	√	√	.....
Italy	√	√	√
Jamaica	√	√	.....
Japan	√	√	√
Jordan	√	√	
Kenya	√	√	√
Kiribati	√	.....	.....
Korea, Democratic People's Republic of	√		
Korea, Republic of	√	√	√
Kuwait	√	√	√
Lebanon	√	√	.....
Lesotho	√	.....	.....
Libya	√	.....	.....
Liechtenstein	√	√	.....
Lithuania	√	.....	.....
Luxembourg	√	√	√
Macedonia	√	.....	.....
Malawi	√	√	√
Malaysia	√	√	√
Maldives	√	√	.....
Mali	√	√	.....
Malta	√	√	.....
Marshall Islands	√	√	√
Mauritania	√	.....	.....
Mauritius	√	√	√
Mexico	√	√	√
Monaco	√	√	.....
Morocco	√	.....	.....
Mozambique	√	√	√
Myranmar	√	√	.....
Namibia	√	.....	.....
Nepal	√	√	.....
Netherlands	√	√	√
New Zealand	√	√	√
Nicaragua	√	.....	.....

Foreign state	Montreal protocol	London amendments	Copenhagen amendments
Niger	√		
Nigeria	√		
Norway	√	√	√
Pakistan	√	√	√
Panama	√	√	
Papua New Guinea	√	√	
Paraguay	√	√	
Peru	√	√	
Philippines	√	√	
Poland	√		
Portugal	√	√	
Romania	√	√	
Russian Federation	√	√	
Saint Kitts and Nevis	√		√
Saint Lucia	√		
Samoa	√		
Saudi Arabia	√	√	√
Senegal	√	√	
Seychelles	√	√	√
Singapore	√	√	
Slovakia	√	√	
Slovenia	√	√	
Solomon Islands	√	√	
South Africa	√	√	
Spain	√	√	
Sri Lanka	√	√	
Sudan	√		
Swaziland	√		
Sweden	√	√	√
Switzerland	√	√	
Syrian Arab Republic	√		
Tanzania, United Republic of	√	√	
Thailand	√	√	
Togo	√		
Trinidad and Tobago	√		
Tunisia	√	√	√
Turkey	√		
Turkministan	√	√	
Tuvalu	√		
Uganda	√	√	
Ukranian SSR	√		
United Arab Emirates	√		
United Kingdom	√	√	√
Uruguay	√	√	
United States	√	√	√
Uruguay	√	√	
Uzbekistan	√		
Vanuatu	√	√	√
Venezuela	√	√	
Viet Nam	√	√	√
Yugoslavia	√		
Zaire	√	√	√
Zambia	√	√	
Zimbabwe	√	√	√

ANNEX 2 TO SUBPART A—NATIONS COMPLYING WITH, BUT NOT PARTIES TO, THE PROTOCOL [RESERVED]

APPENDIX D TO SUBPART A—HARMONIZED TARIFF SCHEDULE DESCRIPTION OF PRODUCTS THAT MAY CONTAIN CONTROLLED SUBSTANCES IN APPENDIX A, CLASS I, GROUPS I AND II

This Appendix is based on information provided by the Ozone Secretariat of the United Nations Ozone Environment Programme.** The Appendix lists available U.S. harmonized tariff schedule codes identifying headings and subheadings for Annex D products that may contain controlled substances.

The Harmonized Tariff Schedule of the United States uses a enumeration system to identify products imported and exported to and from the U.S. This system relies on a four digit heading, a four digit subheading and additional two digit statistical suffix to characterize products. The United States uses the suffix for its own statistical records and analyses. This Appendix lists only headings and subheadings.

While some can be readily associated with harmonized system codes, many products cannot be tied to HS classifications unless their exact composition and the presentation are known. It should be noted that the specified HS classifications represent the most likely headings and subheadings which may contain substances controlled by the Montreal Protocol. The codes given should only be used as a starting point; further verfication is needed to ascertain whether or not the products actually contain controlled substances.

CATEGORY 1. AUTOMOBILE AND TRUCK AIR CONDITIONING UNITS (WHETHER INCORPORATED IN VEHICLES OR NOT)

There are no separate code numbers for air conditioning units specially used in automobiles and trucks. Although a code has been proposed for car air conditioners, it is not yet officially listed in the Harmonized Tariff Schedule (see category 2). The following codes apply to the vehicles potentially containing air conditioning units.

Heading/Subheading	*Article Description*
8701.(10, 20, 30, 90)***	Tractors.
8702	Public-transport type passenger motor vehicles.
8702.10	With compression-ignition internal-combustion piston engine (diesel or semi-diesel).
8702.90	Other.

** ''A Note Regarding the Harmonized System Code Numbers for the Products Listed in Annex D.'' Adopted by Decision IV/15 paragraph 3, of the Fourth Meeting of the Parties in Copenhagen, 23–25 November, 1992.

Heading/Subheading	*Article Description*
8703	Motor cars and other motor vehicles principally designed for the transport of persons (other than those of heading 8702), including station wagons and racing cars.
8703.10	Vehicles specially designed for traveling on snow; golf carts and similar vehicles; includes subheading 10.10 and 10.50.
8703.(21, 22, 23, 24)	Other vehicles, with spark-ignition internal combustion reciprocating engines.
8703.(31, 32, 33, 90)	Other vehicles, with compression-ignition internal combustion piston engine (diesel or semi-diesel).
8704	Motor vehicles for the transport of goods.
8704.10.(10, 50)	Dumpers designed for off-highway use.
8704.(21, 22, 23)	Other, with compression-ignition internal combustion piston engine (diesel or semi-diesel).
8704.(31, 32, 90)	Other, with compression-ignition internal combustion piston engine.
8705	Special purpose motor vehicles, other than those principally designed for the transport of persons or goods (for example, wreckers, mobile cranes, fire fighting vehicles, concrete mixers, road sweepers, spraying vehicles, mobile workshops, mobile radiological units).
8705.10	Crane lorries.
8705.20	Mobile drilling derricks.
8705.30	Fire fighting vehicles.
8705.90	Other.

***At this time vehicle air conditioning units are considered components of vehicles or are classified under the general category for air conditioning and refrigeration equipment. Vehicles containing air conditioners are therefore considered products containing controlled substances.

CATEGORY 2. DOMESTIC AND COMMERCIAL REFRIGERATION AND AIR CONDITIONING/HEAT PUMP EQUIPMENT

Domestic and commercial air conditioning and refrigeration equipment fall primarily under headings 8415 and 8418.

Heading/Subheading	*Article Description*
8415	Air conditioning machines, comprising a motor-driven fan and elements for changing the temperature and humidity, including those machines in which the humidity cannot be separately regulated.
8415.20	Proposed code for air conditioning of a kind used for persons, in motor vehicles.
8415.10.00	A/C window or wall types, self-contained.
8415.81.00	Other, except parts, incorporating a refrigerating unit and a valve for reversal of the cooling/heat cycle.
8415.82.00	Other, incorporating a refrigerating unit—
	Self-contained machines and remote condenser type air conditioners (not for year-round use).
	Year-round units (for heating and cooling).
	Air Conditioning evaporator coils.
	Dehumidifiers.
	Other air conditioning machines incorporating a refrigerating unit.
8415.83	Automotive air conditioners.
8418	Refrigerators, freezers and other refrigerating or freezing equipment, electric or other; heat pumps, other than air conditioning machines of heading 8415; parts thereof.
8418.10.00	Combined refrigerator-freezers, fitted with separate external doors.
8418.21.00	Refrigerators, household type, Compression type.
8418.22.00	Absorption type, electrical.
8418.29.00	Other.
8418.30.00	Freezers of the chest type.

Heading/Subheading	*Article Description*
8418.40	Freezers of the upright type.
8418.50.0040	Other refrigerating or freezing chests, cabinets, display counters, showcases and similar refrigerating or freezing furniture.
8418.61.00	Other refrigerating or freezing equipment; heat pumps.
8418.69	Other—
	Icemaking machines.
	Drinking water coolers, self-contained.
	Soda fountain and beer dispensing equipment.
	Centrifugal liquid chilling refrigerating units.
	Absorption liquid chilling units.
	Reciprocating liquid chilling units.
	Other refrigerating or freezing equipment (household or other).
8479.89.10	Dehumidifiers (other than those under 8415 or 8424 classified as ''machines and mechanical appliances having individual functions, not specified or included elsewhere'').

CATEGORY 3. AEROSOL PRODUCTS

An array of different products use controlled substances as aerosols and in aerosol applications. Not all aerosol applications use controlled substances, however. The codes given below represent the most likely classifications for products containing controlled substances. The product codes listed include****:

- varnishes
- perfumes
- preparations for use on hair
- preparations for oral and dental hygiene
- shaving preparations
- personal deodorants, bath preparations
- prepared room deodorizers
- soaps
- lubricants
- polishes and creams
- explosives
- insecticides, fungicides, herbicides, disinfectants
- arms and ammunition
- household products such as footwear or leather polishes
- other miscellaneous products

Heading/Subheading	*Article Description*
3208	Paints and varnishes***** (including enamels and lacquers) based on synthetic polymers of chemically modified natural polymers, dispersed or dissolved in a non-aqueous medium.
3208.10	Based on polyesters.
3208.20	Based on acrylic or vinyl polymers.
3208.90	Other.
3209	Paints and varnishes (including enamels and lacquers) based on synthetic polymers or chemically modified natural polymers, dispersed or dissolved in an aqueous medium.
3209.10	Based on acrylic or vinyl polymers.
3209.90	Other.
3210.00	Other paints and varnishes (including enamels, lacquers and distempers) and prepared water pigments of a kind used for finishing leather.
3212.90	Dyes and other coloring matter put up in forms or packings for retail sale.

****Other categories of products that may contain controlled substances are listed below. EPA is currently working to match them with appropriate codes. They include: coatings and electronic equipment (e.g., electrical motors), coatings or cleaning fluids for aircraft maintenance, mold release agents (e.g. for production of plastic or elastomeric materials), water and oil repellant (potentially under HS 3402), spray undercoats (potentially under ''paints and varnishes''), spot removers, brake cleaners, safety sprays (e.g., mace cans), animal repellant, noise horns (e.g., for use on boats), weld inspection developers, freezants, gum removers, intruder alarms, tire inflators, dusters (for electronic and non-electronic applications), spray shoe polish, and suede protectors.

Heading/Subheading	*Article Description*
3303.00	Perfumes and toilet waters.
3304.30	Manicure or pedicure preparations.
3305.10	Shampoos.
3305.20	Preparations for permanent waving or straightening.
3305.30	Hair lacquers.
3305.90	Other hair preparations.
3306.10	Dentrifices.
3306.90	Other dental (this may include breath sprays).
3307.10	Pre-shave, shaving or after-shave preparations.
3307.20	Personal deodorants and antiperspirants.
3307.30	Perfumed bath salts and other bath preparations.
3307.49	Other (this may include preparations for perfuming or deodorizing rooms, including odoriferous preparations used during religious rites, whether or not perfumed or having disinfectant properties).
3307.90	Other (this may include depilatory products and other perfumery, cosmetic or toilet preparations, not elsewhere specified or included)
3403	Lubricating preparations (including cutting-oil preparations, bolt or nut release preparations, anti-rust or anti-corrosion preparations and mould release preparations, based on lubricants), and preparations of a kind used for the oil or grease treatment of textile materials, leather, fur skins or other materials, but excluding preparations containing, as basic constituents, 70 percent or more by weight of petroleum oils or of oils obtained from bituminous minerals.
3402	Organic surface-active agents (other than soap); surface-active preparations, washing preparations and cleaning operations, whether or not containing soap, other than those of 3401.
3402.20	Preparations put up for retail sale.
3402.19	Other preparations containing petroleum oils or oils obtained from bituminous minerals.
3403	Lubricating preparations consisting of mixtures containing silicone greases or oils, as the case may be.
2710.00	Preparations not elsewhere specified or included, containing by weight 70 percent or more of petroleum oils or of oils obtained from bituminous minerals, these oils being the basic constituents of the preparations.
3403.11	Lubricants containing petroleum oils or oils obtained from bituminous minerals used for preparations from the treatment of textile materials, leather, fur skins or other materials.
3403.19	Other preparations containing petroleum oils or oils obtained from bituminous minerals.
3405	Polishes and creams, for footwear, furniture, floors, coachwork, glass or metal, scouring pastes and powders and similar preparations excluding waxes of heading 3404.
3405.10	Polishes and creams for footwear or leather.
3405.20	Polishes for wooden furniture, floors or other woodwork.
36	Explosives.
3808	Insecticides, rodenticides, fungicides, herbicides, anti-sprouting products and plant-growth regulators, disinfectants and similar products, put up in forms or packings for retail sale or as preparations or articles (for example, sulphur-treated bands, wicks and candles, and fly papers).
3808.10	Insecticides.
3808.20	Fungicides.
3808.30	Herbicides, anti-sprouting products and plant growth regulators.
3808.40	Disinfectants.

Heading/Subheading	*Article Description*
3808.90	Other insecticides, fungicides.
3809.10	Finishing agents, dye carriers to accelerate the dyeing or fixing of dye-stuffs and other products and preparations (for example, dressings and mordants) of a kind used in the textile, paper, leather or like industries, not elsewhere specified or included, with a basis of amylaceous substances.
3814	Organic composite solvents and thinners (not elsewhere specified or included) and the prepared paint or varnish removers.
3910	Silicones in primary forms.
9304	Other arms (for example, spring, air or gas guns and pistols, truncheons), excluding those of heading No. 93.07. Thus, aerosol spray cans containing tear gas may be classified under this subheading.
0404.90	Products consisting of natural milk constituents, whether or not containing added sugar or other sweetening matter, not elsewhere specified or included.
1517.90	Edible mixtures or preparations of animal or vegetable fats or oils or of fractions of different fats or oils of this chapter, other than edible fats or oils or their fractions of heading No. 15.16.
2106.90	Food preparations not elsewhere specified or included.

***** Although paints do not generally use contain controlled substances, some varnishes use CFC 113 and 1,1,1,trichlorethane as solvents.

CATEGORY 4. PORTABLE FIRE EXTINGUISHERS

Heading/Subheading	*Article Description*
8424	Mechanical appliances (whether or not hand operated) for projecting, dispersing, or spraying liquids or powders; fire extinguishers whether or not charged, spray guns and similar appliances; steam or sand blasting machines and similar jet projecting machines.
8424.10	Fire extinguishers, whether or not charged.

CATEGORY 5. INSULATION BOARDS, PANELS AND PIPE COVERS

These goods have to be classified according to their composition and presentation. For example, if the insulation materials are made of polyurethane, polystyrene, polyolefin and phenolic plastics, then they may be classified Chapter 39, for ''Plastics and articles thereof''. The exact description of the products at issue is necessary before a classification can be given.******

Heading/Subheading	*Article Description*
3917.21 to 3917.39	Tubes, pipes and hoses of plastics.
3920.10 to 3920.99	Plates, sheets, film, foil and strip made of plastics, non-cellular and not reinforced, laminated, supported or similarly combined with other materials.
3921.11 to 3921.90	Other plates, sheets, film, foil and strip, made of plastics.
3925.90	Builders' ware made of plastics, not elsewhere specified or included.
3926.90	Articles made of plastics, not elsewhere specified or included.

****** This category may include insulating board for building panels and windows and doors. It also includes rigid appliance insulation for pipes, tanks, trucks, trailers, containers, train cars & ships, refrigerators, freezers, beverage vending machines, bulk beverage dispensers, water coolers and heaters and ice machines.

CATEGORY 6. PRE-POLYMERS

According to the Explanatory Notes to the Harmonized Commodity Description and Coding System, ''prepolymers are products which are characterized by some repetition of monomer units although they may contain unreacted monomers. Prepolymers are not normally used as such but are intended to be transformed into higher molecular weight polymers by further polymerization. Therefore the term does not cover finished products, such as di-isobutylenes or mixed polyethylene glycols with very low molecular weight. Examples are epoxides based with epichlorohydrin, and polymeric isocyanates.''

Heading/Subheading	*Article Description*
3901	Pre-polymers based on ethylene (in primary forms).
3902	Pre-polymers based on propylene or other olefins (in primary forms).
3903, 3907, 3909	Pre-polymers based on styrene (in primary forms), epoxide and phenols.

APPENDIX E TO SUBPART A–ARTICLE 5 PARTIES

Algeria, Antigua and Barbuda, Argentina, Bahamas, Bahrain, Bangladesh, Barbados, Benin, Bolivia, Bosnia and Hersegovina, Botswana, Brazil, Brunei Darussalam, Burkina Faso, Cameroon, Central African Republic, Chad, Chile, China, Colombia, Comoros, Congo, Costa Rica, Cote d'Ivoire, Croatia, Cuba, Dominica, Dominican Republic, Ecuador, Egypt, El Salvador, Ethiopia, Fiji, Gabon, Gambia, Ghana, Grenada, Guatemala, Guinea, Guyana, Honduras, India, Indonesia, Iran, Jamaica, Jordan, Kenya, Kiribati, Lebanon, Lesotho, Libyan Arab Jamahiriya, Macadonia, Malawi, Malaysia, Maldives, Mali, Malta, Mauritania, Mauritius, Mexico, Mozambique, Myranmar, Namibia, Nepal, Nicaragua, Niger, Nigeria, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Republic of Korea, Romania, Saint Kitts and Nevis, Saint Lucia, Saudi Arabia, Senegal, Seychelles, Singapore, Solomon Islands, Somoa, Sri Lanka, Sudan, Swaziland, Syrian Arab Republic, Tanzania, Thailand, Togo, Trinidad and Tobago, Tunisia, Turkey, Uganda, Uruguay, Vanuatu, Venezuela, Viet Nam, Yugoslavia, Zaire, Zambia, Zimbabwe.

Appendix F to Subpart A—Listing of Ozone–Depleting Chemicals

Controlled substance	ODP	AT L	CLP	BLP
A. Class I:				
1. Group I:				
$CFCl_3$-Trichlorofluoromethane (CFC–11)	1.0	60.0	1.0	0.00
CF_2 Cl_2-Dichlorodifluoromethane (CFC–12)	1.0	120.0	1.5	0.00
C_2 F_3 Cl_3-Trichlorotrifluoroethane (CFC–113)	0.8	90.0	1.11	0.00
C_2 F_4 Cl_2-Dichlorotetrafluoroethane (CFC–114)	1.0	200.00	1.8	0.00
C_2 F_5 Cl-Monochloropentafluoroethane (CFC–115)	0.6	400.0	2.0	0.00
All isomers of the above chemicals		[Reserved]		
2. Group II:				
CF_2 ClBr-Bromochlorodifluoromethane (Halon-1211)	3.0	12	0.06	0.13
	.....	−18	−.08	−.03
CF_3 Br-Bromotrifluoromethane (Halon-1301)	10.0	72	0.00	1.00
	.....	−107	.....	.....
C_2 F_4 Br_2-Dibromotetrafluoroethane (Halon-2402)	6.0	23	0.00	0.30
	.....	−28	.....	−.37
All isomers of the above chemicals		[Reserved]		
3. Group III:				
CF_3 Cl-Chlorotrifluoromethane (CFC–13)	1.0	120	0.88	0.00
	−250	−1.83		
C_2 FCl_5- (CFC–111)	1.0	60	1.04	0.00
	−90	−1.56		
C_2 F_2 Cl_4- (CFC–112)	1.0	60	0.90	0.00
	−90	−1.35		
C_3 FCl_7- (CFC–211)	1.0	100	1.76	0.00
	−500	−8.81		
C_3 F_2 Cl_6- (CFC–212)	1.0	100	1.60	0.00
	−500	−7.98		
C_3 F_3 Cl_5- (CFC–213)	1.0	100	1.41	0.00
	−500	−7.06		
C_3 F_4 Cl_4- (CFC–214)	1.0	100	1.20	0.00
	−500	−6.01		
C_3 F_5 Cl_3 -(CFC–215)	1.0	100	0.96	0.00
	−500	−4.82		

Appendix F to Subpart A—Listing of Ozone–Depleting Chemicals—Continued

Controlled substance	ODP	AT L	CLP	BLP
$C_3 F_6 Cl_2$- (CFC–216)	1.0 −500	100 −3.45	0.69	0.00
$C_3 F_7$ Cl- (CFC–217)	1.0 −500	100 −1.87	0.37	0.00
All isomers of the above chemicals		[Reserved]		
4. Group IV:				
CCl_4 -Carbon Tetrachloride	1.1	50.0	1.0	0.00
5. Group V:				
$C_2 H_3 Cl_3$-1,1,1 Trichloroethane (Methyl chloroform)	0.1	6.3	0.11	0.00
All isomers of the above chemical except 1,1,2-trichloroethane		[Reserved]		
F. Group VI:				
CH3Br-Bromomethane (Methyl Bromide)	0.7		[Reserved]	
G. Group VII:				
$CHFBR_2$-	1.00		[Reserved]	
CHF_2 Br- (HBFC–22B1)	0.74		[Reserved]	
CH_2 FBr	0.73		[Reserved]	
C_2 $HFBr_4$	0.3—0.8		[Reserved]	
C_2 HF_2 Br_3	0.5—1.8		[Reserved]	
C_2 HF_3 Br_2	0.4—1.6		[Reserved]	
C_2 HF_4 Br	0.7—1.2		[Reserved]	
C_2 H_2 FBr_3	0.1—1.1		[Reserved]	
C_2 H_2 F_2 Br_2	0.2—1.5		[Reserved]	
C_2 H_2 F_3 Br	0.7—1.6		[Reserved]	
C_2 H_3 FBr_2	0.1—1.7		[Reserved]	
C_2 H_3 F_2 Br	0.2—1.1		[Reserved]	
C_2 H_4 FBr	0.07—0.1		[Reserved]	
C_3 $HFBr_6$	0.3—1.5		[Reserved]	
C_3 HF_2 Br_5	0.2—1.9		[Reserved]	
C_3 HF_3 BR_4	0.3—1.8		[Reserved]	
C_3 HF_4 Br_3	0.5—2.2		[Reserved]	
C_3 HF_5 Br_2	0.9—2.0		[Reserved]	
C_3 HF_6 Br	0.7—3.3		[Reserved]	
C_3 H_2 FBR_5	0.1—1.9		[Reserved]	
C_3 H_2 F_2 BR_4	0.2—2.1		[Reserved]	
C_3 H_2 F_3 Br_3	0.2—5.6		[Reserved]	
C_3 H_2 F_4 Br_2	0.3—7.5		[Reserved]	
C_3 H_2 F_5 BR	0.9—1.4		[Reserved]	
C_3 H_3 FBR_4	0.08—1.9		[Reserved]	
C_3 H_3 F_2 Br_3	0.1—3.1		[Reserved]	
C_3 H_3 F_3 Br_2	0.1—2.5		[Reserved]	
C_3 H_3 F_4 Br	0.3—4.4		[Reserved]	
C_3 H_4 FBr_3	0.03—0.3		[Reserved]	
C_3 H_4 F_2 Br_2	0.1—1.0		[Reserved]	
C_3 H_4 F_3 Br	0.07—0.8		[Reserved]	
C_3 H_5 FBr_2	0.04—0.4		[Reserved]	
C_3 H_5 F_2 Br	0.07—0.8		[Reserved]	
C_3 H_6 FB	0.02—0.7		[Reserved]	
B. Class II:				
$CHFCl_2$-Dichlorofluoromethane (HCFC–21)	[Reserved]	2.1	0.03	0.00
CHF_2 Cl-Chlorodifluoromethane (HCFC–22)	0.05	15.3	0.14	0.00
CH_2 FCl-Chlorofluoromethane (HCFC–31)	[Reserved]	1.44	0.02	0.00
C_2 $HFCl_4$- (HCFC–121)	[Reserved]	0.6	0.01	0.00
C_2 HF_2 Cl_3- (HCFC–122)	[Reserved]	1.4	0.02	0.00
C_2 HF_3 Cl_2- (HCFC–123)	0.02	1.6	0.016	0.00
C_2 HF_4 Cl- (HCFC–124)	0.02	6.6	0.04	0.00
C_2 H_2 FCl_3- (HCFC–131)	[Reserved]	4.0	0.06	0.00
C_2 H_2 F_2 Cl_2- (HCFC–132b)	[Reserved]	4.2	0.05	0.00
C_2 H_2 F_3 Cl- (HCFC–133a)	[Reserved]	4.8	0.03	0.00
C_2 H_3 FCl_2- (HCFC–141b)	0.12	7.8	0.10	0.00
C_2 H_3 F_2 Cl- (HCFC–142b)	0.06	19.1	0.14	0.00
C_3 $HFCl_6$- (HCFC–221)	[Reserved]			0.00
C_3 HF_2 Cl_5- (HCFC–222)	[Reserved]			0.00
C_3 HF_3 Cl_4- (HCFC–223)	[Reserved]			0.00
C_3 HF_4 Cl_3- (HCFC–224)	[Reserved]			0.00
C_3 HF_5 Cl_2- (HCFC–225ca)	[Reserved]	1.5 −1.7	0.01	0.00
(HCFC–225cb)	[Reserved]	5.1	0.04	0.00
C_3 HF_6 Cl- (HCFC–226)	[Reserved]			0.00
C_3 H_2 FCl_5- (HCFC–231)	[Reserved]			0.00
C_3 H_2 F_{24}- (HCFC–232)	[Reserved]			0.00
C_3 H_2 F_3 Cl_3- (HCFC–233)	[Reserved]			0.00

Appendix F to Subpart A—Listing of Ozone–Depleting Chemicals—Continued

Controlled substance	ODP	AT L	CLP	BLP
$C_3 H_2 F_4 Cl_2$- (HCFC–234)	[Reserved]			0.00
$C_3 H_2 F_5 Cl$- (HCFC–235)	[Reserved]			0.00
$C_3 H_3 FCl_4$- (HCFC–241)	[Reserved]			0.00
$C_3 H_3 F_2 Cl_3$- (HCFC–242)	[Reserved]			0.00
$C_3 H_3 F_3 Cl_2$- (HCFC–243)	[Reserved]			0.00
$C_3 H_3 F_4 Cl$- (HCFC–244)	[Reserved]			0.00
$C_3 H_4 FCl_3$- (HCFC–251)	[Reserved]			0.00
$C_3 H_4 F_2 Cl_2$- (HCFC–252)	[Reserved]			0.00
$C_3 H_4 F_3 Cl$- (HCFC–253)	[Reserved]			0.00
$C_3 H_5 FCl_2$- (HCFC–261)	[Reserved]			0.00
$C_2 H_5 F_2 Cl$- (HCFC–262)	[Reserved]			0.00
$C_3 H_6 FCl$- (HCFC–271)	[Reserved]			0.00
All isomers of the above chemicals	[Reserved]			

Appendix G to Subpart A—UNEP Recommendations for Conditions Applied to Exemption for Laboratory and Analytical Uses

1. Laboratory purposes are identified at this time to include equipment calibration; use as extraction solvents, diluents, or carriers for chemical analysis; biochemical research; inert solvents for chemical reactions, as a carrier or laboratory chemical and other critical analytical and laboratory purposes. Production for laboratory and analytical purposes is authorized provided that these laboratory and analytical chemicals shall contain only controlled substances manufactured to the following purities:

CTC (reagent grade)	99.5	
1,1,1- trichloroethane	99.0	
CFC–11		99.5
CFC–13		99.5
CFC–12		99.5
CFC–113		99.5
CFC–114		99.5
Other w/ Boiling P>20°	C99.5	
Other w/ Boiling P<20°	C99.0	

2. These pure, controlled substances can be subsequently mixed by manufacturers, agents or distributors with other chemicals controlled or not controlled by the Montreal Protocol as is customary for laboratory and analytical uses.

3. These high purity substances and mixtures containing controlled substances shall be supplied only in re-closable containers or high pressure cylinders smaller than three litres or in 10 millilitre or smaller glass ampoules, marked clearly as substances that deplete the ozone layer, restricted to laboratory use and analytical purposes and specifying that used or surplus substances should be collected and recycled, if practical. The material should be destroyed if recycling is not practical.

4. Parties shall annually report for each controlled substance produced: the purity; the quantity; the application, specific test standard, or procedure requiring its uses; and the status of efforts to eliminate its use in each application. Parties shall also submit copies of published instructions, standards, specifications, and regulations requiring the use of the controlled substance.

Appendix H to Subpart A—Clean Air Act Amendments of 1990 Phaseout Schedule for Production of Ozone–Depleting Substances

Date	Carbon tetra-chloride (percent)	Methyl chloro-form (per-cent)	Other class sub-stances (percent)
1994	70	85	65
1995	15	70	50
1996	15	50	40
1997	15	50	15
1998	15	50	15
1999	15	50	15
2000		20	
2001		20	

Appendix I to Subpart A—Global Warming Potentials (Mass Basis), Referenced to the Absolute GWP for the Adopted Carbon Cycle Model CO_2 Decay Response and Future CO_2 Atmospheric Concentrations Held Constant at Current Levels. (Only Direct Effects are Considered.)

Species (chemical)	Chemical formula	Global warming potential (time horizon)		
		20 years	100 years	500 years
CFC–11	$CFCl_3$	5000	4000	1400
CFC–12	$CF_2 Cl_2$	7900	8500	4200
CFC–13	$CClF_3$	8100	11700	13600

APPENDIX I TO SUBPART A—GLOBAL WARMING POTENTIALS (MASS BASIS), REFERENCED TO THE ABSOLUTE GWP FOR THE ADOPTED CARBON CYCLE MODEL CO_2 DECAY RESPONSE AND FUTURE CO_2 ATMOSPHERIC CONCENTRATIONS HELD CONSTANT AT CURRENT LEVELS. (ONLY DIRECT EFFECTS ARE CONSIDERED.)—Continued

Species (chemical)	Chemical formula	Global warming potential (time horizon)		
		20 years	100 years	500 years
CFC–113	$C_2 F_3 Cl_3$	5000	5000	2300
CFC–114	$C_2 F_4 Cl_2$	6900	9300	8300
CFC–115	$C_2 F_5 Cl$	6200	9300	13000
H–1301	$CF_3 Br$	6200	5600	2200
Carbon Tet	CCl_4	2000	1400	500
Methyl Chl	$CH_3 CCl_3$	360	110	35
HCFC–22	$CF_2 HCl$	4300	1700	520
HCFC–141b	$C_2 FH_3 Cl_2$	1800	630	200
HCFC–142b	$C_2 F_2 H_3 Cl$	4200	2000	630
HCFC–123	$C_2 F_3 HCl_2$	300	93	29
HCFC–124	$C_2 F_4 HCl$	1500	480	150
HCFC–225ca	$C_3 F_5 HCl_2$	550	170	52
HCFC–225cb	$C_3 F_5 HCl_2$	1700	530	170

AUnited Nations Environment Programme (UNEP), February 1995, Scientific Assessment of Ozone Depletion: 1994, Chapter 13, ''Ozone Depleting Potentials, Global Warming Potentials and Future Chlorine/Bromine Loading,'' and do not reflect review of scientific documents published after that date.

[61 FR 1285, Jan. 19, 1996]

Subpart B—Servicing of Motor Vehicle Air Conditioners

SOURCE: 57 FR 31261, July 14, 1992, unless otherwise noted.

§ 82.30 Purpose and scope.

(a) The purpose of the regulations in this subpart B is to implement section 609 of the Clean Air Act, as amended (Act) regarding the servicing of motor vehicle air conditioners (MVACs), and to implement section 608 of the Act regarding certain servicing, maintenance, repair and disposal of air conditioners in MVACs and MVAC-like appliances (as that term is defined in 40 CFR 82.152).

(b) These regulations apply to any person performing service on a motor vehicle for consideration when this service involves the refrigerant in the motor vehicle air conditioner.

[57 FR 31261, July 14, 1992, as amended at 62 FR 68046, Dec. 30, 1997]

§ 82.32 Definitions.

(a) *Approved independent standards testing organization* means any organization which has applied for and received approval from the Administrator pursuant to § 82.38.

(b) *Approved refrigerant recycling equipment* means equipment certified by the Administrator or an organization approved under § 82.38 as meeting either one of the standards in § 82.36. Such equipment extracts and recycles refrigerant or extracts refrigerant for recycling on-site or reclamation off-site.

(c) *Motor vehicle* as used in this subpart means any vehicle which is self-propelled and designed for transporting persons or property on a street or highway, including but not limited to passenger cars, light duty vehicles, and heavy duty vehicles. This definition does not include a vehicle where final assembly of the vehicle has not been completed by the original equipment manufacturer.

(d) *Motor vehicle air conditioners* means mechanical vapor compression refrigeration equipment used to cool the driver's or passenger's compartment of any motor vehicle. This definition is not intended to encompass the hermetically sealed refrigeration systems used on motor vehicles for refrigerated cargo and the air conditioning systems on passenger buses using HCFC–22 refrigerant.

(e) *Properly using.* (1) Properly using means using equipment in conformity with the regulations set forth in this subpart, including but not limited to the prohibitions and required practices

set forth in § 82.34, and the recommended service procedures and practices for the containment of refrigerant set forth in appendices A, B, C, D, E, and F of this subpart, as applicable. In addition, this term includes operating the equipment in accordance with the manufacturer's guide to operation and maintenance and using the equipment only for the controlled substance for which the machine is designed. For equipment that extracts and recycles refrigerant, properly using also means to recycle refrigerant before it is returned to a motor vehicle air conditioner or MVAC-like appliance, including to the motor vehicle air conditioner or MVAC-like appliance from which the refrigerant was extracted. For equipment that only recovers refrigerant, properly using includes the requirement to recycle the refrigerant on-site or send the refrigerant off-site for reclamation.

(2) Refrigerant from reclamation facilities that is used for the purpose of recharging motor vehicle air conditioners must be at or above the standard of purity developed by the Air–conditioning and Refrigeration Institute (ARI 700–93) (which is codified at 40 CFR part 82, subpart F, appendix A, and is available at 4301 North Fairfax Drive, Suite 425, Arlington, Virginia 22203). Refrigerant may be recycled off–site only if the refrigerant is extracted using recover only equipment, and is subsequently recycled off–site by equipment owned by the person that owns both the recover only equipment and owns or operates the establishment at which the refrigerant was extracted. In any event, approved equipment must be used to extract refrigerant prior to performing any service during which discharge of refrigerant from the motor vehicle air conditioner can reasonably be expected. Intentionally venting or disposing of refrigerant to the atmosphere is an improper use of equipment.

(3) Notwithstanding any other terms of this paragraph (e), approved refrigerant recycling equipment may be transported off-site and used to perform service involving refrigerant at other locations where such servicing occurs. Any such servicing involving refrigerant must meet all of the requirements of this subpart B that would apply if the servicing occurred on-site.

(4) Facilities that charge MVACs or MVAC-like appliances with refrigerant but do not perform any other service involving refrigerant (*i.e.*, perform ''top-offs'' only) are considered to be engaged in ''service involving refrigerant'' and are therefore subject to any and all requirements of this subsection that apply to facilities that perform a wider range of refrigerant servicing. For facilities that charge MVACs, this includes the requirement to purchase approved refrigerant recycling equipment. For facilities that only charge MVAC-like appliances, this does not include the requirement to purchase approved refrigerant recycling equipment, but does include the requirement to be properly trained and certified by a technician certification program approved by the Administrator pursuant to either § 82.40 or § 82.161(a)(5).

(5) All persons opening (as that term is defined in § 82.152) MVAC-like appliances must have at least one piece of approved recovery or recycling equipment available at their place of business.

(f) *Refrigerant* means any class I or class II substance used in a motor vehicle air conditioner. Class I and class II substances are listed in part 82, subpart A, appendix A. Effective November 15, 1995, refrigerant shall also include any substitute substance.

(g) *Service for consideration* means being paid to perform service, whether it is in cash, credit, goods, or services. This includes all service except that done for free.

(h) *Service involving refrigerant* means any service during which discharge or release of refrigerant from the MVAC or MVAC-like appliance to the atmosphere can reasonably be expected to occur. Service involving refrigerant includes any service in which an MVAC or MVAC-like appliance is charged with refrigerant but no other service involving refrigerant is performed (*i.e.*, a ''top-off'').

(i) *Motor vehicle disposal facility* means any commercial facility that engages in the disposal (which includes dismantling, crushing or recycling) of MVACs or MVAC-like appliances, including but not limited to automotive

recycling facilities, scrap yards, landfills and salvage yards engaged in such operations. Motor vehicle repair and/or servicing facilities, including collision repair facilities, are not considered motor vehicle disposal facilities.

[57 FR 31261, July 14, 1992, as amended at 60 FR 21687, May 2, 1995; 62 FR 68046, Dec. 30, 1997]

§ 82.34 Prohibitions and required practices.

(a) No person repairing or servicing MVACs for consideration, and no person repairing or servicing MVAC-like appliances, may perform any service involving the refrigerant for such MVAC or MVAC-like appliance:

(1) Without properly using equipment approved pursuant to § 82.36;

(2) Unless any such person repairing or servicing an MVAC has been properly trained and certified by a technician certification program approved by the Administrator pursuant to § 82.40; and

(3) Unless any such person repairing or servicing an MVAC-like appliance has been properly trained and certified by a technician certification program approved by the Administrator pursuant to either § 82.40 or § 82.161(a)(5).

(b) Effective November 15, 1992, no person may sell or distribute, or offer for sale or distribution, any class I or class II substance that is suitable for use as a refrigerant in motor vehicle air-conditioner and that is in a container which contains less than 20 pounds of such refrigerant to any person unless that person is properly trained and certified under § 82.40 or intended the containers for resale only, and so certifies to the seller under § 82.42(b)(3).

(c) No technician training programs may issue certificates unless the program complies with all of the standards in § 82.40(a).

(d) *Motor vehicle disposal facilities.* (1) Any refrigerant that is extracted from an MVAC or an MVAC-like appliance (as that term is defined in § 82.152) bound for disposal and located at a motor vehicle disposal facility may not be subsequently used to charge or recharge an MVAC or MVAC-like appliance, unless, prior to such charging or recharging, the refrigerant is either:

(i) Recovered, and reclaimed in accordance with the regulations promulgated under § 82.32(e)(2) of this subpart B; or

(ii) (A) Recovered using approved refrigerant recycling equipment dedicated for use with MVACs and MVAC-like appliances, either by a technician certified under paragraph (a)(2) of this section, or by an employee, owner, or operator of, or contractor to, the disposal facility; and

(B) Subsequently recycled by the facility that charges or recharges the refrigerant into an MVAC or MVAC-like appliance, properly using approved refrigerant recycling equipment in accordance with any applicable recommended service procedures set forth in the appendices to this subpart B.

(2) Any refrigerant the sale of which is restricted under subpart F that is extracted from an MVAC or an MVAC-like appliance bound for disposal and located at a motor vehicle disposal facility but not subsequently reclaimed in accordance with the regulations promulgated under subpart F, may be sold prior to its subsequent re-use only to a technician certified under paragraph (a)(2) of this section. Any technician certified under paragraph (a)(2) of this section who obtains such a refrigerant may subsequently re-use such refrigerant only in an MVAC or MVAC-like appliance, and only if it has been reclaimed or properly recycled.

[57 FR 31261, July 14, 1992, as amended at 62 FR 68047, Dec. 30, 1997]

§ 82.36 Approved refrigerant recycling equipment.

(a)(1) Refrigerant recycling equipment must be certified by the Administrator or an independent standards testing organization approved by the Administrator under § 82.38 to meet the following standard:

(2) Equipment that recovers and recycles CFC–12 refrigerant must meet the standards set forth in appendix A of this subpart (Recommended Service Procedure for the Containment of CFC–12, Extraction and Recycle Equipment for Mobile Automotive Air-Conditioning Systems, and Standard of Purity for Use in Mobile Air Conditioning Systems).

(3) Equipment that recovers but does not recycle CFC–12 refrigerant must meet the standards set forth in appendix B of this subpart (Recommended Service Procedure for the Containment of CFC–12 and Extraction Equipment for Mobile Automotive Air-Conditioning Systems).

(4) Equipment that recovers and recycles HFC–134a refrigerant must meet the standards set forth in appendix C of this subpart (Recommended Service Procedure for the Containment of HFC–134a, Standards for Recover/Recycle Equipment that Extracts and Recycles HFC–134a, and Standard of Purity for Recycled HFC–134a for Use in MVACs).

(5) Equipment that recovers but does not recycle HFC–134a refrigerant must meet the standards set forth in appendix D of this subpart (HFC–134a Recover-Only Equipment and Recommended Service Procedure for the Containment of HFC–134a).

(6) Equipment that recovers and recycles both CFC–12 and HFC–134a using common circuitry must meet the standards set forth in appendix E of this subpart (Automotive Refrigerant Recycling Equipment Intended for Use with both CFC–12 and HFC–134a, Recommended Service Procedure for the Containment of CFC–12, and Recommended Service Procedure for the Containment of HFC–134a).

(7) Equipment that recovers but does not recycle refrigerants other than HFC–134a and CFC–12 must meet the standards set forth in appendix F of this subpart (Recover-Only Equipment that Extracts a Single, Specific Refrigerant Other Than CFC–12 or HFC–134a).

(b)(1) Refrigerant recycling equipment that has not been certified under paragraph (a) of this section shall be considered approved if it is substantially identical to the applicable equipment certified under paragraph (a) of this section, and:

(i) For equipment that recovers and recycles CFC–12 refrigerant, it was initially purchased before September 4, 1991;

(ii) For equipment that recovers but does not recycle CFC–12 refrigerant, it was initially purchased before April 22, 1992;

(iii) For equipment that recovers and recycles HFC–134a refrigerant, it was initially purchased before March 6, 1996;

(iv) For equipment that recovers but does not recycle HFC–134a refrigerant, it was initially purchased before March 6, 1996;

(v) For equipment that recovers but does not recycle any single, specific refrigerant other than CFC–12 or HFC–134a, it was initially purchased before March 6, 1996; and

(vi) For equipment that recovers and recycles HFC–134a and CFC–12 refrigerant using common circuitry, it was initially purchased before March 6, 1996.

(2) Equipment manufacturers or owners may request a determination by the Administrator by submitting an application and supporting documents that indicate that the equipment is substantially identical to approved equipment to: MVACs Recycling Program Manager, Stratospheric Protection Division (6205J), U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460, Attn: Substantially Identical Equipment Review. Supporting documents must include process flow sheets, lists of components and any other information that would indicate that the equipment is capable of processing the refrigerant to the standards in appendix A, B, C, D, E or F of this subpart, as applicable. Authorized representatives of the Administrator may inspect equipment for which approval is being sought and request samples of refrigerant that has been extracted and/or recycled using the equipment. Equipment that fails to meet appropriate standards will not be considered approved.

(3) Refrigerant recycling equipment that recovers or recovers and recycles CFC–12 refrigerant and has not been certified under paragraph (a) or approved under paragraphs(b)(1) and (b)(2) of this section shall be considered approved for use with an MVAC-like appliance if it was manufactured or imported before November 15, 1993, and is capable of reducing the system pressure to 102 mm of mercury vacuum under the conditions set forth in appendix A of this subpart.

(c) The Administrator will maintain a list of approved equipment by manufacturer and model. Persons interested in obtaining a copy of the list should send written inquiries to the address in paragraph (b) of this section.

[57 FR 31261, July 14, 1992, as amended at 60 FR 21687, May 2, 1995; 62 FR 68047, Dec. 30, 1997]

§ 82.38 Approved independent standards testing organizations.

(a) Any independent standards testing organization may apply for approval by the Administrator to certify equipment as meeting the standards in appendix A, B, C, D, E, or F of this subpart, as applicable. The application shall be sent to: MVACs Recycling Program Manager, Stratospheric Protection Division (6205J), U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460.

(b) Applications for approval must document the following:

(1) That the organization has the capacity to accurately test whether refrigerant recycling equipment complies with the applicable standards. In particular, applications must document:

(i) The equipment present at the organization that will be used for equipment testing;

(ii) The expertise in equipment testing and the technical experience of the organization's personnel;

(iii) Thorough knowledge of the standards as they appear in the applicable appendices of this subpart; and

(iv) The test procedures to be used to test equipment for compliance with applicable standards, and why such test procedures are appropriate for that purpose.

(2) That the organization has no conflict of interest and will receive no financial benefit based on the outcome of certification testing; and

(3) That the organization agrees to allow the Administrator access to verify the information contained in the application.

(c) If approval is denied under this section, the Administrator shall give written notice to the organization setting forth the basis for his or her determination.

(d) If at any time an approved independent standards testing organization is found to be conducting certification tests for the purposes of this subpart in a manner not consistent with the representations made in its application for approval under this section, the Administrator reserves the right to revoke approval.

[57 FR 31261, July 14, 1992, as amended at 60 FR 21687, May 2, 1995; 62 FR 68048, Dec. 30, 1997]

§ 82.40 Technician training and certification.

(a) Any technician training and certification program may apply for approval, in accordance with the provisions of this paragraph, by submitting to the Administrator at the address in § 82.38(a) verification that the program meets all of the following standards:

(1) *Training.* Each program must provide adequate training, through one or more of the following means: on-the-job training, training through self-study of instructional material, or on-site training involving instructors, videos or a hands-on demonstration.

(2) *Test subject material.* The certification tests must adequately and sufficiently cover the following:

(i) The standards established for the service and repair of MVACs and MVAC-like appliances as set forth in appendices A, B, C, D, E, and F of this subpart. These standards relate to the recommended service procedures for the containment of refrigerant, extraction equipment, extraction and recycle equipment, and the standard of purity for refrigerant in motor vehicle air conditioners.

(ii) Anticipated future technological developments, such as the introduction of HFC–134a in new motor vehicle air conditioners.

(iii) The environmental consequences of refrigerant release and the adverse effects of stratospheric ozone layer depletion.

(iv) As of August 13, 1992, the requirements imposed by the Administrator under section 609 of the Act.

(3) *Test administration.* Completed tests must be graded by an entity or individual who receives no benefit based on the outcome of testing; a fee may be charged for grading. Sufficient measures must be taken at the test site to ensure that tests are completed

honestly by each technician. Each test must provide a means of verifying the identification of the individual taking the test. Programs are encouraged to make provisions for non-English speaking technicians by providing tests in other languages or allowing the use of a translator when taking the test. If a translator is used, the certificate received must indicate that translator assistance was required.

(4) *Proof of certification.* Each certification program must offer individual proof of certification, such as a certificate, wallet-sized card, or display card, upon successful completion of the test. Each certification program must provide a unique number for each certified technician.

(b) In deciding whether to approve an application, the Administrator will consider the extent to which the applicant has documented that its program meets the standards set forth in this section. The Administrator reserves the right to consider other factors deemed relevant to ensure the effectiveness of certification programs. The Administrator may approve a program which meets all of the standards in paragraph (a) of this section except test administration if the program, when viewed as a whole, is at least as effective as a program that does meet all the standards. Such approval shall be limited to training and certification conducted before August 13, 1992. If approval is denied under this section, the Administrator shall give written notice to the program setting forth the basis for his determination.

(c) *Technical revisions.* Directors of approved certification programs must conduct periodic reviews of test subject material and update the material based upon the latest technological developments in motor vehicle air conditioner service and repair. A written summary of the review and any changes made must be submitted to the Administrator every two years.

(d) *Recertification.* The Administrator reserves the right to specify the need for technician recertification at some future date, if necessary.

(e) If at any time an approved program is conducted in a manner not consistent with the representations made in the application for approval of the program under this section, the Administrator reserves the right to revoke approval.

(f) Authorized representatives of the Administrator may require technicians to demonstrate on the business entity's premises their ability to perform proper procedures for recovering and/or recycling refrigerant. Failure to demonstrate or failure to properly use the equipment may result in revocation of the technician's certificate by the Administrator. Technicians whose certification is revoked must be recertified before servicing or repairing any motor vehicle air conditioners.

[57 FR 31261, July 14, 1992, as amended at 60 FR 21688, May 2, 1995; 62 FR 68048, Dec. 30, 1997]

§82.42 Certification, recordkeeping and public notification requirements.

(a) *Certification requirements.* (1) No later than January 1, 1993, any person repairing or servicing motor vehicle air conditioners for consideration shall certify to the Administrator that such person has acquired, and is properly using, approved equipment and that each individual authorized to use the equipment is properly trained and certified. Certification shall take the form of a statement signed by the owner of the equipment or another responsible officer and setting forth:

(i) The name of the purchaser of the equipment;

(ii) The address of the establishment where the equipment will be located; and

(iii) The manufacturer name and equipment model number, the date of manufacture, and the serial number of the equipment. The certification must also include a statement that the equipment will be properly used in servicing motor vehicle air conditioners, that each individual authorized by the purchaser to perform service is properly trained and certified in accordance with §82.40, and that the information given is true and correct. The certification should be sent to: MVACs Recycling Program Manager, Stratospheric Protection Division, (6205J), U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460.

(2) The prohibitions in §82.34(a) shall be effective as of January 1, 1993 for persons repairing or servicing motor vehicle air conditioners for consideration at an entity which performed service on fewer than 100 motor vehicle air conditioners in calendar year 1990, but only if such person so certifies to the Administrator no later than August 13, 1992. Persons must retain adequate records to demonstrate that the number of vehicles serviced was fewer than 100.

(3) Certificates of compliance are not transferable. In the event of a change of ownership of an entity which services motor vehicle air conditioners for consideration, the new owner of the entity shall certify within thirty days of the change of ownership pursuant to §82.42(a)(1).

(b) *Recordkeeping requirements.* (1) Any person who owns approved refrigerant recycling equipment certified under §82.36(a)(2) must maintain records of the name and address of any facility to which refrigerant is sent.

(2) Any person who owns approved refrigerant recycling equipment must retain records demonstrating that all persons authorized to operate the equipment are currently certified under §82.40.

(3) Any person who sells or distributes any class I or class II substance that is suitable for use as a refrigerant in a motor vehicle air conditioner and that is in a container of less than 20 pounds of such refrigerant must verify that the purchaser is properly trained and certified under §82.40. The seller must have a reasonable basis for believing that the information presented by the purchaser is accurate. The only exception to these requirements is if the purchaser is purchasing the small containers for resale only. In this case, the seller must obtain a written statement from the purchaser that the containers are for resale only and indicate the purchasers name and business address. Records required under this paragraph must be retained for a period of three years.

(4) All records required to be maintained pursuant to this section must be kept for a minimum of three years unless otherwise indicated. Entities which service motor vehicle air conditioners for consideration must keep these records on-site.

(5) All entities which service motor vehicle air conditioners for consideration must allow an authorized representative of the Administrator entry onto their premises (upon presentation of his or her credentials) and give the authorized representative access to all records required to be maintained pursuant to this section.

(c) *Public notification.* Any person who conducts any retail sales of a class I or class II substance that is suitable for use as a refrigerant in a motor vehicle air conditioner, and that is in a container of less than 20 pounds of refrigerant, must prominently display a sign where sales of such containers occur which states:

''It is a violation of federal law to sell containers of Class I and Class II refrigerant of less than 20 pounds of such refrigerant to anyone who is not properly trained and certified to operate approved refrigerant recycling equipment.''

[57 FR 31261, July 14, 1992, as amended at 60 FR 21688, May 2, 1995]

APPENDIX A TO PART 82 SUBPART B—STANDARD FOR RECYCLE/RECOVER EQUIPMENT

STANDARD OF PURITY FOR USE IN MOBILE AIR-CONDITIONING SYSTEMS

Foreword

Due to the CFC's damaging effect on the ozone layer, recycle of CFC–12 (R–12) used in mobile air-conditioning systems is required to reduce system venting during normal service operations. Establishing recycle specifications for R–12 will assure that system operation with recycled R–12 will provide the same level of performance as new refrigerant.

Extensive field testing with the EPA and the auto industry indicate that reuse of R–12 removed from mobile air-conditioning systems can be considered, if the refrigerant is cleaned to a specific standard. The purpose of this standard is to establish the specific minimum levels of R–12 purity required for recycled R–12 removed from mobile automotive air-conditioning systems.

1. Scope

This information applies to refrigerant used to service automobiles, light trucks, and other vehicles with similar CFC–12 systems. Systems used on mobile vehicles for refrigerated cargo that have hermetically

sealed, rigid pipe are not covered in this document.

2. References

SAE J1989, Recommended Service Procedure for the Containment of R–12

SAE J1990, Extraction and Recycle Equipment for Mobile Automotive Air-Conditioning Systems

ARI Standard 700–88

3. Purity Specification

The refrigerant in this document shall have been directly removed from, and intended to be returned to, a mobile air-conditioning system. The contaminants in this recycled refrigerant 12 shall be limited to moisture, refrigerant oil, and noncondensable gases, which shall not exceed the following level:

3.1 *Moisture:* 15 ppm by weight.

3.2 *Refrigerant Oil:* 4000 ppm by weight.

3.3 *Noncondensable Gases (air):* 330 ppm by wright.

4. Refrigeration Recycle Equipment Used in Direct Mobile Air-Conditioning Service Operations Requirement

4.1 The equipment shall meet SAE J1990, which covers additional moisture, acid, and filter requirements.

4.2 The equipment shall have a label indicating that it is certified to meet this document.

5. Purity Specification of Recycled R–12 Refrigerant Supplied in Containers From Other Recycle Sources

Purity specification of recycled R–12 refrigerant supplied in containers from other recycle sources, for service of mobile air-conditioning systems, shall meet ARI Standard 700–88 (Air Conditioning and Refrigeration Institute).

6. Operation of the Recycle Equipment

This shall be done in accordance with SAE J1989.

Rationale

Not applicable.

Relationship of SAE Standard to ISO Standard

Not applicable.

Reference Section

SAE J1989, Recommended Service Procedure for the Containment of R–12

SAE J1990, Extraction and Recycle Equipment for Mobile Automotive Air-Conditioning Systems

ARI Standard 700–88

Application

This information applies to refrigerant used to service automobiles, light trucks, and other vehicles with similar CFC–12 systems. Systems used on mobile vehicles for refrigerated cargo that have hermetically sealed, rigid pipe are not covered in this document.

Committee Composition

DEVELOPED BY THE SAE DEFROST AND INTERIOR CLIMATE CONTROLS STANDARDS COMMITTEE

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J.H. McCorkel, Freightliner Corp., Charlotte, NC
C.J. McLachlan, Livonia, MI
H.L. Miner, Climate Control Inc., Decatur, IL
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N. Novak, Chrysler Corp., Detroit, MI
S. Oulouhojian, Mobile Air Conditioning Society, Upper Darby, PA
J. Phillips, Air International, Australia
R.H. Proctor, Murray Corp., Cockeysville, MD
G. Rolling, Behr America Inc., Ft. Worth, TX
C.D. Sweet, Signet Systems Inc., Harrodsburg, KY
J.P. Telesz, General Motors Corp., Lockport, NY

EXTRACTION AND RECYCLE EQUIPMENT FOR MOBILE AUTOMOTIVE AIR CONDITIONING SYSTEMS

SAE Recommended Practice, SAE J1990 (1991)[1]

0. Foreword

Due to the CFC's damaging effect on the ozone layer, recycle of CFC–12 (R–12) used in

[1] This standard is appropriate for equipment certified after February 1, 1992. This equipment may be marked design certified for compliance with SAE J1990 (1991). The standard for approval for equipment certified on or before February 1, 1992 is SAE J1990

Continued

mobile air-conditioning systems is required to replace system venting during normal service operations. Establishing recycle specifications for R–12 will provide the same level of performance as new refrigerant.

Extensive field testing with the EPA and the auto industry indicates that R–12 can be reused, provided that it is cleaned to specifications in SAE J1991. The purpose of this document is to establish the specific minimum equipment specification required for recycle of R–12 that has been directly removed from mobile systems for reuse in mobile automotive air-conditioning systems.

1. Scope

The purpose of this document is to provide equipment specifications for CFC–12 (R–12) recycling equipment. This information applies to equipment used to service automobiles, light trucks, and other vehicles with similar CFC–12 air-conditioning systems. Systems used on mobile vehicles for refrigerated cargo that have hermetically sealed systems are not covered in this document. The equipment in this document is intended for use with refrigerant that has been directly removed from, and intended to be returned to, a mobile air-conditioning system. Should other revisions due to operational or technical requirements occur, this document may be amended.

2. References

2.1 Applicable Documents:

2.1.1 SAE Publications—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096–0001.

SAE J1991—Standard of Purity for Use in Mobile Air-Conditioning Systems

SAE J2196—Service Hose for Automotive Air-Conditioning

2.1.2 CGA Publications—Available from CGA, Crystal Gateway #1, Ste. 501, 1235 Jefferson Davis Hwy., Arlington, VA 22202

CGA Pamphlet S–1.1—Pressure Relief Device Standard Part 1—Cylinders for Compressed Gases

3. Specification and General Description

3.1 The equipment must be able to extract and process CFC–12 from mobile air-conditioning systems. The equipment shall process the contaminated R–12 samples as defined in 8.4 and shall clean the refrigerant to the level as defined in SAE J1991.

3.2 The equipment shall be suitable for use in an automotive service environment and be capable of continuous operation in ambients from 10 to 49 °C.

3.3 The equipment must be certified by Underwriters Laboratories or an equivalent certifying laboratory.

3.4 The equipment shall have a label ''Design Certified by (Company Name) to Meet SAE J1991''. The minimum letter size shall be bold type 3 mm in height.

4. Refrigeration Recycle Equipment Requirements

4.1 Moisture and Acid—The equipment shall incorporate a desiccant package that must be replaced before saturated with moisture and whose mineral acid capacity is at least 5% by weight of total system dry desiccant.

4.1.1 The equipment shall be provided with a moisture detection device that will reliably indicate when moisture in the CFC–12 exceeds the allowable level and requires the filter/dryer replacement.

4.2 Filter—The equipment shall incorporate an in-line filter that will trap particulates of 15 µm or greater.

4.3 Noncondensable Gas.

4.3.1 The equipment shall either automatically purge noncondensables (NCGs) if the acceptable level is exceeded or incorporate a device to alert the operator that NCG level has been exceeded. NCG removal must be part of normal operation of the equipment and instructions must be provided to enable the task to be accomplished within 30 minutes.

4.3.2 Refrigerant loss from noncondensable gas purging during testing described in Section 8 shall not exceed five percent (5%) by weight of the total contaminated refrigerant removed from the test system.

4.3.3 Transfer of Recycled Refrigerant—Recycled refrigerant for recharging and transfer shall be taken from the liquid phase only.

5. Safety Requirements

5.1 The equipment must comply with applicable federal, state and local requirements on equipment related to the handling of R–12 material. Safety precautions or notices related to the safe operation of the equipment shall be prominently displayed on the equipment and should also state ''Caution—Should Be Operated By Qualified Personnel''.

6. Operating Instructions

6.1 The equipment manufacturer must provide operating instructions, necessary maintenance procedures, and source information for replacement parts and repair.

6.2 The equipment must prominently display the manufacturer's name, address and any items that require maintenance or replacement that affect the proper operation of the equipment. Operation manuals must

(1989). This equipment may be marked design certified for compliance with SAE J1990 (1989). Both types of equipment are considered approved under the requirements of this regulation.

cover information for complete maintenance of the equipment to assure proper operation.

7. Functional Description

7.1 The equipment must be capable of ensuring recovery of the R–12 from the system being service, by reducing the system pressure below atmospheric to a minimum of 102 mm of mercury.

7.2 To prevent overcharge, the equipment must be equipped to protect the tank used to store the recycled refrigerant with a shutoff device and a mechanical pressure relief valve.

7.3 Portable refillable tanks or containers used in conjunction with this equipment must meet applicable Department of Transportation (DOT) or Underwriters Laboratories (UL) Standards and be adaptable to existing refrigerant service and charging equipment.

7.4 During operation, the equipment shall provide overfill protection to assure the storage container, internal or external, liquid fill does not exceed 80% of the tank's rated volume at 21.1 °C (70 °F) per DOT standards, CFR title 49, §173.304 and American Society of Mechanical Engineers.

7.4.1 Additional Storage Tank Requirements.

7.4.1.1 The cylinder valve shall comply with the standard for cylinder valves, UL 1769.

7.4.1.2 The pressure relief device shall comply with the Pressure Relief Device Standard Part 1—Cylinders for Compressed Gases, CGA Pamphlet S–1.1.

7.4.1.3 The tank assembly shall be marked to indicate the first retest date, which shall be 5 years after date of manufacture. The marking shall indicate that retest must be performed every subsequent 5 years. The marking shall be in letters at least ¼ in high.

7.5 All flexible hoses must meet SAE J2196 hose specification effective January 1, 1992.

7.6 Service hoses must have shutoff devices located within 30 cm (12 in) of the connection point to the system being serviced to minimize introduction of noncondensable gases into the recovery equipment and the release of the refrigerant when being disconnected.

7.7 The equipment must be able to separate the lubricant from the recovered refrigerant and accurately indicate the amount removed during the process, in 30 ml units. Refrigerant dissolves in lubricant sample. This creates the illusion that more lubricant has been recovered than actually has been. The equipment lubricant measuring system must take in account such dissolved refrigerant to prevent overcharging the vehicle system with lubricant. Note: Use only new lubricant to replace the amount removed during the recycle process. Used lubricant should be discarded per applicable federal, state, and local requirements.

7.8 The equipment must be capable of continuous operation in ambient of 10 to 49 °C (50 to 120 °F).

7.9 The equipment should be compatible with leak detection material that may be present in the mobile AC system.

8. Testing

This test procedure and the requirement are used for evaluation of the equipment for its ability to clean the contaminated R–12 refrigerant.

8.1 The equipment shall clean the contaminated R–12 refrigerant to the minimum purity level as defined in SAE J1991, when tested in accordance with the following conditions:

8.2 For test validation, the equipment is to be operated according to the manufacturer's instructions.

8.3 The equipment must be preconditioned with 13.6 kg (30 lb) of the standard contaminated R–12 at an ambient of 21 °C (70 °F) before starting the test cycle. Sample amounts are not to exceed 1.13 kg (2.5 lb) with sample amounts to be repeated every 5 min. The sample method fixture, defined in Fig. 1, shall be operated at 24 °C (75 °F).

8.4 Contaminated R–12 Samples.

8.4.1 Standard contaminated R–12 refrigerant shall consist of liquid R–12 with 100 ppm (by weight) moisture at 21 °C (70 °F) and 45,000 ppm (by weight) mineral oil 525 suspension nominal and 770 ppm by weight of noncondensable gases (air).

8.4.2 High moisture contaminated sample shall consist of R–12 vapor with 1,000 ppm (by weight) moisture.

8.4.3 High oil contaminated sample shall consist of R–12 with 200,000 ppm (by weight) mineral oil 525 suspension viscosity nominal.

8.5 Test Cycle.

8.5.1 After preconditioning as stated in 8.3, the test cycle is started, processing the following contaminated samples through the equipment:

8.5.1.1 3013.6 kg (30 lb) of standard contaminated R–12.

8.5.1.2 1 kg (2.2 lb) of high oil contaminated R–12.

8.5.1.3 4.5 kg (10 lb) of standard contaminated R–12.

8.5.1.4 1 kg (2.2 lb) of high moisture contaminated R–12.

8.6 Equipment Operating Ambient.

8.6.1 The R–12 is to be cleaned to the minimum purity level, as defined in SAE J1991, with the equipment operating in a stable ambient of 10, 21, and 49 °C (50, 70, and 120 °F) and processing the samples as defined in 8.5.

8.7 Sample Analysis.

8.7.1 The processed contaminated sample shall be analyzed according to the following procedure.

8.8 Quantitative Determination of Moisture.

8.8.1 The recycled liquid phase sample of CFC–12 shall be analyzed for moisture content via Karl Fischer coulometer titration or an equivalent method. The Karl Fischer apparatus is an instrument for precise determination of small amounts of water dissolved in liquid and/or gas samples.

8.8.2 In conducting the test, a weighed sample of 30 to 130 grams is vaporized directly into the Karl Fischer analyte. A coulometer titration is conducted and the results are calculated and displayed as parts per million moisture (weight).

8.9 Determination of Percent Lubricant.

8.9.1 The amount of oil in the recycled sample of CFC–12 is to be determined by gravimetric analysis.

8.9.2 Following venting of noncondensable, in accordance with the manufacturer's operating instructions, the refrigerant container shall be shaken for 5 minutes prior to extracting samples for test.

8.9.3 A weighted sample of 175 to 225 grams of liquid CFC–12 is allowed to evaporate at room temperature. The percent oil is to be calculated from the weight of the original sample and the residue remaining after the evaporation.

8.10 Noncondensable Gas.

8.10.1 The amount of noncondensable gas is to be determined by gas chromatography. A sample of vaporized refrigerant liquid shall be separated and analyzed by gas chromatography. A Porapak Q column at 130 °C and a hot wire detector may be used for analysis.

8.10.2 This test shall be conducted on recycled refrigerant (taken from the liquid phase) within 30 minutes after the proper venting of noncondensable.

8.10.3 Samples shall be shaken for 8 hours prior to retesting while at a temperature of 24 ± 2.8 °C (75 ± 5 °F). Known volumes of refrigerant vapor are to be injected for separation and analysis by means of gas chromatography. A Porapak Q column at 130 °C (266 °F) and a hot wire detector are to be used for the analysis.

8.10.4 This test shall be conducted at 21 and 49 °C and may be performed in conjunction with the testing defined in Section 8.6. The equipment shall process at least 13.6 kg of standard contaminated refrigerant for this test.

8.11 Sample Requirements.

8.11.1 The sample shall be tested as defined in 8.7, 8.8, 8.9, and 8.10 at ambient temperatures of 10, 21, and 49 °C (50, 70, and 120 °F) as defined in 8.6.1.

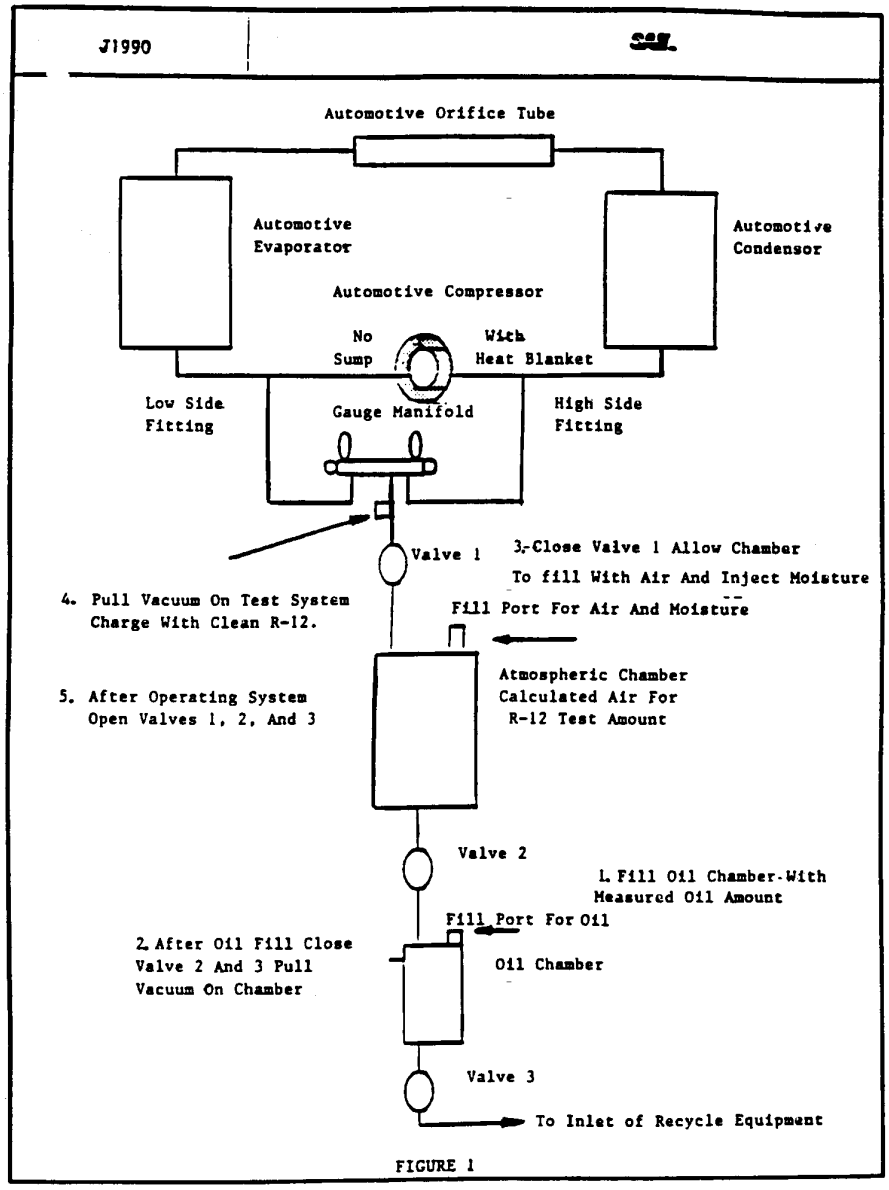

FIGURE 1

RECOMMENDED SERVICE PROCEDURE FOR THE CONTAINMENT OF R–12

1. Scope

During service of mobile air-conditioning systems, containment of the refrigerant is important. This procedure provides service guidelines for technicians when repairing vehicles and operating equipment defined in SAE J1990.

2. References

SAE J1990, Extraction and Recycle Equipment for Mobile Automotive Air-Conditioning Systems

3. Refrigerant Recovery Procedure

3. 1 Connect the recovery unit service hoses, which shall have shutoff valves within 12 in (30 cm) of the service ends, to the vehicle air-conditioning system service ports.

3.2 Operate the recovery equipment as covered by the equipment manufacturers recommended procedure.

3.2.1 Start the recovery process and remove the refrigerant from the vehicle AC system. Operate the recovery unit until the vehicle system has been reduced from a pressure to a vacuum. With the recovery unit shut off for at least 5 min, determine that there is no refrigerant remaining in the vehicle AC system. If the vehicle system has pressure, additional recovery operation is required to remove the remaining refrigerant. Repeat the operation until the vehicle AC system vacuum level remains stable for 2 min.

3.3 Close the valves in the service lines and then remove the service lines from the vehicle system. Proceed with the repair/service. If the recovery equipment has automatic closing valves, be sure they are properly operating.

4. Service With Manifold Gage Set

4.1 Service hoses must have shutoff valves in the high, low, and center service hoses within 12 in (30 cm) of the service ends. Valves must be closed prior to hose removal from the air-conditioning system. This will reduce the volume of refrigerant contained in the service hose that would otherwise be vented to atmosphere.

4.2 During all service operations, the valves should be closed until connected to the vehicle air-conditioning system or the charging source to avoid introduction of air and to contain the refrigerant rather than vent open to atmosphere.

4.3 When the manifold gage set is disconnected from the air-conditioning system or when the center hose is moved to another device which cannot accept refrigerant pressure, the gage set hoses should first be attached to the reclaim equipment to recover the refrigerant from the hoses.

5. Recycled Refrigerant Checking Procedure for Stored Portable Auxiliary Container

5.1 To determine if the recycled refrigerant container has excess noncondensable gases (air), the container must be stored at a temperature of 65°F (18.3°C) or above for a period of time, 12 h, protected from direct sun.

5.2 Install a calibrated pressure gage, with 1 psig divisions (0.07 kg), to the container and determine the container pressure.

5.3 With a calibrated thermometer, measure the air temperature within 4 in (10 cm) of the container surface.

5.4 Compare the observed container pressure and air temperature to determine if the container exceeds the pressure limits found on Table 1, e.g., air temperature 70°F (21°C) pressure must not exceed 80 psig (5.62 kg/cm²).

TABLE 1

Temp °F	Psig	Temp °F	Psig	Temp °F	Psig	Temp °F	Psig	Temp °F	Psig
65	74	75	87	85	102	95	118	105	136
66	75	76	88	86	103	96	120	106	138
67	76	77	90	87	105	97	122	107	140
68	78	78	92	88	107	98	124	108	142
69	79	79	94	89	108	99	125	109	144
70	80	80	96	90	110	100	127	110	146
71	82	81	98	91	111	101	129	111	148
72	83	82	99	92	113	102	130	112	150
73	84	83	100	93	115	103	132	113	152
74	86	84	101	94	116	104	134	114	154

TABLE 1 (METRIC)

Temp° C	Pres	Temp° C	Pres	Temp° C	Pres	Temp° C	Pres	Temp° C	PRres
18.3	5.20	23.9	6.11	29.4	7.17	35.0	8.29	40.5	9.56
18.8	5.27	24.4	6.18	30.0	7.24	35.5	8.43	41.1	9.70
19.4	5.34	25.0	6.32	30.5	7.38	36.1	8.57	41.6	9.84
20.0	5.48	25.5	6.46	31.1	7.52	36.6	8.71	42.2	9.98
20.5	5.55	26.1	6.60	31.6	7.59	37.2	8.78	42.7	10.12
21.1	5.62	26.6	6.74	32.2	7.73	37.7	8.92	43.3	10.26
21.6	5.76	27.2	6.88	32.7	7.80	38.3	9.06	43.9	10.40
22.2	5.83	27.7	6.95	33.3	7.94	38.8	9.13	44.4	10.54
22.7	5.90	28.3	7.03	33.9	8.08	39.4	9.27	45.0	10.68
23.3	6.04	28.9	7.10	34.4	8.15	40.0	9.42	45.5	10.82

Pres kg/sq cm.

5.5 If the container pressure is less than the Table 1 values and has been recycled, limits of noncondensable gases (air) have not been exceeded and the refrigerant may be used.

5.6 If the pressure is greater than the range and the container contains recycled material, slowly vent from the top of the container a small amount of vapor into the recycle equipment until the pressure is less than the pressure shown on Table 1.

5.7 If the container still exceeds the pressure shown on Table 1, the entire contents of the container shall be recycled.

6. Containers for Storage of Recycled Refrigerant

6.1 Recycled refrigerant should not be salvaged or stored in disposable refrigerant containers. This is the type of container in which virgin refrigerant is sold. Use only DOT CFR title 49 or UL approved storage containers for recycled refrigerant.

6.2 Any container of recycled refrigerant that has been stored or transferred must be checked prior to use as defined in section 5.

7. Transfer of Recycled Refrigerant

7.1 When external portable containers are used for transfer, the container must be evacuated at least 27 in of vacuum (75 mm Hg absolute pressure) prior to transfer of the recycled refrigerant. External portable containers must meet DOT and UL standards.

7.2 To prevent on-site overfilling when transferring to external containers, the safe filling level must be controlled by weight and must not exceed 60% of container gross weight rating.

8. Disposal of Empty/Near Empty Containers

8.1 Since all the refrigerant may not be removed from disposable refrigerant containers during normal system charging procedures, empty/near empty container contents should be reclaimed prior to disposal of the container.

8.2 Attach the container to the recovery unit and remove the remaining refrigerant. When the container has been reduced from a pressure to a vacuum, the container valve can be closed. The container should be marked empty and is ready for disposal.

Rationale

Not applicable.

Relationship of SAE Standard to ISO Standard.

Not applicable.

Reference Section

SAE J1990, Extraction and Recycle Equipment for Mobile Automotive Air-Conditioning Systems

Application

During service of mobile air-conditioning systems, containment of the refrigerant is important. This procedure provides service guidelines for technicians when repairing vehicles and operating equipment defined in SAE J1990.

Committee Composition

Developed by the SAE Defrost and Interior Climate Control Standards Committee

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APPENDIX B TO PART 82 OF SUBPART B—STANDARD FOR RECOVER EQUIPMENT

SAE J1989, Recommended Service Procedure for the Containment of R–12, as set forth under Appendix A, also applies to this Appendix B.

SAE J2209, issued June, 1992.

SAE RECOMMENDED PRACTICE: CFC–12 (R–12) EXTRACTION EQUIPMENT FOR MOBILE AUTOMOTIVE AIR-CONDITIONING SYSTEMS

Foreword

CFCs deplete the stratospheric ozone layer that protects the earth against harmful ultraviolet radiation. To reduce the emissions of CFCs, the 1990 Clean Air Act requires recycle of CFC–12 (R–12) used in mobile air-conditioning systems to eliminate system

venting during service operations. SAE J1990 establishes equipment specifications for on-site recovery and reuse of CFCs in mobile air-conditioning systems. Establishing extraction equipment specifications for CFC–12 will provide service facilities with equipment to assure that venting of refrigerant will not occur.

1. Scope

The purpose of this document is to provide equipment specifications for CFC–12 (R–12) recovery for recycling on-site or for transport off-site to a refrigerant reclamation facility that will process it to ARI (Air-Conditioning and Refrigeration Institute) standard 700–93 as a minimum. It is not acceptable that the refrigerant removed from a mobile air-conditioning system, with this equipment, be directly returned to a mobile air-conditioning system.

This information applies to equipment used to service automobiles, light trucks, and other vehicles with similar CFC–12 systems.

2. References

2. Applicable Documents—The following documents form a part of this specification to the extent specified herein.

2.1.1 SAE Publications—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096–0001.

SAE J639—Vehicle Service Coupling

SAE J1990—Extraction and Recycle Equipment for Mobile Automotive Air-Conditioning Systems

SAE J2196—Service Hose for Automotive Air-Conditioning

2.1.2 ARI Publications—Available from Air-Conditioning and Refrigeration Institute, 1501 Wilson Boulevard, Sixth Floor, Arlington, VA 22209.

ARI 700–93—Specifications for Fluorocarbon Refrigerants

2.1.3 CGA Publications—Available from CGA, Crystal Gateway #1, Suite 501, 1235 Jefferson Davis Highway, Arlington, VA 22202.

CGA S–1.1—Pressure Relief Device Standard Part 1—Cylinders for Compressed Gases

2.1.4 DOT Specifications—Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

49 CFR, Section 173.304—Shippers—General Requirements for Shipments and Packagings

2.1.5 UL Publications—Available from Underwriters Laboratories, 333 Pfingsten Road, Northbrook, IL 60062–2096.

UL 1769—Cylinder Valves

3. Specifications and General Description

3.1 The equipment must be able to extract CFC–12 from a mobile air-conditioning system.

3.2 The equipment discharge or transfer fitting shall be unique to prevent the unintentional use of extracted CFC–12 to be used for recharging auto air conditioners.

3.3 The equipment shall be suitable for use in an automotive service garage environment as defined in 6.8.

3.4 Equipment Certification—The equipment must be certified by Underwriters Laboratories or an equivalent certifying laboratory to meet this standard.

3.5 Label Requirements—The equipment shall have a label ''Design Certified by (company name) to meet SAE J2209 for use with CFC–12. The refrigerant from this equipment must be processed to ARI 700–93 specifications before reuse in a mobile air-conditioning system.'' The minimum letter size shall be bold type 3mm in height.

4. Safety Requirements

4.1 The equipment must comply with applicable federal, state and local requirements on equipment related to the handling of R–12 material. Safety precautions or notices or labels related to the safe operation of the equipment shall also be prominently displayed on the equipment and should also state ''CAUTION—SHOULD BE OPERATED BY CERTIFIED PERSONNEL.'' The safety identification shall be located on the front near the controls.

4.2 The equipment must comply with applicable safety standards for electrical and mechanical requirements.

5. Operating Instructions

5.1 The equipment manufacturer must provide operating instructions, necessary maintenance procedures and source information for replacement parts and repair.

5.2 The equipment must prominently display the manufacturer's name, address and any items that require maintenance or replacement that affect the proper operation of the equipment. Operation manuals must cover information for complete maintenance of the equipment to assure proper operation.

6. Functional Description

6.1 The equipment must be capable of ensuring recovery of the CFC–12 from the system being serviced, by reducing the system pressure to a minimum of 102 mm of mercury below atmospheric. To prevent system delayed outgassing, the unit must have a device that assures that the refrigerant has been recovered from the air-conditioning system.

6.1.1 Testing laboratory certification of the equipment capability is required which

shall process contaminated refrigerant samples at specific temperatures.

6.2 The equipment must be preconditioned with 13.6 kg of the standard contaminated CFC–12 at an ambient of 21°C before starting the test cycle. Sample amounts are not to exceed 1.13 kg with sample amounts to be repeated every 5 minutes. The sample method fixture defined in Figure 1 of appendix A shall be operated at 24°C. Contaminated CFC–12 samples shall be processed at ambient temperatures of 10 and 49°C.

6.2.1 Contaminated CFC–12 sample.

6.2.2 Standard contaminated CFC–12 refrigerant, 13.6 Kg sample size, shall consist of liquid CFC–12 with 100 ppm (by weight) moisture at 21°C and 45,000 ppm (by weight) mineral oil 525 suspension nominal and 770 ppm (by weight) of noncondensable gases (air).

6.3 Portable refillable containers used in conjunction with this equipment must meet applicable DOT standards.

6.3.1 The container color must be gray with yellow top to identify that it contains used CFC–12 refrigerant. It must be permanently marked on the outside surface in black print at least 20 mm high ''DIRTY R–12—DO NOT USE, MUST BE REPROCESSED''.

6.3.2 The portable refillable container shall have a SAE 3/8 inch flare male thread connection as identified in SAE J639 CFC–12 High Pressure Charging Valve Figure 2.

6.3.3 During operation the equipment shall provide overfill protection to assure that the storage container liquid fill does not exceed 80% of the tank's rated volume at 21°C per DOT standard, CFR Title 49, section 173.304 and the American Society of Mechanical Engineers.

6.4 Additional Storage Tank Requirements.

6.4.1 The cylinder valve shall comply with the standard for cylinder valves, UL 1769.

6.4.2 The pressure relief device shall comply with the pressure relief device standard part 1, CGA pamphlet S–1.1.

6.4.3 The container assembly shall be marked to indicate the first retest date, which shall be 5 years after date of manufacture. The marking shall indicate that retest must be performed every subsequent five years. The marking shall be in letters at least 6 mm high.

6.5 All flexible hoses must meet SAE J2196 standard for service hoses.

6.6 Service hoses must have shutoff devices located within 30 cm of the connection point to the system being serviced to minimize introduction of noncondensable gases into the recovery equipment during connection and the release of the refrigerant during disconnection.

6.7 The equipment must be able to separate the lubricant from the recovered refrigerant and accurately indicate the amount removed from the system during processing in 30 ml units.

6.7.1 The purpose of indicating the amount of lubricant removed is to ensure that a proper amount is returned to the mobile air-conditioning system for compressor lubrication.

6.7.2 Refrigerant dissolved in this lubricant must be accounted for to prevent system lubricant overcharge of the mobile air-conditioning system.

6.7.3 Only new lubricant, as identified by the system manufacturer, should be replaced in the mobile air-conditioning system.

6.7.4 Removed lubricant from the system and/or the equipment shall be disposed of in accordance with applicable federal, state and local procedures and regulations.

6.8 The equipment must be capable of continuous operation in ambient temperatures of 10°C to 49°C and comply with 6.1.

6.9 The equipment should be compatible with leak detection material that may be present in the mobile air-conditioning system.

7.0 For test validation, the equipment is to be operated according to the manufacturer's instructions.

[60 FR 21688, May 2, 1995]

APPENDIX C TO PART 82 OF SUBPART B—STANDARD FOR RECOVER/RECYCLE EQUIPMENT FOR HFC–134a REFRIGERANT

I. SAE J2210, issued December, 1991.

HFC–134a RECYCLING EQUIPMENT FOR MOBILE AIR CONDITIONING SYSTEMS

Foreword

The purpose of this standard is to establish the specific minimum equipment specification required for the recycling of HFC–134a that has been directly removed from, and is intended for reuse in, mobile air-conditioning systems. Establishing such specifications will assure that system operation with recycled HFC–134a will provide the same level of performance and durability as new refrigerant.

1. Scope

The purpose of this standard is to establish specific minimum equipment requirements for recycling HFC–134a that has been directly removed from, and is intended for reuse in, mobile air-conditioning (A/C) systems.

2. References

Applicable Documents—The following publications form a part of this specification to the extent specified.

2.1.1

SAE Publications—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096–0001.

SAE J2099—Standard of Purity for Recycled HFC-134a for Use in Mobile Air-Conditioning Systems

SAE J2196—Service Hoses for Automotive Air-Conditioning

SAE J2197—Service Hose Fittings for Automotive Air-Conditioning

2.1.2

CGA Publications—Available from CGA, 1235 Jefferson Davis Highway, Arlington, VA 22202.

CGA Pamphlet S–1.1-Pressure Relief Device Standard

Part 1—Cylinders for Compressed Gases

2.1.3

DOT Publications—Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402

DOT Standard, 49 CFR 173.304—Shippers-General Requirements for Shipments and Packagings

2.1.4

UL Publications—Available from Underwriters Laboratories, 333 Pfingsten Road, Northbrook, IL 60062–2096.

UL 1769—Cylinder Valves

UL 1963—Refrigerant Recovery/Recycling Equipment

3. Specification and General Description

3.1 The equipment must be able to remove and process HFC–134a from mobile A/C systems to the purity level specified in SAE J2099.

3.2 The equipment shall be suitable for use in an automotive service garage environment and be capable of continuous operation in ambients from 10 to 49°C (50 to 120°F).

3.3 The equipment must be certified that it meets this specification by Underwriters Laboratories (UL) or an equivalent certifying laboratory.

3.4 The equipment shall have a label which states ''Design Certified by (Certifying Agent) to meet SAE J2210'' in bold-type letters a minimum of 3 mm in height.

4. Refrigerant Recycling Equipment Requirements

4.1 Moisture and Acid—The equipment shall incorporate a desiccant package that must be replaced before saturation with moisture, and whose mineral acid capacity is at least 5% by weight of the dry desiccant.

4.1.1 The equipment shall be provided with a moisture detection means that will reliably indicate when moisture in the HFC–134a reaches the allowable limit and desiccant replacement is required.

4.2 Filter—The equipment shall incorporate an in-line filter that will trap particulates of 15 micron spherical diameter or greater.

4.3 Noncondensable Gases

4.3.1 The equipment shall either automatically purge noncondensables (NCGs) if the acceptable level is exceeded or incorporate a device that indicates to the operator that the NCG level has been exceeded. NCG removal must be part of the normal operation of the equipment and instructions must be provided to enable the task to be accomplished within 30 minutes.

4.3.2 Refrigerant loss from noncondensable gas purging during the testing described in Section 8 shall not exceed 5% by weight of the total contaminated refrigerant removed from the test system.

4.4 Recharging and Transfer of Recycled Refrigerant—Recycled refrigerant for recharging and transfer shall be taken from the liquid phase only.

5. Safety Requirements

5.1 The equipment must comply with applicable federal, state, and local requirements on equipment related to handling HFC–134a material. Safety precautions or notices related to safe operation of the equipment shall be prominently displayed on the equipment and should also state ''CAUTION—SHOULD BE OPERATED BY QUALIFIED PERSONNEL''.

5.2 HFC–134a has been shown to be nonflammable at ambient temperature and atmospheric pressure. However, tests under controlled conditions have indicated that, at pressures above atmospheric and with air concentrations greater than 60% by volume, HFC–134a can form combustible mixtures. While it is recognized that an ignition source is also required for combustion to occur, the presence of combustible mixtures is a potentially dangerous situation and should be avoided.

5.3 Under NO CIRCUMSTANCES should any equipment be pressure tested or leak tested with air/HFC–134a mixtures. Do not use compressed air (shop air) for leak detection in HFC–134a systems.

6. Operating Instructions

6.1 The equipment manufacturer must provide operating instructions, including proper attainment of vehicle system vacuum (*i.e.*, when to stop the extraction process), filter/desiccant replacement, and purging of noncondensable gases (air). Also to be included are any other necessary maintenance procedures, source information for replacement parts and repair, and safety precautions.

6.2 The equipment must prominently display the manufacturer's name, address, the type of refrigerant it is designed to recycle, a service telephone number, and the part number for the replacement filter/drier.

7. Functional Description

7.1 The equipment must be capable of ensuring removal of refrigerant from the system being serviced by reducing the system pressure to a minimum of 102 mm (4 in) of mercury below atmospheric pressure (i.e., vacuum).

7.2 During operation, the equipment shall provide overfill protection to assure that the liquid fill of the storage container (which may be integral or external) does not exceed 80% of the tank's rated volume at 21.1°C (70°F) per Department of Transportation (DOT) Standard, 49 CFR 173.304 and the American Society of Mechanical Engineers.

7.3 Portable refillable tanks or containers used in conjunction with this equipment must be labeled ''HFC-134a'', meet applicable DOT or Underwriters Laboratories (UL) Standards, and shall incorporate fittings per SAE J2197.

7.3.1 The cylinder valve shall comply with the standard for cylinder valves, UL 1769.

7.3.2 The pressure relief device shall comply with the Pressure Relief Device Standard Part 1—Cylinders for Compressed Gases, CGA Pamphlet S–1.1.

7.3.3 The tank assembly shall be marked to indicate the first retest date which shall be 5 years after the date of manufacture. The marking shall indicate that retest must be performed every subsequent 5 years. The marking shall be in letter at least 6 mm (¼ in) high.

7.4 All flexible hoses must comply with SAE J2196.

7.5 Service hoses must have shutoff devices located within 30 cm (12 in) of the connection point to the system being serviced as identified in J2196. All service fittings must comply with SAE J2197.

7.6 The equipment must be able to separate the lubricant from the removed refrigerant and accurately indicate the amount of lubricant removed during the process, in 30 mL (1 fl oz) units. Refrigerant dissolves in lubricants and, as a result, increases the volume of the recovered lubricant sample. This creates the illusion that more lubricant has been recovered than actually has been. The equipment lubricant measuring system must take into account such dissolved refrigerant to prevent overcharging the vehicle system with lubricant. (Note: Use only new lubricant to replace the amount removed during the recycling process. Used lubricant should be discarded per applicable federal, state, and local requirements.)

8. Testing

This test procedure and its requirements are to be used to determine the ability of the recycling equipment to adequately recycle contaminated refrigerant.

8.1 The equipment shall be able to clean the contaminated refrigerant in section 8.3 to the purity level defined in SAE J2099.

8.2 The equipment shall be operated in accordance with the manufacturer's operating instructions.

8.3 Contaminated HFC–134a Sample.

8.3.1 The standard contaminated refrigerant shall consist of liquid HFC–134a with 1300 ppm (by weight) moisture (equivalent to saturation at 38°C [100 °F]), 45,000 ppm (by weight) HFC–134a compatible lubricant, and 1000 ppm (by weight) of noncondensable gases (air).

8.3.1.1 The HFC–134a compatible lubricant referred to in section 8.3.1 shall be ICI DGLF 118, or equivalent, which shall contain no more than 1000 ppm by weight of moisture.

8.4 Test Cycle

8.4.1 The equipment must be preconditioned by processing 13.6 kg (30 lb) of the standard contaminated HFC–134a at an ambient of 21°C (70°F) before starting the test cycle. 1.13 kg (2.5 lb) samples are to be processed at 5 min intervals. The test fixture, depicted in Figure 1 to Appendix A, shall be operated at 21°C (70°F).

8.4.2 Following the preconditioning procedure per section 8.4.1, 18.2 kg (40 lb) of standard contaminated HFC–134a are to be processed by the equipment.

8.5 Sample Requirements

8.5.1 Samples of the standard contaminated refrigerant from section 8.3.1 shall be processed as required in section 8.6 and shall be analyzed after said processing as defined in sections 8.7, 8.8, and section 8.9. Note exception for non-condensable gas determination in section 8.9.4.

8.6 Equipment Operating Ambient

8.6.1 The HFC–134a is to be cleaned to the purity level, as defined in SAE J2099, with the equipment operating in a stable ambient of 10, 21, and 49°C (50, 70, 120°F) while processing the samples as defined in section 8.4.

8.7 Quantitative Determination of Moisture

8.7.1 The recycled liquid phase sample of HFC–134a shall be analyzed for moisture content via Karl Fischer coulometric titration, or an equivalent method. The Karl Fischer apparatus is an instrument for precise determination of small amounts of water dissolved in liquid and/or gas samples.

8.7.2 In conducting this test, a weighed sample of 30 to 130 g is vaporized directly

into the Karl Fischer anolyte. A coulometric titration is conducted and the results are reported as parts per million moisture (weight).

8.8 Determination of Percent Lubricant

8.8.1 The amount of lubricant in the recycled HFC–134a sample shall be determined via gravimetric analysis. The methodology must account for the hygroscopicity of the lubricant.

8.8.2 Following venting of noncondensable gases in accordance with the manufacturer's operating instructions, the refrigerant container shall be shaken 5 min prior to extracting samples for testing.

8.8.3 A weighed sample of 175 to 225 g of liquid HFC–134a is allowed to evaporate at room temperature. The percent lubricant is calculated from weights of the original sample and the residue remaining after evaporation.

8.9 Noncondensable Gases

8.9.1 The amount of noncondensable gases shall be determined by gas chromatography. A sample of vaporized refrigerant liquid shall be separated and analyzed by gas chromatography. A Porapak Q column at 130°C (266°F) and a hot wire detector may be used for the analysis.

8.9.2 This test shall be conducted on liquid phase samples of recycled refrigerant taken from a full container as defined in section 7.2 within 30 minutes following the proper venting of noncondensable gases.

8.9.3 The liquid phase samples in section 8.9.2 shall be vaporized completely prior to gas chromatographic analysis.

8.9.4 This test shall be conducted at 21 and 49°C (50 and 120°F) and may be performed in conjunction with the testing defined in section 8.6. The equipment shall process at least 13.6 kg (30 lb) of standard contami nated refrigerant for this test).

Rationale

Not applicable.

Relationship of Standard to ISO Standard

Not applicable.

Application

The purpose of this standard is to establish the specific minimum equipment requirements for recycling HFC–134a that has been directly removed from, and is intended for reuse in, mobile air-conditioning (A/C) systems.

Reference Section

SAE J2099—Standard of Purity for Recycled HFC–134a for Use in Mobile Air-Conditioning Systems

SAE J2196—Service Hoses for Automotive Air-Conditioning

SAE J2197—Service Hose Fittings for Automotive Air-Conditioning

CGA Pamphlet S–1.1—Pressure Relief Device Standard Part 1—Cylinders for Compressed Gases

UL 1769—Cylinder Valves

UL 1963—Refrigerant Recovery/Recycling Equipment

DOT Standard, 49 CFR 173.304—Shippers—General Requirements for Shipment and Packagings

II. SAE J2211, issued December, 1991.

RECOMMENDED SERVICE PROCEDURE FOR THE CONTAINMENT OF HFC–134a

1. Scope

Refrigerant containment is an important part of servicing mobile air-conditioning systems. This procedure provides guidelines for technicians for servicing mobile air-conditioning systems and operating refrigerant recycling equipment designed for HFC–134a (described in SAE J2210).

2. References

2.1 Applicable Documents-The following publications form a part of this specification to the extent specified. The latest issue of SAE publications shall apply.

2.1.1 SAE Publications—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096–0001.

SAE J2196—Service Hoses for Automotive Air-Conditioning

SAE J2197—Service Hose Fittings for Automotive Air-Conditioning

SAE J2210—Refrigerant Recycling Equipment for HFC–134a Mobile Air-Conditioning Systems

SAE J2219—Concerns to the Mobile Air-Conditioning Industry

2.2 Definitions

2.2.1 Recovery/Recycling (R/R) Unit—Refers to a single piece of equipment that performs both functions of recovery and recycling of refrigerants per SAE J2210.

2.2.2 Recovery—Refers to that portion of the R/R unit operation that removes the refrigerant from the mobile air-conditioning system and places it in the R/R unit storage container.

2.2.3 Recycling—Refers to that portion of the R/R unit operation that processes the refrigerant for reuse on the same job site to the purity specifications of SAE J2099.

3. Service Procedure

3.1 Connect the recycling unit service hoses, which shall have shutoff devices (*e.g.*, valves) within 30 cm (12 in) of the service ends, to the vehicle air-conditioning (A/C) service ports. Hoses shall conform to SAE J2196 and fittings shall conform to SAE J2197.

3.2 Operate the recycling equipment per the equipment manufacturer's recommended procedure.

3.2.1 Verify that the vehicle A/C system has refrigerant pressure. Do not attempt to recycle refrigerant from a discharged system as this will introduce air (noncondensable gas) into the recycling equipment which must later be removed by purging.

3.2.2 Begin the recycling process by removing the refrigerant from the vehicle A/C system. Continue the process until the system pressure has been reduced to a minimum of 102mm (4 in) of mercury below atmospheric pressure (*i.e.*, vacuum). If A/C components show evidence of icing, the component can be gently heated to facilitate refrigerant removal. With the recycling unit shut off for at least 5 minutes, check A/C system pressure. If this pressure has risen above vacuum (0 psig), additional recycler operation is required to remove the remaining refrigerant. Repeat the operation until the system pressure remains stable at vacuum for 2 minutes.

3.3 Close the valves in the service lines and then remove the service lines from the vehicle system. If the recovery equipment has automatic closing valves, be sure they are operating properly. Proceed with the repair/service.

3.4 Upon completion of refrigerant removal from the A/C system, determine the amount of lubricant removed during the process and replenish the system with new lubricant, which is identified on the A/C system label. Used lubricant should be discarded per applicable federal, state, and local requirements.

4. Service With a Manifold Gauge Set

4.1 High-side, low-side, and center service hoses must have shutoff devices (*e.g.*, valves) within 30 cm (12 in) of the service ends. Valves must be closed prior to hose removal from the A/C system to prevent refrigerant loss to the atmosphere.

4.2 During all service operations, service hose valves should be closed until connected to the vehicle A/C system or to the charging source to exclude air and/or contain the refrigerant.

4.3 When the manifold gauge set is disconnected from the A/C system, or when the center hose is moved to another device that cannot accept refrigerant pressure, the gauge set hoses should be attached to the recycling equipment to recover the refrigerant from the hoses.

5. Supplemental Refrigerant Checking Procedure for Stored Portable Containers

5.1 Certified recycling equipment and the accompanying recycling procedure, when properly followed, will deliver use-ready refrigerant. In the event that the full recycling procedure was not followed or the technician is unsure about the noncondensable gas content of a given tank of refrigerant, this procedure can be used to determine whether the recycled refrigerant container meets the specification for noncondensable gases (air). (Note: The use of refrigerant with excess air will result in higher system operating pressures and may cause A/C system damage.)

5.2 The container must be stored at a temperature of 18.3 °C (65 °F) or above for at least 12 hours, protected from direct sunlight.

5.3 Install a calibrated pressure gauge, with 6.9 kPa (1 psig) divisions, on the container and read container pressure.

5.4 With a calibrated thermometer, measure the air temperature within 10 cm (4 in) of the container surface.

5.5 Compare the observed container pressure and air temperature to the values given in Tables 1 and 2 to determine whether the container pressure is below the pressure limit given in the appropriate table. For example, at an air temperature of 21 °C (70 °F) the container pressure must not exceed 524 kPa (76 psig).

5.6 If the refrigerant in the container has been recycled and the container pressure is less than the limit in Tables 1 and 2, the refrigerant may be used.

5.7 If the refrigerant in the container has been recycled and the container pressure exceeds the limit in Tables 1 and 2, slowly vent, from the top of the container, a small amount of vapor into the recycle equipment until the pressure is less than the pressure shown in Tables 1 and 2.

5.8 If, after shaking the container and letting it stand for a few minutes, the container pressure still exceeds the pressure limit shown in Tables 1 and 2, the entire contents of the container shall be recycled.

TABLE 1.—MAXIMUM ALLOWABLE CONTAINER PRESSURE (METRIC)

Temp, C(F)	kPa	Temp, C(F)	kPa	Temp, C(F)	kPa	Temp, C(F)	kPa
18 (65)	476	26 (79)	621	34 (93)	793	42 (108)	1007
19 (66)	483	27 (81)	642	35 (95)	814	43 (109)	1027
20 (68)	503	28 (82)	655	36 (97)	841	44 (111)	1055
21 (70)	524	29 (84)	676	37 (99)	876	45 (113)	1089
22 (72)	545	30 (86)	703	38 (100)	889	46 (115)	1124

TABLE 1.—MAXIMUM ALLOWABLE CONTAINER PRESSURE (METRIC)—Continued

Temp, C(F)	kPa	Temp, C(F)	kPa	Temp, C(F)	kPa	Temp, C(F)	kPa
23 (73)	552	31 (88)	724	39 (102)	917	47 (117)	1158
24 (75)	572	32 (90)	752	40 (104)	945	48 (118)	1179
25 (77)	593	33 (91)	765	41 (106)	979	49 (120)	1214

TABLE 2.—MAXIMUM ALLOWABLE CONTAINER PRESSURE (ENGLISH)

Temp, F	psig	Temp, F	psig	Temp, F	psig	Temp, F	psig
65	69	79	90	93	115	107	144
66	70	80	91	94	117	108	146
67	71	81	93	95	118	109	149
68	73	82	95	96	120	110	151
69	74	83	96	97	122	111	153
70	76	84	98	98	125	112	156
71	77	85	100	99	127	113	158
72	79	86	102	100	129	114	160
73	80	87	103	101	131	115	163
74	82	88	105	102	133	116	165
75	83	89	107	103	135	117	168
76	85	90	109	104	137	118	171
77	86	91	111	105	139	119	173
78	88	92	113	106	142	120	176

6. Containers for Storage of Recycled Refrigerant

6.1 Recycled refrigerant should not be salvaged or stored in disposable containers (this is one common type of container in which new refrigerant is sold). Use only DOT 49 CFR or UL approved storage containers, specifically marked for HFC–134a, for recycled refrigerant.

6.2 Any container of recycled refrigerant that has been stored or transferred must be checked prior to use as defined in Section 5.

6.3 Evacuate the tanks to at least 635 mm Hg (25 in Hg) below atmospheric pressure (vacuum) prior to first use.

7. Transfer of Recycled Refrigerant

7.1 When external portable containers are used for transfer, the container must be evacuated to at least 635 mm (25 in Hg) below atmospheric pressure (vacuum) prior to transfer of the recycled refrigerant to the container. External portable containers must meet DOT and UL standards.

7.2 To prevent on-site overfilling when transferring to external containers, the safe filling level must be controlled by weight and must not exceed 60% of the container gross weight rating.

8. Safety Note for HFC–134a

8.1 HFC–134a has been shown to be nonflammable at ambient temperature and atmospheric pressure. However, recent tests under controlled conditions have indicated that, at pressures above atmospheric and with air concentrations greater than 60% by volume, HFC–134a can form combustible mixtures. While it is recognized that an ignition source is also required for combustion to occur, the presence of combustible mixtures is a potentially dangerous situation and should be avoided.

8.2 Under NO CIRCUMSTANCE should any equipment be pressure tested or leak tested with air/HFC–134a mixtures. Do not use compressed air (shop air) for leak detection in HFC–134a systems.

9. Disposal of Empty/Near Empty Containers

9.1 Since all refrigerant may not have been removed from disposable refrigerant containers during normal system charging procedures, empty/near empty container contents should be recycled prior to disposal of the container.

9.2 Attach the container to the recycling unit and remove the remaining refrigerant. When the container has been reduced from a pressure to vacuum, the container valve can be closed and the container can be removed from the unit. The container should be marked ''Empty'', after which it is ready for disposal.

III. SAE J2099, issued December, 1991.

STANDARD OF PURITY FOR RECYCLED HFC–134a FOR USE IN MOBILE AIR CONDITIONING SYSTEMS

Foreword

The purpose of this standard is to establish the minimum level of purity required for recycled HFC–134a removed from, and intended for reuse in, mobile air-conditioning systems.

1. Scope

This standard applies to HFC–134a refrigerant used to service motor vehicle passenger compartment air-conditioning systems designed or retrofitted to use HFC–134a. Hermetically sealed, refrigerated cargo systems are not covered by this standard.

2. References

2.1 Applicable Documents—The following publications form a part of this specification to the extent specified. The latest issue of SAE publications shall apply.

2.1.1 SAE publications—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096–0001.

SAE J2210—HFC–134a Recycling Equipment for Mobile Air-Conditioning Systems

SAE J2211—Recommended Service Procedure for the Containment of HFC–134a

3. Purity Specification

The refrigerant referred to in this standard shall have been directly removed from, and intended to be returned to, a mobile air-conditioning system. Contaminants in this recycled refrigerant shall be limited to moisture, refrigerant system lubricant, and noncondensable gases, which, when measured in the refrigerant liquid phase, shall not exceed the following levels:

3.1 Moisture—50 ppm by weight

3.2 Lubricant—500 ppm by weight

3.3 Noncondensable Gases (Air)—150 ppm by weight

4. Requirements for Recycle Equipment Used in Direct Mobile Air-Conditioning Service Operations

4.1 Such equipment shall meet J2210, which covers additional moisture, acid, and filter requirements.

5. Operation of the Recycle Equipment

Recycle equipment operation shall be in accord with SAE J2211.

Application

This Standard applies to HFC–134a refrigerant used to service motor vehicle passenger compartment air-conditioning systems designed or retrofitted to use HFC–134a. Hermetically sealed, refrigerated cargo systems are not covered by this standard.

Reference Section

SAE J2210—HFC–134a Recycling Equipment for Mobile Air-Conditioning Systems
SAE J2211—Recommended Service Procedure for the Containment of HFC–134a.

[62 FR 68048, Dec. 30, 1997]

APPENDIX D TO SUBPART B OF PART 82—STANDARD FOR HFC–134a RECOVER-ONLY EQUIPMENT

SAE J2211, Recommended Service Procedure for Containment of HFC–134a, as set forth under Appendix C of this subpart, also applies to this Appendix D
SAE J1732, issued December, 1994.

HFC–134a (R–134a) EXTRACTION EQUIPMENT FOR MOBILE AUTOMOTIVE AIR-CONDITIONING SYSTEMS

Foreword

Appendix C established equipment specifications for on-site recovery and reuse of HFC–134a in air-conditioning systems. These specifications are for HFC–134a extraction only equipment that are intended to be used in conjunction with the on-site recycling equipment currently used at service facilities, or allow for off-site refrigerant reclamation.

1. Scope

The purpose of this standard is to provide equipment specification for only the recovery of HFC–134a refrigerant to be returned to a refrigerant reclamation facility that will process it to ARI Standard 700–93 or allow for recycling of the recovered refrigerant to SAE J2210 specifications by using Design Certified equipment of the same ownership. It is not acceptable that refrigerant removed from a mobile air conditioning system with this equipment be directly returned to a mobile air-conditioning system.

This information applies to equipment used to service automobiles, light trucks, and other vehicles with similar HFC–134a air conditioning systems.

2. References

2.1 Applicable Documents—The following publications form a part of this specification to the extent specified.

2.1.1 SAE Publications—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096–0001.

SAE J639—Vehicle Service Coupling
SAE J2210—HFC–134a Recycling Equipment for Mobile Automotive Air Conditioning Systems
SAE J2196—Service Hoses for Automotive Air-Conditioning
SAE J2197—Service Hose Fittings for Automotive Air-Conditioning

2.1.2 ARI Publication—Available from Air Conditioning and Refrigerant Institute, 1501 Wilson Blvd. Sixth Floor, Arlington, VA 22209.

ARI 700–93—Specifications for Fluorocarbon Refrigerants

2.1.3 CGA Publications—Available from CGA, 1235 Jefferson Davis Highway, Arlington, VA 22202.

CGA Pamphlet S–1.1—Pressure Relief Device Standard
Part 1—Cylinders for Compressed Gases

2.1.4 DOT Publications—Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

DOT Standard, 49 CFR 49 173.304—Shippers-General Requirements for Shipments and Packagings

2.1.5 UL Publications—Available from Underwriters Laboratories, 333 Pfingsten Road, Northbrook, IL 60062–2096.

UL 1769—Cylinder Valves

3. Specification and General Description

3.1 The equipment must be able to extract HFC–134a from a mobile air-conditioning system.

3.2 The equipment shall be suitable for use in an automotive service garage environment as defined in section 6.8.

3.3 Equipment Certification—The equipment shall be certified by Underwriters Laboratories or an equivalent certifying laboratory to meet this standard.

3.4 Label Requirements—The equipment shall have a label ''Design Certified by (Company Name) to meet SAE J1732 for use only with HFC–134a. The refrigerant from this equipment must be processed to ARI 700–93 specifications or to SAE J2210 specifications by using Design Certified equipment of the same ownership.'' The minimum letter size shall be bold type 3 mm in height.

4. Safety Requirements

4.1 The equipment must comply with applicable federal, state, and local requirements on equipment related to the handling of HFC–134a material. Safety precautions or notices or labels related to the safe operation of the equipment shall also be prominently displayed on the equipment and should state ''CAUTION—

SHOULD BE OPERATED BY CERTIFIED PERSONNEL.'' The safety identification shall be located on the front near the controls.

4.2 The equipment must comply with applicable safety standards for electrical and mechanical requirements.

5. Operating Instructions

5.1 The equipment manufacturer must provide operating instructions that include information required by SAE J1629, necessary maintenance procedures, and source information for replacement parts and repair.

5.1.1 The instruction manual shall include the following information on the lubricant removed. Only new lubricant, as identified by the system manufacturer, should be replaced in the mobile air conditioning system. Removed lubricant from the system and/or the equipment shall be disposed of in accordance with the applicable federal, state, and local procedures and regulations.

5.2 The equipment must prominently display the manufacturer's name, address, the type of refrigerant it is designed to extract, a service telephone number, and any items that require maintenance or replacement that affect the proper operation of the equipment. Operation manuals must cover information for complete maintenance of the equipment to assure proper operation.

6. Functional Description

6.1 The equipment must be capable of ensuring removal of refrigerant from the system being serviced by reducing the system pressure to a minimum of 102 mm (4 in) of mercury below atmospheric pressure (*i.e.*, vacuum). To prevent system delayed outgassing, the unit must have a device that assures the refrigerant has been recovered from the air-conditioning system.

6.1.1 Testing laboratory certification of the equipment capability is required which shall process contaminated refrigerant samples at specific temperatures.

6.2 The equipment must be preconditioned by processing 13.6 kg (30 lb) of the standard contaminated HFC–134a at an ambient of 21°C (70°F) before starting the test cycle. Sample amounts are not to exceed 1.13 kg (2.5 lb) with sample amounts to be repeated every 5 minutes. The test fixture shown in Figure 1 to Appendix A of this subpart shall be operated at 21°C. Contaminated HFC–134a samples shall be processed at ambient temperatures of 10 and 49°C, without equipment shutting due to any safety devices employed in this equipment.

6.2.1 Contaminated HFC–134a sample

6.2.2 Standard contaminated HFC–134a refrigerant, 13.6 kg sample size, shall consist of liquid HFC–134a with 1300 ppm (by weight) moisture at 21°C and 45,000 ppm (by weight) of oil (polyalkylene glycol oil with 100 cs viscosity at 40°C or equivalent) and 1000 ppm by weight of noncondensable gases (air).

6.3 Portable refillable containers used in conjunction with this equipment must meet applicable DOT Standards.

6.3.1 The container color must be blue with a yellow top to identify that it contains used HFC–134a refrigerant. It must be permanently marked on the outside surface in black print at least 20 mm high ''DIRTY HFC–134a—DO NOT USE, MUST BE REPROCESSED''.

6.3.2 The portable refillable container shall have a ½ inch ACME thread.

6.3.3 During operation, the equipment shall provide overfill protection to assure that the storage container liquid fill does not exceed 80% of the tank's rated volume at 21°C per DOT Standard, 49 CFR 173.304 and the American Society of Mechanical Engineers.

6.4 Additional Storage Tank Requirements

6.4.1 The cylinder valve shall comply with UL 1769.

6.4.2 The pressure relief device shall comply with CGA Pamphlet S–1.1.

6.4.3 The container assembly shall be marked to indicate the first retest date, which shall be 5 years after date of manufacture. The marking shall indicate that retest must be performed every subsequent 5 years. The markings shall be in letters at least 6 mm high.

6.5 All flexible hoses must meet SAE J2196 for service hoses.

6.6 Service hoses must have shutoff devices located within 30 cm (12 in) of the connection point to the system being serviced to minimize introduction of noncondensable gases into the recovery equipment during connection and the release of the refrigerant during disconnection.

6.7 The equipment must be able to separate the lubricant from recovered refrigerant and accurately indicate the amount removed from the simulated automotive system during processing in 30 mL units.

6.7.1 The purpose of indicating the amount of lubricant removed is to ensure that a proper amount of new lubricant is returned to the mobile air conditioning system for compressor lubrication.

6.7.2 Refrigerant dissolved in this lubricant must be accounted for to prevent system lubricant overcharge of the mobile air-conditioning system.

6.8 The equipment must be capable of continuous operation in ambient temperatures of 10°C to 49°C and comply with 6.1 and 6.2.

7. For test validation, the equipment is to be operated according to the manufacturer's instructions.

Application

The purpose of this standard is to provide equipment specification for only the recovery of HFC–134a refrigerant to be returned to a refrigerant reclamation facility that will process it to ARI Standard 700–93 or allow for the recycling of the recovered refrigerant to SAE J2210 specifications by using Design Certified equipment of the same ownership. It is not acceptable that the refrigerant removed from a mobile air-conditioning system with this equipment be directly returned to a mobile air-conditioning system.

This information applies to equipment used to service automobiles, light trucks, and other vehicles with similar HFC–134a air-conditioning systems.

Reference Section

SAE J639—Vehicle Service Coupling
SAE J2210—HFC–134a Recycling Equipment for Mobile Automotive Air Conditioning Systems
SAE J2196—Service Hoses for Automotive Air-Conditioning
ARI 700–93—Specifications for Fluorocarbon Refrigerants
CGA Pamphlet S–1.1—Pressure Relief Device Standard Part 1—Cylinders for Compressed Gases
UL 1769—Cylinder Valves
49 CFR 173.304—Shippers—General Requirements for Shipment and Packagings

[62 FR 68052, Dec. 30, 1997]

APPENDIX E TO PART 82 OF SUBPART B—THE STANDARD FOR AUTOMOTIVE REFRIGERANT RECYCLING EQUIPMENT INTENDED FOR USE WITH BOTH CFC–12 AND HFC–134a

SAE J2211, Recommended Service Procedure for the Containment of HFC–134a, as set forth under Appendix C of this subpart, and SAE J1989, Recommended Service Procedure for the Containment of CFC–12, as set forth under Appendix A of this subpart, also apply to this Appendix E of this subpart.

SAE J1770, issued December, 1995.

AUTOMOTIVE REFRIGERANT RECYCLE EQUIPMENT INTENDED FOR USE WITH BOTH CFC–12 AND HFC–134a

Foreword

The purpose of this standard is to establish specific minimum equipment requirements for automotive refrigerant recycling equipment intended for use with both CFC–12 and HFC–134a in a common refrigerant circuit. Establishing such specifications will assure that this equipment does not cross contaminate refrigerant above specified limits when used under normal operating conditions.

1. Scope

The purpose of this standard is to establish the specific minimum equipment intended for use with both CFC–12 and HFC–134a in a common refrigerant circuit that has been directly removed from, and is intended for reuse in, mobile air-conditioning (A/C) systems. This standard does not apply to equipment used for CFC–12 and HFC–134a having a common enclosure with separate circuits for each refrigerant.

2. References

2.1 Applicable Documents—The following publications form a part of this specification to the extent specified. The latest issue of SAE publications shall apply.

2.1.1 SAE Publications—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096–0001.

SAE J2099—Standard of Purity for Recycled HFC–134a for Use in Mobile Air-Conditioning Systems
SAE 1991—Standard of Purity for Use in Mobile Air-Conditioning Systems
SAE J2196—Service Hoses for Automotive Air-Conditioning
SAE J2197—Service Hose Fittings for Automotive Air-Conditioning
SAE J2210—HFC–134a (R–134a) Recycling Equipment for Mobile A/C Systems
SAE J1990—Extraction and Recycling Equipment for Mobile A/C Systems

2.1.2 Compressed Gas Association (CGA) Publications—Available from CGA, 1235 Jefferson Davis Highway, Arlington, VA 22202.

CGA Pamphlet S–1.1—Pressure Relief Device Standard
Part 1—Cylinders for Compressed Gases

2.1.3 DOT Publications—Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402

2.1.4 UL Publications—Available from Underwriters Laboratories, 333 Pfingsten Road, Northbrook, IL 60062–2096.

UL 1769—Cylinder Valves
UL 1963—Refrigerant Recovery/Recycling Equipment

3. Specification and General Description

3.1 The equipment shall be suitable for use in an automotive service garage environment and be capable of continuous operation in ambients from 10 to 49°C.

3.2 The equipment must be certified that it meets this specification by Underwriters Laboratories Inc. (UL), or by an equivalent Nationally Recognized Testing Laboratory (NRTL).

3.3 The equipment shall have a label which states ''Design Certified by (Certifying

Agent) to meet SAE J1770 for recycling CFC–12 and HFC–134a using common refrigerant circuits'', in bold-type letters a minimum of 3 mm in height.

4. Equipment Requirements

4.1 General

4.1.1 The equipment shall be capable of preventing cross contamination to the level required by Section 9.2.1.G before an operation involving a different refrigerant can begin. The equipment must prevent initiation of the recovery operation if the equipment is not set up properly.

4.1.2 If an operator action is required to clear the unit prior to reconnecting for a different refrigerant, the equipment shall be provided with a means which indicates which refrigerant was last processed.

4.1.3 Means shall be provided to prevent recovery from both an CFC–12 and HFC–134a mobile air conditioning system concurrently.

4.1.4 Transfer of recycled refrigerant—Recycled refrigerant for recharging and transfer shall be taken from the liquid phase only.

4.2 Seat Leakage Test

4.2.1 Valves, including electrically operated solenoid valves, that are used to isolate CFC–12 and HFC–134a refrigerant circuits, shall have a seat leakage rate not exceeding 15 g/yr (½ oz/yr) before and after 100,000 cycles of operation. This Endurance Test shall be conducted with HFC–134a at maximum operating pressure as determined by sections 8.1 and 8.2. The Seat Leakage Test shall be performed at 1.5 times this pressure at an ambient of 24°C.

4.3 Interlocks

4.3.1 Electrical interlock devices used to prevent cross contamination of refrigerant shall be operated for 100,000 cycles and there shall be no failure that would permit cross contamination of refrigerant. Solid state inter lock devices shall comply with the Transient Overvoltage Test and the Fast Transient (Electric Noise) Test contained in the Standard for Tests for Safety Related Controls Employing Solid-State Devices, UL 991.

4.4 Noncondensable Gases

4.4.1 The equipment shall either automatically purge noncondensables (NCGs) if the acceptable level is exceeded or incorporate a device that indicates to the operator the NCG level has been exceeded. A pressure gauge used to indicate an NCG level shall be readable in 1 psig increments. NCG removal must be part of the normal operation of the equipment and instructions must be provided to enable the task to be accomplished within 30 minutes.

4.4.2 Refrigerant loss from noncondensable gas purging, oil removal, and refrigerant clearing shall not exceed more than 5 percent by weight of the total amount of refrigerant through the equipment as detailed in Sections 8.1, 8.2, and 9.2.

4.5 Filter

4.5.1 A 15 micron filter, or other equivalent means, to remove particulates of 15 micrometers spherical diameter or greater shall be located before any manual electrically operated valves that may cause cross contamination.

4.6 Moisture and Acid

4.6.1 The equipment shall incorporate a desiccant package that must be replaced before saturated with moisture, and whose acid capacity is at least 5% by weight of the dry desiccant.

4.6.2 The equipment shall be provided with a moisture detection means that will reliably indicate when moisture in the HFC–134a exceeds 50 ppm, or in the CFC–12 exceeds 15 ppm, and requires the filter/drier replacement.

5. Operating Instructions

5.1 The equipment manufacturer must provide operating instructions, including proper attainment of vehicle system vacuum (*i.e.*, when to stop the extraction process, and also to stop the extraction process if it is noticed that the A/C system being serviced has a leak), filter/desiccant replacement, and purging of noncondensable gases (air). The instructions shall indicate that the correct sequence of operation be followed so that the equipment can properly remove contaminates to the acceptable level. Also to be included are any other necessary maintenance procedures, source information for replacement parts and repair, and safety precautions.

5.2 The equipment must prominently display the manufacturer's name, address, the type of refrigerant (CFC–12 and HFC–134a), a service telephone number, and the part number for the replacement filter/drier. Operation manuals must cover information for complete maintenance of the equipment to assure proper operation.

6. Safety Requirements

6.1 The equipment must comply with applicable federal, state, and local requirements on equipment related to handling CFC–12 and HFC–134a material. Safety precautions or notices related to the safe operation of the equipment shall be prominently displayed on the equipment and should also state ''CAUTION—SHOULD BE OPERATED BY QUALIFIED PERSONNEL''.

6.2 HFC–134a has been shown to be nonflammable at ambient temperature and atmospheric pressure. The following statement shall be in the operating manual: ''Caution: HFC–134a service equipment or vehicle A/C systems should not be pressure tested or leak tested with compressed air. Some mixtures of air and HFC–134a have been shown to be combustible at elevated pressures (when contained in a pipe or tank). These mixtures may be potentially dangerous, causing injury or property damage. Additional health and safety information may be obtained from refrigerant and lubricant manufacturers.''

7. Functional Description

7.1 General

7.1.1 The equipment must be capable of ensuring recovery of the CFC–12 and HFC–134a from the system being serviced, by reducing the system to a minimum of 102 mm of mercury below atmospheric pressure (*i.e.*, vacuum).

7.1.2 The equipment must be compatible with leak detection material that may be present in the mobile A/C system.

7.2 Shut Off Device

7.2.1 To prevent overcharge, the equipment must be equipped to protect the tank used to store the recycled refrigerant with a shutoff device and a mechanical pressure relief valve.

7.3 Storage Tanks

7.3.1 Portable refillable tanks or containers shall be supplied with this equipment and must be labeled ''HFC–134a'' or ''CFC–12'' as appropriate, meet applicable Department of Transportation (DOT) or NRTL's Standards and be adaptable to existing refrigerant service and charging equipment.

7.3.2 The cylinder valve shall comply with the Standard for Cylinder Valves, UL 1769.

7.3.3 The pressure relief device shall comply with the Pressure Relief Device Standard Part 1—Cylinders for Compressed Gases, CGA Pamphlet S–1.1.

7.3.4 The tank assembly shall be marked to indicate the first retest date, which shall be 5 years after the date of manufacture. The marking shall indicate that retest must be performed every subsequent 5 years. The marking shall be in letters at least 6 mm high.

7.4 Overfill Protection

7.4.1 During operation, the equipment must provide overfill protection to assure that during filling or transfer, the tank or storage container cannot exceed 80% of volume at 21.1°C of its maximum rating as defined by DOT standards, 49 CFR 173.304 and American Society of Mechanical Engineers.

7.5 Hoses and Connections

7.5.1 Separate inlet and outlet hoses with fittings and separate connections shall be provided for each refrigerant circuit.

7.5.2 All flexible hoses and fittings must meet SAE J2196 (for CFC–12) and SAE J2197 (for HFC–134a).

7.5.3 Service hoses must have shutoff devices located within 30 cm of the connection point to the system being serviced.

7.6 Lubricant Separation

7.6.1 The equipment must be able to separate the lubricant from the removed refrigerant and accurately indicate the amount of lubricant removed during the process, in 30 mL (1 fl oz) units. Refrigerant dissolves in lubricant and, as a result, increases the volume of the recovered lubricant sample. This creates the illusion that more lubricant has been recovered that actually has been. The equipment lubricant measuring system must take into account such dissolved refrigerant removed from the A/C system being serviced to prevent overcharging the vehicle system with lubricant.

(NOTE: Use only new lubricant to replace the amount removed the recycling process. Used lubricant should be discarded per applicable federal, state and local requirements.)

7.6.2 The equipment must be provided with some means, such as a lockout device, which will prevent initiation of the recovery operation after switching to the other refrigerant, if the lubricant has not been drained from the oil separator.

8. Testing

8.0 Equipment shall be tested in sequence as noted in sections 8.1, 8.2 and 9.2. The filter/drier may be replaced only as noted by section 4.6.2.

8.1 CFC–12 Recycling Cycle

8.1.1 The maximum operating pressure of the equipment shall be determined when recycling CFC–12 while conducting the following tests. This pressure is needed for the Seat Leakage Test, Section 4.2.

8.1.2 The equipment must be preconditioned with 13.6 kg of the standard contaminated CFC–12 (see section 8.1.2a) at an ambient of 21°C before starting the test cycle. Sample amounts shall be 1.13 kg with sample amounts to be repeated every 5 minutes. The sample method fixture, defined in Figure 1 to Appendix A, shall be operated at 21°C.

8.1.2a Standard contaminated CFC–12 refrigerant shall consist of liquid CFC–12 with 100 ppm (by weight) moisture at 21°C and 45,000 ppm (by weight) mineral oil 525 suspension viscosity nominal and 770 ppm by weight of noncondensable gases (air).

8.1.3 The high moisture contaminated sample shall consist of CFC–12 vapor with 1000 ppm (by weight) moisture.

8.1.4 The high oil contaminated sample shall consist of CFC–12 with 200,000 ppm (by weight) mineral oil 525 suspension viscosity nominal.

8.1.5 After preconditioning as stated in section 8.1.2, the test cycle is started, processing the following contaminated samples through the equipment.

A. 13.6 kg (1.13 kg per batch) of standard contaminated CFC–12.

B. 1 kg of high oil contaminated CFC–12.

C. 4.5 kg (1.13 kg per batch) of standard contaminated CFC–12.

D. 1 kg of high moisture contaminated CFC–12.

8.1.6 The CFC–12 is to be cleaned to the minimum purity level, as defined in SAE J1991, with the equipment operating in a stable ambient of 10, 21, and 49°C and processing the samples as defined in section 8.1.5.

8.2 HFC–134a Recycling Cycle

8.2.1 The maximum operating pressure of the equipment shall be determined when recycling HFC–134a while conducting the following tests. This pressure is needed for the Seat Leakage Test, Section 4.2.

8.2.2 The equipment must be preconditioned by processing 13.6 kg of the standard contaminated HFC–134a (see section 8.2.2a) at an ambient of 21°C before starting the test cycle. 1.13 kg samples are to be processed at 5 minute intervals. The text fixture shown in Figure 1 to Appendix A shall be operated at 21°C.

8.2.2a The standard contaminated refrigerant shall consist of liquid HFC–134a with 1300 ppm (by weight) moisture (equivalent to saturation at 38°[100°F]), 45,000 ppm (by weight) HFC–134a compatible lubricant, and 1000 ppm (by weight) of noncondensable gases (air).

8.2.2b The HFC–134a compatible lubricant referred to in section 8.2.2a shall be a polyalkylene glycol based synthetic lubricant or equivalent, which shall contain no more than 1000 ppm by weight of moisture.

8.2.3 Following the preconditioning procedure per section 8.2.2, 18.2 kg of standard contaminated HFC–134a are to be processed by the equipment at each stable ambient temperature of 10, 21, and 49°C.

8.2.4 The HFC–134a is to be cleaned to the purity level, as defined in SAE J2099.

9. Refrigerant Cross Contamination Test

9.1 General

9.1.1 For test validation, the equipment is to be operated according to the manufacturer's instruction.

9.1.2 The equipment shall clean the contaminated CFC–12 refrigerant to the minimum purity level as defined in Appendix A, when tested in accordance with the requirements in section 8.1.

9.1.3 The equipment shall clean the contaminated HFC–134a refrigerant to the purity level defined in Appendix C, when tested in accordance with the requirements in section 8.2.

9.2 Test Cycle

9.2.1 The following method shall be used after the tests and requirements in Sections 8.1 and 8.2, respectively, are completed. Following the manufacturer's instructions, the equipment shall be cleared of HFC–134a, prior to beginning step A. The only refrigerant used for this is noted in steps A, C, and E of section 9.2.1. The test fixture shown in Figure 1 to Appendix A shall be used and the test shall be conducted at 10, 21, and 49°C ambients.

A. A 1.13 kg standard contaminated sample of CFC–12 (see section 8.1.2a) shall be processed by the equipment.

B. Follow manufacturer's instructions to clear the equipment of CFC–12 before processing HFC–134a.

C. Process a 1.13 kg, standard contaminated sample of HFC–134a (see section 8.2.2a) through the equipment.

D. Follow manufacturer's instructions to clear the equipment of HFC–134a before processing CFC–12.

E. Process a 1.13 kg standard contaminated sample of CFC–12 (see section 8.1.2a) through the equipment.

F. Follow manufacturer's instructions to clear the equipment of CFC–12.

G. The amount of cross contaminated refrigerant, as determined by gas chromatography, in samples processed during steps C and E of section 9.2.1., shall not exceed 0.5 percent by weight.

10. Sample Analysis

10.1 General

10.1.1 The processed contaminated samples shall be analyzed according to the following procedure.

10.2 Quantitative Determination of Moisture

10.2.1 The recycled liquid phase sample of refrigerant shall be analyzed for moisture content via Karl Fischer coulometer titration or an equivalent method. The Karl Fischer apparatus is an instrument for precise determination of small amounts of water dissolved in liquid and/or gas samples.

10.2.2 In conducting the test, a weighed sample of 30 to 130 g is vaporized directly into the Karl Fischer anolyte. A coulometer titration is conducted and the results are calculated and displayed as parts per million moisture (weight).

10.3 Determination of Percent Lubricant

10.3.1 The amount of lubricant in the recycled sample of refrigerant/lubricant is to be determined by gravimetric analysis.

10.3.2 Following venting of noncondensable, in accordance with the manufacturer's operating instructions, the refrigerant container shall be shaken for 5 minutes prior to extracting samples for test.

10.3.3 A weighed sample of 175 to 225 g of liquid refrigerant/lubricant is allowed to evaporate at room temperature. The percent lubricant is to be calculated from the weight of the original sample and the residue remaining after the evaporation.

10.4 Noncondensable Gas

10.4.1 The amount of noncondensable gas is to be determined by gas chromatography. A sample of vaporized refrigerant liquid shall be separated and analyzed by gas chromatography. A Propak Q column at 130° C and a hot wire detector may be used for analysis.

10.4.2 This test shall be conducted on liquid phase samples of recycled refrigerant taken from a full container as defined in 7.4 within 30 minutes following the proper venting of noncondensable gases.

10.4.3 The samples shall be shaken for at least 15 minutes prior to testing while at a temperature of 24° C ± 2.8° C.

10.5 Refrigerant Cross Contamination

10.5.1 The amount of cross contamination of CFC–12 in HFC–134a or HFC–134a in CFC–12 shall not exceed 0.5 percent by weight as determined by gas chromatography. A sample of vaporized refrigerant liquid shall be separated and analyzed by gas chromatography. A 1% SP–1000 on Carbopack B (60/80 mesh) column may be used for the analysis.

[62 FR 68053, Dec. 30, 1997]

APPENDIX F TO PART 82 OF SUBPART B—STANDARD FOR RECOVER-ONLY EQUIPMENT THAT EXTRACTS A SINGLE, SPECIFIC REFRIGERANT OTHER THAN CFC–12 OR HFC–134a

Foreword

These specifications are for equipment that recover, but does not recycle, any single, specific automotive refrigerant other than CFC–12 or HFC–134a, including a blend refrigerant.

1. Scope

The purpose of this standard is to provide equipment specifications for the recovery of any single, specific refrigerant other than CFC–12 or HFC–134a, including a blend refrigerant, which are either (1) to be returned to a refrigerant reclamation facility that will process the refrigerant to ARI Standard 700–93 or equivalent new product specifications at a minimum, or (2) to be recycled in approved refrigerant recycling equipment, or (3) to be destroyed. This standard applies to equipment used to service automobiles, light trucks, and other vehicles with similar air conditioning systems.

2. References

2.1 Applicable Documents—The following publications form a part of this specification to the extent specified. The latest issue of SAE publications shall apply.

2.1.1 SAE Publications—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096–0001. SAE J639—Vehicle Service Coupling. SAE J2196—Service Hoses for Automotive Air-Conditioning (fittings modified)

2.1.2 ARI Publication—Available from Air Conditioning and Refrigeration Institute, 1501 Wilson Boulevard, Sixth Floor, Arlington, VA 22209. ARI 700–93—Specifications for Fluorocarbon Refrigerants.

2.1.3 Compressed Gas Association (CGA) Publications—Available from CGA, 1235 Jefferson Davis Highway, Arlington, VA 22202. CGA Pamphlet S–1.1—Pressure Relief Device Standard Part 1—Cylinders for Compressed Gases.

2.1.4 DOT Publications—Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

DOT Standard, 49 CFR 173.304—Shippers—General Requirements for Shipments and Packagings.

2.1.5 UL Publications—Available from Underwriters Laboratories, 333 Pfingsten Road, Northbrook, IL 60062–2096.

UL 1769—Cylinder Valves.

UL 1963—Refrigerant Recovery Recycling Equipment.

3. Specifications and General Description

3.1 The equipment must be able to extract from a mobile air conditioning system the refrigerant other than CFC–12 or HFC–134a to which the equipment is dedicated.

3.2 The equipment shall be suitable for use in an automotive service garage environment as defined in section 6.8.

3.3 The equipment discharge or transfer fitting shall be unique to prevent the unintentional use of the extracted refrigerant for recharging auto air conditioners.

3.4 Equipment Certification-The equipment shall be certified by Underwriters Laboratories or an—equivalent certifying laboratory to meet this standard.

3.5 Label Requirements—The equipment shall have a label ''Designed Certified by (Company Name) to meet EPA requirements for use only with (the applicable refrigerant). The refrigerant from this equipment must be processed to ARI 700–

93 specifications or equivalent new product specifications before reuse in a mobile air-conditioning system.'' The minimum letter size shall be bold type 3 mm in height.

4. Safety Requirements

4.1 The equipment must comply with applicable federal, state, and local requirements on equipment related to the handling of the applicable refrigerant material. Safety precautions or notices or labels related to the safe operation of the equipment shall also be prominently displayed on the equipment and should state ''CAUTION—SHOULD BE OPERATED BY CERTIFIED PERSONNEL.'' The safety identification shall be located on the front near the controls.

4.2 The equipment must comply with applicable safety standards for electrical and mechanical requirements.

5. Operating Instructions

5.1 The equipment manufacturer must provide operating instructions that include information equivalent to that required by SAE J1629, necessary maintenance procedures, and source information for replacement parts and repair.

5.1.1 The instruction manual shall include the following information on the lubricant removed: Only new lubricant, as identified by the system manufacturer, should be replaced in the air conditioning system. Removed lubricant from the system and/or the equipment shall be disposed on in accordance with the applicable federal, state, and local procedures and regulations.

5.2 The equipment must prominently display the manufacturer's name, address, the type of refrigerant it is designed to extract, a service telephone number, and any items that require maintenance or replacement that affect the proper operation of the equipment. Operation manuals must cover information for complete maintenance of the equipment to assure proper operation.

6.1 Functional Description

6.1 The equipment must be capable of ensuring removal of refrigerant from the system being serviced by reducing the system pressure to a minimum of 102 mm (4 in) of mercury below atmospheric pressure (*i.e.,* to a vacuum). To prevent system delayed outgassing, the unit must have a device that assures that the refrigerant has been recovered from the air-conditioning system.

6.1.1 Testing laboratory certification of the equipment capability is required which shall process contaminated refrigerant samples at specific temperatures.

6.2 The equipment must be preconditioned by processing 13.6 kg (30 lb) of the standard contaminated refrigerant at an ambient of 21°C (70°F) before starting the test cycle. Sample amounts are not to exceed 1.13 kg (2.5 lb) with sample amounts to be processed at 5 min. intervals. The test method fixture, depicted in Figure 1 to appendix A of this subpart, shall be operated at 21°C (70°F). Contaminated refrigerant samples shall be processed at ambient temperatures of 10 and 49° C, without equipment shutting due to any safety devices employed in this equipment.

6.2.1 Standard contaminated refrigerant, 13.6 kg (30 lb) sample size, shall consist of liquid refrigerant with 1000 ppm (by weight) moisture at 21°C and 45,000 ppm (by weight) of oil (total of one-third mineral oil 525 suspension nominal, one-third PAG with 100 cSt viscosity at 40°C or equivalent, and one-third POE with 68 cSt viscosity at 40°C or equivalent) and 1000 ppm by weight of noncondensable gases (air). Refrigerant shall be identified prior to the recovery process to ± 2% of the original manufacturer's formulation submitted to, and accepted by, EPA under its Significant New Alternatives Policy program, with the exception that any flammable components shall be identified to ± 1%.

6.3 Portable refillable containers used in conjunction with this equipment must meet applicable DOT Standards.

6.3.1 The container color must be gray with a yellow top to identify that it contains used refrigerant. It must be permanently marked on the outside surface in black print at least 20 mm high ''DIRTY [NAME OF REFRIGERANT]—DO NOT USE, MUST BE PROCESSED''.

6.3.2 The portable refillable container shall have a unique thread connection for the specific refrigerant.

6.3.3 During operation, the equipment shall provide overfill protection to assure that the storage container liquid fill does not exceed 80% of the tank's rated volume at 21°C per DOT Standard, 49 CFR 173.304, and the American Society of Mechanical Engineers.

6.4 Additional Storage Tank Requirements

6.4.1 The cylinder valve shall comply with UL 1769.

6.4.2 The pressure relief device shall comply with CGA Pamphlet S–1.1.

6.4.3 The container assembly shall be marked to indicate the first retest date, which shall be 5 years after date of manufacture. The marking shall indicate that retest must be performed every subsequent 5 years. The marking shall be in letters at least 6 mm high.

6.5 All flexible hoses must meet SAE J2196 for service hoses except that fittings

shall be unique to the applicable refrigerant.

6.6 Service hoses must have shutoff devices located within 30 cm of the connection point to the system being serviced to minimize introduction of noncondensable gases into the recovery equipment during connection and the release of the refrigerant during disconnection.

6.7 The equipment must be able to separate the lubricant from the recovered refrigerant and accurately indicate the amount removed from the simulated automotive system during processing in 30 mL units.

6.7.1 The purpose of indicating the amount of lubricant is to ensure that a proper amount of new lubricant is returned to the mobile air conditioning system for compressor lubrication.

6.7.2 Refrigerant dissolved in this lubricant must be accounted for to prevent system lubricant overcharge of the mobile air-conditioning system.

6.8 The equipment must be capable of continuous operation in temperatures of 10 to 49 °C and must comply with 6.1 and 6.2.

7. For test validation, the equipment is to be operated according to the manufacturer's instructions.

Application

The purpose of this standard is to provide equipment specifications for the recovery of any refrigerant other than CFC–12 or HFC–134a for return to a refrigerant reclamation facility that will process it to ARI Standard 700–93 (or for recycling in other EPA approved recycling equipment, in the event that EPA in the future designates a standard for equipment capable of recycling refrigerants other than CFC–12 or HFC–134a).

Reference Section

SAE J639—Vehicle Service Coupling

SAE J2196—Service Hoses for Automotive Air-Conditioning

ARI 700–93—Specifications for Fluorocarbon Refrigerants

CGA Pamphlet S–1.1—Pressure Relief Device Standard Part 1—Cylinders for Compressed Gases

UL 1769—Cylinder Valves

49 CFR 173.304—Shippers—General Requirements for Shipment and Packagings

[62 FR 68055, Dec. 30, 1997]

Subpart C—Ban on Nonessential Products Containing Class I Substances and Ban on Nonessential Products Containing or Manufactured With Class II Substances

SOURCE: 58 FR 69675, Dec. 30, 1993, unless otherwise noted.

§82.60 Purpose.

The purpose of this subpart is to implement the requirements of sections 608 and 610 of the Clean Air Act as amended in 1990 on emission reductions and nonessential products.

§82.62 Definitions.

For purposes of this subpart:

(a) *Chlorofluorocarbon* means any substance listed as Class I group I or Class I group III in 40 CFR part 82, appendix A to subpart A.

(b) *Commercial,* when used to describe the purchaser of a product, means a person that uses the product in the purchaser's business or sells it to another person and has one of the following identification numbers:

(1) A federal employer identification number;

(2) A state sales tax exemption number;

(3) A local business license number; or

(4) A government contract number.

(c) *Consumer,* when used to describe a person taking action with regard to a product, means the ultimate purchaser, recipient or user of a product.

(d) *Distributor,* when used to describe a person taking action with regard to a product means:

(1) The seller of a product to a consumer or another distributor; or

(2) A person who sells or distributes that product in interstate commerce for export from the United States.

(e) *Product* means an item or category of items manufactured from raw or recycled materials which is used to perform a function or task.

(f) *Release* means to emit into the environment during the manufacture, use, storage or disposal of a product.

(g) *Class II Substance* means any substance designated as class II in 40 CFR part 82, appendix B to subpart A.

(h) *Foam Insulation Product,* when used to describe a product containing or consisting of plastic foam, means a product containing or consisting of the following types of foam:

(1) Closed cell rigid polyurethane foam;

(2) Closed cell rigid polystyrene boardstock foam;

(3) Closed cell rigid phenolic foam; and

(4) Closed cell rigid polyethylene foam when such foam is suitable in shape, thickness and design to be used as a product that provides thermal insulation around pipes used in heating, plumbing, refrigeration, or industrial process systems.

(i) *Hydrochlorofluorocarbon* means any substance listed as class II in 40 CFR part 82, appendix B to subpart A.

[58 FR 69675, Dec. 30, 1993, as amended at 61 FR 64427, Dec. 4, 1996]

§ 82.64 Prohibitions.

(a) Effective February 16, 1993, no person may sell or distribute, or offer to sell or distribute, in interstate commerce any of the products identified as being nonessential in § 82.66(a).

(b) Effective February 16, 1993, no person may sell or distribute, or offer to sell or distribute, in interstate commerce any of the products specified in § 82.66(b) to a person who does not provide proof of being a commercial purchaser, as defined under § 82.62.

(c) Effective January 17, 1994, no person may sell or distribute, or offer to sell or distribute, in interstate commerce any of the products identified as being nonessential in § 82.66(c) or § 82.66(d) except as permitted under § 82.65(g).

(d) Except as permitted under § 82.65, effective January 1, 1994, no person may sell or distribute, or offer for sale or distribution, in interstate commerce any product identified as being nonessential in § 82.70(a) or § 82.70(c).

(e) Except as permitted under § 82.65, effective January 1, 1994, no person may sell or distribute, or offer to sell or distribute, in interstate commerce any of the products specified in § 82.70(b) to a person who does not provide proof of being a commercial purchaser, as defined under § 82.62.

(f) Except as permitted under § 82.65(d), effective January 1, 1996, no person may sell or distribute, or offer for sale or distribution, in interstate commerce any product identified as being nonessential in § 82.70(c)(ii).

(g) It is a violation of this subpart to sell or distribute, or offer for sale or distribution, products effected by the provisions of § 82.68 if the seller knew or should have known that the purchaser was purchasing the product for a prohibited application.

§ 82.65 Temporary exemptions.

(a) Any person may sell or distribute, or offer to sell or distribute, in interstate commerce, at any time, any products specified as nonessential in § 82.70 which are manufactured and placed into initial inventory by December 31, 1993.

(b) Any person may sell or distribute, or offer to sell or distribute, in interstate commerce, at any time, any products specified as nonessential in § 82.70 which are manufactured and placed into initial inventory within the date 90 days after the effective date of any federal approvals required for product reformulation, where application for the required approval was timely and properly submitted to the approving federal agency prior to January 1, 1994.

(c)(1) Any person may sell or distribute or offer to sell or distribute, in interstate commerce, at any time, any products specified as nonessential in § 82.70 which are manufactured and placed into initial inventory within 45 days after the receipt of denial by any federal agency of an application for reformulation where initial application for the required approval was timely and properly submitted to the approving federal agency prior to January 1, 1994.

(2) If, within 45 days of receipt of a denial of an application for reformulation, a person submits a new viable application for federal approval of a reformulation, that person may continue to sell and distribute, or offer to sell

and distribute until 45 days of denial of that application.

(d) Any person may sell or distribute, or offer to sell or distribute, in interstate commerce, at any time, any integral skin foam utilized to provide for motor vehicle safety in accordance with Federal Motor Vehicle Safety Standards, which are manufactured and placed into initial inventory prior to January 1, 1996.

(e) Any person selling or distributing, or offering to sell or distribute, any product specified in this section after January 1, 1994, or January 1, 1996 for paragraph (d) of this section, or after January 17, 1994 for any product specified in paragraph (g) of this section, must retain proof that such product was manufactured and placed into initial inventory before the relevant date specified in this section. Such proof may take the form of shipping forms, lot numbers, manufacturer date stamps, invoices or equivalent business records.

(f) Any person may sell or distribute, or offer to sell or distribute, in interstate commerce, any aircraft pesticide containing class I until an alternative aircraft pesticide containing class II is available in interstate commerce.

(g) Any person may sell or distribute, or offer to sell or distribute, in interstate commerce, at any time, any replacement part that was manufactured with, or contains a class I substance or was packaged in material that was manufactured with or contains a class I substance only if:

(1) The replacement part was manufactured for use in a single model of a product; and

(2) The replacement part and product model are no longer manufactured; and

(3) The replacement part was placed into initial inventory prior to April 16, 1992.

§82.66 Nonessential Class I products and exceptions.

The following products which release a Class I substance (as defined in 40 CFR part 82, appendix A to subpart A) are identified as being nonessential, and subject to the prohibitions specified under §82.64—

(a) Any plastic party streamer or noise horn which is propelled by a chlorofluorocarbon, including but not limited to—

(1) String confetti;

(2) Marine safety horns;

(3) Sporting event horns;

(4) Personal safety horns;

(5) Wall-mounted alarms used in factories or other work areas; and

(6) Intruder alarms used in homes or cars.

(b) Any cleaning fluid for electronic and photographic equipment which contains a chlorofluorocarbon:

(1) Including but not limited to liquid packaging, solvent wipes, solvent sprays, and gas sprays; and

(2) Except for those sold or distributed to a commercial purchaser.

(c) Any plastic flexible or packaging foam product which is manufactured with or contains a chlorofluorocarbon;

(1) Including but not limited to:

(i) Open cell polyurethane flexible slabstock foam;

(ii) Open cell polyurethane flexible molded foam;

(iii) Open cell rigid polyurethane poured foam;

(iv) Closed cell extruded polystyrene sheet foam;

(v) Closed cell polyethylene foam; and

(vi) Closed cell polypropylene foam.

(2) Except—flexible or packaging foam used in coaxial cable.

(d) Any aerosol product or other pressurized dispenser, other than those banned in §82.64(a) or §82.64(b), which contains a chlorofluorocarbon,

(1) Including but not limited to household, industrial, automotive and pesticide uses,

(2) Except—

(i) Medical devices listed in 21 CFR 2.125(e);

(ii) Lubricants for pharmaceutical and tablet manufacture;

(iii) Gauze bandage adhesives and adhesive removers;

(iv) Topical anesthetic and vapocoolant products;

(v) Lubricants, coatings or cleaning fluids for electrical or electronic equipment, which contain CFC–11, CFC–12, or CFC–113 for solvent purposes, but which contain no other CFCs;

(vi) Lubricants, coatings or cleaning fluids used for aircraft maintenance, which contain CFC–11 or CFC–113 as a

solvent, but which contain no other CFCs;

(vii) Mold release agents used in the production of plastic and elastomeric materials, which contain CFC–11 or CFC–113 as a solvent, but which contain no other CFCs, and/or mold release agents that contain CFC–12 as a propellant, but which contain no other CFCs;

(viii) Spinnerette lubricant/cleaning sprays used in the production of synthetic fibers, which contain CFC–114 as a solvent, but which contain no other CFCs, and/or spinnerette lubricant/cleaning sprays which contain CFC–12 as a propellant, but which contain no other CFCs;

(ix) Containers of CFCs used as halogen ion sources in plasma etching;

(x) Document preservation sprays which contain CFC–113 as a solvent, but which contain no other CFCs, and/or document preservation sprays which contain CFC–12 as a propellant, but which contain no other CFCs, and which are used solely on thick books, books with coated or dense paper and tightly bound documents; and

(xi) Red pepper bear repellent sprays which contain CFC–113 as a solvent, but which contain no other CFCs.

§ 82.68 Verification and public notice requirements.

(a) Effective February 16, 1993, any person who sells or distributes any cleaning fluid for electronic and photographic equipment which contains a chlorofluorocarbon must verify that the purchaser is a commercial entity as defined in § 82.62. In order to verify that the purchaser is a commercial entity, the person who sells or distributes this product must request documentation that proves the purchaser's commercial status by containing one or more of the commercial identification numbers specified in § 82.62(b). The seller or distributor must have a reasonable basis for believing that the information presented by the purchaser is accurate.

(b) Effective February 16, 1993, any person who sells or distributes any cleaning fluid for electronic and photographic equipment which contains a chlorofluorocarbon must prominently display a sign where sales of such product occur which states: ''It is a violation of federal law to sell, distribute, or offer to sell or distribute, any chlorofluorocarbon-containing cleaning fluid for electronic and photographic equipment to anyone who is not a commercial user of this product. The penalty for violating this prohibition can be up to $25,000 per sale. Individuals purchasing such products must present proof of their commercial status in accordance with § 82.68(a).''

(c) Effective January 1, 1994, any person who sells or distributes any aerosol or pressurized dispenser of cleaning fluid for electronic and photographic equipment which contains a class II substance must verify that the purchaser is a commercial entity as defined in § 82.62(b). In order to verify that the purchaser is a commercial entity, the person who sells or distributes this product must request documentation that proves the purchaser's commercial status by containing one or more of the commercial identification numbers specified in § 82.62(b).

(d) Effective January 1, 1994, any person who sells or distributes any aerosol or other pressurized dispenser of cleaning fluid for electronic and photographic equipment which contains a class II substance must prominently display a sign where sales of such product occur which states: ''It is a violation of federal law to sell, distribute, or offer to sell or distribute, any aerosol hydrochlorofluorocarbon-containing cleaning fluid for electronic and photographic equipment to anyone who is not a commercial user of this product. The penalty for violating this prohibition can be up to $25,000 per unit sold. Individuals purchasing such products must present proof of their commercial status in accordance with § 82.68(c).''

(e) Effective January 1, 1994, in order to satisfy the requirements under § 82.68 (b) and (d), any person who sells or distributes cleaning fluids for electronic and photographic equipment which contain a class I substance and those aerosol or pressurized dispensers of cleaning fluids which contain a class II substance, may prominently display one sign where sales of such products occur which states: ''It is a violation of federal law to sell, distribute, or offer to sell or distribute, any

chlorofluorocarbon-containing cleaning fluid for electronic and photographic equipment or aerosol hydrochlorofluorocarbon-containing cleaning fluid for electronic and photographic equipment to anyone who is not a commercial user of this product. The penalty for violating this prohibition can be up to $25,000 per unit sold. Individuals purchasing such products must present proof of their commercial status in accordance with 40 CFR 82.68(a) or 82.68(c).''

(f)–(g) [Reserved]

(h) Effective January 1, 1994, any person who sells or distributes any mold release agents containing a class II substance as a propellant must provide written notification to the purchaser prior to the sale that ''It is a violation of federal law to sell mold release agents containing hydrochlorofluorocarbons as propellants to anyone, except for use in applications where no other alternative except a class I substance is available. The penalty for violating this prohibition can be up to $25,000 per unit sold.'' Written notification may be placed on sales brochures, order forms, invoices and the like.

(i) Effective January 1, 1994, any person who sells or distributes any wasp and hornet spray containing a class II substance must provide written notification to the purchaser prior to the sale that ''it is a violation of federal law to sell or distribute wasp and hornet sprays containing hydrochlorofluorocarbons as solvents to anyone, except for use near high-tension power lines where no other alternative except a class I substance is available. The penalty for violating this prohibition can be up to $25,000 per unit sold.'' Written notification may be placed on sales brochures, order forms, invoices and the like.

[58 FR 69675, Dec. 30, 1993, as amended at 61 FR 64427, Dec. 4, 1996]

§82.70 Nonessential Class II products and exceptions.

The following products which release a class II substance (as designated as class II in 40 CFR part 82, appendix B to subpart A) are identified as being nonessential and the sale or distribution of such products is prohibited under §82.64 (d), (e), or (f)—

(a) Any aerosol product or other pressurized dispenser which contains a class II substance:

(1) Including but not limited to household, industrial, automotive and pesticide uses;

(2) Except—

(i) Medical devices listed in 21 CFR 2.125(e);

(ii) Lubricants, coatings or cleaning fluids for electrical or electronic equipment, which contain class II substances for solvent purposes, but which contain no other class II substances;

(iii) Lubricants, coatings or cleaning fluids used for aircraft maintenance, which contain class II substances for solvent purposes but which contain no other class II substances;

(iv) Mold release agents used in the production of plastic and elastomeric materials, which contain class II substances for solvent purposes but which contain no other class II substances, and/or mold release agents that contain HCFC–22 as a propellant where evidence of good faith efforts to secure alternatives indicates that, other than a class I substance, there are no suitable alternatives;

(v) Spinnerette lubricants/cleaning sprays used in the production of synthetic fibers, which contain class II substances for solvent purposes and/or contain class II substances for propellant purposes;

(vi) Document preservation sprays which contain HCFC–141b as a solvent, but which contain no other class II substance; and/or which contain HCFC–22 as a propellant, but which contain no other class II substance and which are used solely on thick books, books with coated, dense or paper and tightly bound documents;

(vii) Portable fire extinguishing equipment used for non-residential applications; and

(viii) Wasp and hornet sprays for use near high-tension power lines that contain a class II substance for solvent purposes only, but which contain no other class II substances.

(b) Any aerosol or pressurized dispenser cleaning fluid for electronic and photographic equipment which contains a class II substance, except for

those sold or distributed to a commercial purchaser.

(c) Any plastic foam product which contains, or is manufactured with, a class II substance,

(1) Including but not limited to household, industrial, automotive and pesticide uses,

(2) Except—

(i) Any foam insulation product, as defined in § 82.62(h); and

(ii) Integral skin foam utilized to provide for motor vehicle safety in accordance with Federal Motor Vehicle Safety Standards until January 1, 1996, after which date such products are identified as nonessential and may only be sold or distributed or offered for sale or distribution in interstate commerce in accordance with § 82.65(d).

[58 FR 69675, Dec. 30, 1993, as amended at 61 FR 64427, Dec. 4, 1996]

Subpart D—Federal Procurement

SOURCE: 58 FR 54898, Oct. 22, 1993, unless otherwise noted.

§ 82.80 Purpose and scope.

(a) The purpose of this subpart is to require Federal departments, agencies, and instrumentalities to adopt procurement regulations which conform to the policies and requirements of title VI of the Clean Air Act as amended, and which maximize the substitution in Federal procurement of safe alternatives, as identified under section 612 of the Clean Air Act, for class I and class II substances.

(b) The regulations in this subpart apply to each department, agency, and instrumentality of the United States.

§ 82.82 Definitions.

(a) *Class I substance* means any substance designated as class I by EPA pursuant to 42 U.S.C. 7671(a), including but not limited to chlorofluorocarbons, halons, carbon tetrachloride and methyl chloroform.

(b) *Class II substance* means any substance designated as class II by EPA pursuant to 42 U.S.C. 7671(a), including but not limited to hydrochlorofluorocarbons.

(c) *Controlled substance* means a class I or class II ozone-depleting substance.

(d) *Department, agency and instrumentality of the United States* refers to any executive department, military department, or independent establishment within the meaning of 5 U.S.C. 101, 102, and 104(1), respectively, any wholly owned Government corporation, the United States Postal Service and Postal Rate Commission, and all parts of and establishments within the legislative and judicial branches of the United States.

§ 82.84 Requirements.

(a) No later than October 24, 1994, each department, agency and instrumentality of the United States shall conform its procurement regulations to the requirements and policies of title VI of the Clean Air Act, 42 U.S.C. 7671–7671g. Each such regulation shall provide, at a minimum, the following:

(1) That in place of class I or class II substances, or of products made with or containing such substances, safe alternatives identified under 42 U.S.C. 7671k (or products made with or containing such alternatives) shall be substituted to the maximum extent practicable. Substitution is not required for class II substances identified as safe alternatives under 42 U.S.C. 7671k, or for products made with or containing such substances, and such substances may be used as substitutes for other class I or class II substances.

(2) That, consistent with the phase-out schedules for ozone-depleting substances, no purchases shall be made of class II substances, or products containing class II substances, for the purpose of any use prohibited under 42 U.S.C. 7671d(c);

(3) That all active or new contracts involving the performance of any service or activity subject to 42 U.S.C. 7671g or 7671h or regulations promulgated thereunder include, or be modified to include, a condition requiring the contractor to ensure compliance with all requirements of those sections and regulations;

(4) That no purchases shall be made of products whose sale is prohibited under 42 U.S.C. 7671h, except when they will be used by persons certified under section 609 to service vehicles, and no purchase shall be made of nonessential

products as defined under 42 U.S.C. 7671i;

(5) That proper labeling under 42 U.S.C. 7671j shall be a specification for the purchase of any product subject to that section.

(b) For agencies subject to the Federal Acquisition Regulation, 48 CFR part 1, amendment of the FAR, consistent with this subpart, shall satisfy the requirement of this section.

§82.86 Reporting requirements.

(a) No later than one year after October 22, 1993, each agency, department, and instrumentality of the United States shall certify to the Office of Management and Budget that its procurement regulations have been amended in accordance with this section.

(b) Certification by the General Services Administration that the Federal Acquisition Regulation has been amended in accordance with this section shall constitute adequate certification for purposes of all agencies subject to the Federal Acquisition Regulation.

Subpart E—The Labeling of Products Using Ozone-Depleting Substances

SOURCE: 60 FR 4020, Jan. 19, 1995, unless otherwise noted.

§82.100 Purpose.

The purpose of this subpart is to require warning statements on containers of, and products containing or manufactured with, certain ozone-depleting substances, pursuant to section 611 of the Clean Air Act, as amended.

§82.102 Applicability.

(a) In the case of substances designated as class I or class II substances as of February 11, 1993, the applicable date of the requirements in this paragraph (a) is May 15, 1993. In the case of any substance designated as a class I or class II substance after February 11, 1993, the applicable date of the requirements in this paragraph (a) is one year after the designation of such substance as a class I or class II substance unless otherwise specified in the designation. On the applicable date indicated in this paragraph (a), the requirements of this subpart shall apply to the following containers and products except as exempted under paragraph (c) of this section:

(1) All containers in which a class I or class II substance is stored or transported.

(2) All products containing a class I substance.

(3) All products directly manufactured with a process that uses a class I substance, unless otherwise exempted by this subpart or, unless the Administrator determines for a particular product that there are no substitute products or manufacturing processes for such product that do not rely on the use of a class I substance, that reduce overall risk to human health and the environment, and that are currently or potentially available. If the Administrator makes such a determination for a particular product, then the requirements of this subpart are effective for such product no later than January 1, 2015.

(b) Applicable January 1, 2015 in any case, or one year after any determination between May 15, 1993 and January 1, 2015, by the Administrator for a particular product that there are substitute products or manufacturing processes for such product that do not rely on the use of a class I or class II substance, that reduce the overall risk to human health and the environment, and that are currently or potentially available, the requirements of this subpart shall apply to the following:

(1) All products containing a class II substance.

(2) All products manufactured with a process that uses a class II substance.

(c) The requirements of this subpart shall not apply to products manufactured prior to May 15, 1993, provided that the manufacturer submits documentation to EPA upon request showing that the product was manufactured prior to that date.

§82.104 Definitions.

(a) *Class I substance* means any substance designated as class I in 40 CFR part 82, appendix A to subpart A, including chlorofluorocarbons, halons,

carbon tetrachloride and methyl chloroform and any other substance so designated by the Agency at a later date.

(b) *Class II substance* means any substance designated as class II in 40 CFR part 82, appendix A to subpart A, including hydrochlorofluorocarbons and any other substance so designated by the Agency at a later date.

(c) *Completely destroy* means to cause the destruction of a controlled substance by one of the five destruction processes approved by the Parties at a demonstrable destruction efficiency of 98 percent or more or a greater destruction efficiency if required under other applicable federal regulations.

(d) *Consumer* means a commercial or non-commercial purchaser of a product or container that has been introduced into interstate commerce.

(e) *Container* means the immediate vessel in which a controlled substance is stored or transported.

(f) *Container containing* means a container that physically holds a controlled substance within its structure that is intended to be transferred to another container, vessel or piece of equipment in order to realize its intended use.

(g) *Controlled substance* means a class I or class II ozone-depleting substance.

(h) *Destruction means* the expiration of a controlled substance, that does not result in a commercially useful end product using one of the following controlled processes in a manner that complies at a minimum with the ''Code of Good Housekeeping'' of Chapter 5.5 of the United Nations Environment Programme (UNEP) report entitled, *Ad-Hoc Technical Advisory Committee on ODS Destruction Technologies,* as well as the whole of Chapter 5 from that report, or with more stringent requirements as applicable. The report is available from the Environmental Protection Agency, Public Docket A–91–60, 401 M Street, SW., Washington, DC 20460 The controlled processes are:

(1) Liquid injection incineration;

(2) Reactor cracking;

(3) Gaseous/fume oxidation;

(4) Rotary kiln incineration; or

(5) Cement kiln.

(i) *Distributor* means a person to whom a product is delivered or sold for purposes of subsequent resale, delivery or export.

(j) *Export* means the transport of virgin, used, or recycled class I or class II substances or products manufactured or containing class I or class II substances from inside the United States or its territories to persons outside the United States or its territories, excluding United States military bases and ships for on-board use.

(k) *Exporter* means the person who contracts to sell class I or class II substances or products manufactured with or containing class I or class II substances for export or transfers such substances or products to his affiliate in another country.

(l) *Import* means to land on, bring into, or introduce into, or attempt to land on, bring into, or introduce into any place subject to the jurisdiction of the United States whether or not such landing, bringing, or introduction constitutes an importation within the meaning of the customs laws of the United States, with the exception of temporary off-loading of products manufactured with or containers containing class I or class II substances from a ship are used for servicing of that ship.

(m) *Importer* means any person who imports a controlled substance, a product containing a controlled substance, a product manufactured with a controlled substance, or any other chemical substance (including a chemical substance shipped as part of a mixture or article), into the United States. ''Importer'' includes the person primarily liable for the payment of any duties on the merchandise or an authorized agent acting on his or her behalf. The term also includes, as appropriate:

(1) The consignee;

(2) The importer of record listed on U.S. Customs Service forms for the import;

(3) The actual owner if an actual owner's declaration and superseding bond has been filed; or

(4) The transferee, if the right to draw merchandise in a bonded warehouse has been transferred.

(n) *Interstate commerce* means the distribution or transportation of any product between one state, territory, possession or the District of Columbia,

and another state, territory, possession or the District of Columbia, or the sale, use or manufacture of any product in more than one state, territory, possession or District of Columbia. The entry points for which a product is introduced into interstate commerce are the release of a product from the facility in which the product was manufactured, the entry into a warehouse from which the domestic manufacturer releases the product for sale or distribution, and at the site of United States Customs clearance.

(o) *Manufactured with a controlled substance* means that the manufacturer of the product itself used a controlled substance directly in the product's manufacturing, but the product itself does not contain more than trace quantities of the controlled substance at the point of introduction into interstate commerce. The following situations are excluded from the meaning of the phrase ''manufactured with'' a controlled substance:

(1) Where a product has not had physical contact with the controlled substance;

(2) Where the manufacturing equipment or the product has had physical contact with a controlled substance in an intermittent manner, not as a routine part of the direct manufacturing process;

(3) Where the controlled substance has been transformed, except for trace quantities; or

(4) Where the controlled substance has been completely destroyed.

(p) *Potentially available* means that adequate information exists to make a determination that the substitute is technologically feasible, environmentally acceptable and economically viable.

(q) *Principal display panel (PDP)* means the entire portion of the surface of a product, container or its outer packaging that is most likely to be displayed, shown, presented, or examined under customary conditions of retail sale. The area of the PDP is not limited to the portion of the surface covered with existing labeling; rather it includes the entire surface, excluding flanges, shoulders, handles, or necks.

(r) *Product* means an item or category of items manufactured from raw or recycled materials, or other products, which is used to perform a function or task.

(s) *Product containing* means a product including, but not limited to, containers, vessels, or pieces of equipment, that physically holds a controlled substance at the point of sale to the ultimate consumer which remains within the product.

(t) *Promotional printed material* means any informational or advertising material (including, but not limited to, written advertisements, brochures, circulars, desk references and fact sheets) that is prepared by the manufacturer for display or promotion concerning a product or container, and that does not accompany the product to the consumer.

(u) *Retailer* means a person to whom a product is delivered or sold, if such delivery or sale is for purposes of sale or distribution in commerce to consumers who buy such product for purposes other than resale.

(v) *Spare parts* means those parts that are supplied by a manufacturer to another manufacturer, distributor, or retailer, for purposes of replacing similar parts with such parts in the repair of a product.

(w) *Supplemental printed material* means any informational material (including, but not limited to, package inserts, fact sheets, invoices, material safety data sheets, procurement and specification sheets, or other material) which accompanies a product or container to the consumer at the time of purchase.

(x) *Transform* means to use and entirely consume a class I or class II substance, except for trace quantities, by changing it into one or more substances not subject to this subpart in the manufacturing process of a product or chemical.

(y) *Type size* means the actual height of the printed image of each capital letter as it appears on a label.

(z) *Ultimate consumer* means the first commercial or non-commercial purchaser of a container or product that is not intended for re-introduction into interstate commerce as a final product or as part of another product.

(aa) *Warning label* means the warning statement required by section 611 of

the Act. The term warning statement shall be synonymous with warning label for purposes of this subpart.

(bb) *Waste* means, for purposes of this subpart, items or substances that are discarded with the intent that such items or substances will serve no further useful purpose.

(cc) *Wholesaler* means a person to whom a product is delivered or sold, if such delivery or sale is for purposes of sale or distribution to retailers who buy such product for purposes of resale.

§ 82.106 Warning statement requirements.

(a) *Required warning statements.* Unless otherwise exempted by this subpart, each container or product identified in § 82.102 (a) or (b) shall bear the following warning statement, meeting the requirements of this subpart for placement and form:

WARNING: Contains [or Manufactured with, if applicable] [*insert name of substance*], a substance which harms public health and environment by destroying ozone in the upper atmosphere.

(b) *Exemptions from warning label requirement.* The following products need not bear a warning label:

(1) Products containing trace quantities of a controlled substance remaining as a residue or impurity due to a chemical reaction, and where the controlled substance serves no useful purpose in or for the product itself. However, if such product was manufactured using the controlled substance, the product is required to be labeled as a ''product manufactured with'' the controlled substance, unless otherwise exempted;

(2) Containers containing a controlled substance in which trace quantities of that controlled substance remain as a residue or impurity;

(3) Waste containing controlled substances or blends of controlled substances bound for discard;

(4) Products manufactured using methyl chloroform or CFC–113 by persons who can demonstrate and certify a 95% reduction in overall usage from their 1990 calendar year usage of methyl chloroform or CFC–113 as solvents during a twelve (12) month period ending within sixty (60) days of such certification or during the most recently completed calendar year. In calculating such reduction, persons may subtract from quantities used those quantities for which they possess accessible data that establishes the amount of methyl chloroform or CFC–113 transformed. Such subtraction must be performed for both the applicable twelve month period and the 1990 calendar year. If at any time future usage exceeds the 95% reduction, all products manufactured with methyl chloroform or CFC–113 as solvents by that person must be labeled immediately. No person may qualify for this exemption after May 15, 1994;

(5) Products intended only for export outside of the United States shall not be considered ''products introduced into interstate commerce'' provided such products are clearly designated as intended for export only;

(6) Products that are otherwise not subject to the requirements of this subpart that are being repaired, using a process that uses a controlled substance.

(7) Products, processes, or substitute chemicals undergoing research and development, by which a controlled substance is used. Such products must be labeled when they are introduced into interstate commerce.

(c) *Interference with other required labeling information.* The warning statement shall not interfere with, detract from, or mar any labeling information required on the labeling by federal or state law.

§ 82.108 Placement of warning statement.

The warning statement shall be placed so as to satisfy the requirement of the Act that the warning statement be ''clearly legible and conspicuous.'' The warning statement is clearly legible and conspicuous if it appears with such prominence and conspicuousness as to render it likely to be read and understood by consumers under normal conditions of purchase. Such placement includes, but is not limited to, the following:

(a) *Display panel placement.* For any affected product or container that has a display panel that is normally viewed by the purchaser at the time of the

purchase, the warning statement described in § 82.106 may appear on any such display panel of the affected product or container such that it is ''clearly legible and conspicuous'' at the time of the purchase. If the warning statement appears on the principal display panel or outer packaging of any such affected product or container, the warning statement shall qualify as ''clearly legible and conspicuous,'' as long as the label also fulfills all other requirements of this subpart and is not obscured by any outer packaging, as required by paragraph (b) of this section. The warning statement need not appear on such display panel if either:

(1) The warning statement appears on the outer packaging of the product or container, consistent with paragraph (b) of this section, and is clearly legible and conspicuous; or

(2) The warning statement is placed in a manner consistent with paragraph (c) of this section.

(b) *Outer packaging.* If the product or container is normally packaged, wrapped, or otherwise covered when viewed by the purchaser at the time of the purchase the warning statement described in § 82.106 shall appear on any outer packaging, wrapping or other covering used in the retail display of the product or container, such that the warning statement is clearly legible and conspicuous at the time of the purchase. If the outer packaging has a display panel that is normally viewed by the purchaser at the time of the purchase, the warning statement shall appear on such display panel. If the warning statement so appears on such product's or container's outer packaging, it need not appear on the surface of the product or container, as long as the statement also fulfills all other requirements of this subpart. The warning statement need not appear on such outer packaging if either:

(1) The warning statement appears on the surface of the product or container, consistent with paragraph (a) of this section, and is clearly legible and conspicuous through any outer packaging, wrapping or other covering used in display; or

(2) The warning statement is placed in a manner consistent with paragraph (c) of this section.

(c) *Alternative placement.* The warning statement may be placed on a hang tag, tape, card, sticker, invoice, bill of lading, supplemental printed material, or similar overlabeling that is securely attached to the container, product, outer packaging or display case, or accompanies the product containing or manufactured with a controlled substance or a container containing class I or class II substances through its sale to the consumer or ultimate consumer. For prescription medical products that have been found to be essential for patient health by the Food and Drug Administration, the warning statement may be placed in supplemental printed material intended to be read by the prescribing physician, as long as the following statement is placed on the product, its packaging, or supplemental printed material intended to be read by the patient: ''This product contains [insert name of substance], a substance which harms the environment by depleting ozone in the upper atmosphere.'' In any case, the warning statement must be clearly legible and conspicuous at the time of the purchase.

(d) *Products not viewed by the purchaser at the time of purchase.* Where the purchaser of a product cannot view a product, its packaging or alternative labeling such that the warning statement is clearly legible and conspicuous at the time of purchase, as specified under paragraphs (a), (b), or (c) of this section, the warning statement may be placed in the following manner:

(1) Where promotional printed material is prepared for display or distribution, the warning statement may be placed on such promotional printed material such that it is clearly legible and conspicuous at the time of purchase; or

(2) The warning statement may be placed on the product, on its outer packaging, or on alternative labeling, consistent with paragraphs (a), (b), or (c) of this section, such that the warning statement is clearly legible and conspicuous at the time of product delivery, if the product may be returned by the purchaser at or after the time of delivery or if the purchase is not complete until the time of delivery (e.g., products delivered C.O.D.).

§ 82.110 Form of label bearing warning statement.

(a) *Conspicuousness and contrast.* The warning statement shall appear in conspicuous and legible type by typography, layout, and color with other printed matter on the label. The warning statement shall appear in sharp contrast to any background upon which it appears. Examples of combinations of colors which may not satisfy the proposed requirement for sharp contrast are: black letters on a dark blue or dark green background, dark red letters on a light red background, light red letters on a reflective silver background, and white letters on a light gray or tan background.

(b) *Name of substance.* The name of the class I or class II substance to be inserted into the warning statement shall be the standard chemical name of the substance as listed in 40 CFR part 82, appendix A to subpart A, except that:

(1) The acronym ''CFC'' may be substituted for ''chlorofluorocarbon.''

(2) The acronym ''HCFC'' may be substituted for ''hydrochlorofluorocarbon.''

(3) The term ''1,1,1-trichloroethane'' may be substituted for ''methyl chloroform.''

(c) *Combined statement for multiple class I substances.* If a container containing or a product contains or is manufactured with, more than one class I or class II substance, the warning statement may include the names of all of the substances in a single warning statement, provided that the combined statement clearly distinguishes which substances the container or product contains and which were used in the manufacturing process.

(d) *Format.* (1) The warning statement shall be blocked within a square or rectangular area, with or without a border. (2) The warning statement shall appear in lines that are parallel to the surrounding text on the product's PDP, display panel, supplemental printed material or promotional printed material.

(e) *Type style.* The ratio of the height of a capital letter to its width shall be such that the height of the letter is no more than 3 times its width; the signal word ''WARNING'' shall appear in all capital letters.

(f) *Type size.* The warning statement shall appear at least as large as the type sizes prescribed by this paragraph. The type size refers to the height of the capital letters. A larger type size materially enhances the legibility of the statement and is desirable.

(1) *Display panel or outer packaging.* Minimum type size requirements for the warning statement are given in Table 1 to this paragraph and are based upon the area of the display panel of the product or container. Where the statement is on outer packaging, as well as the display panel area, the statement shall appear in the same minimum type size as on the display panel.

TABLE 1 TO § 82.110(f)(1)

	Area of display panel (sq. in.)					
	0–2	>2–5	>5–10	>10–15	>15–30	>30
Type size (in.)[1]						
Signal word	3/64	1/16	3/32	7/64	1/8	5/32
Statement	3/64	3/64	1/16	3/32	3/32	7/64

> Means greater than.
[1] Minimum height of printed image of letters.

(2) *Alternative placement.* The minimum type size for the warning statement on any alternative placement which meets the requirements of § 82.108(c) is 3/32 inches for the signal word and 1/16 of an inch for the statement.

(3) *Promotional printed material.* The minimum type size for the warning statement on promotional printed material is 3/32 inches for the signal word and 1/16 of an inch for the statement, or the type size of any surrounding text, whichever is larger.

§82.112 Removal of label bearing warning statement.

(a) *Prohibition on removal.* Except as described in paragraph (b) or (c) of this section, any warning statement that accompanies a product or container introduced into interstate commerce, as required by this subpart, must remain with the product or container and any product incorporating such product or container, up to and including the point of sale to the ultimate consumer.

(b) *Incorporation of warning statement by subsequent manufacturers.* A manufacturer of a product that incorporates a product that is accompanied by a label bearing the warning statement may remove such label from the incorporated product if the information on such label is incorporated into a warning statement accompanying the manufacturer's product, or if, pursuant to paragraph (c) of this section, the manufacturer of the product is not required to pass through the information contained on or incorporated in the product's label.

(c) *Manufacturers that incorporate products manufactured with controlled substances.* A manufacturer that incorporates into its own product a component product that was purchased from another manufacturer, was manufactured with a process that uses a controlled substance(s), but does not contain such substance(s), may remove such label from the incorporated product and need not apply a warning statement to its own product, if the manufacturer does not use a controlled substance in its own manufacturing process. A manufacturer that uses controlled substances in its own manufacturing process, and is otherwise subject to the regulations of this subpart, must label pursuant to §82.106, but need not include information regrading the incorporated product on the required label.

(d) *Manufacturers, distributors, wholesalers, retailers that sell spare parts manufactured with controlled substances solely for repair.* Manufacturers, distributors, wholesalers, and retailers that purchase spare parts manufactured with a class I substance from another manufacturer or supplier, and sell such spare parts for the sole purpose of repair, are not required to pass through an applicable warning label if such products are removed from the original packaging provided by the manufacturer from whom the products are purchased. Manufacturers of the spare parts manufactured with controlled substances must still label their products; furthermore, manufacturers, importers, and distributors of such products must pass through the labeling information as long as products remain assembled and packaged in the manner assembled and packaged by the original manufacturer. This exemption shall not apply if a spare part is later used for manufacture and/or for purposes other than repair.

§82.114 Compliance by manufacturers and importers with requirements for labeling of containers of controlled substances, or products containing controlled substances.

(a) *Compliance by manufacturers and importers with requirements for labeling of containers of controlled substances, or products containing controlled substances.* Each manufacturer of a product incorporating another product or container containing a controlled substance, to which §82.102 (a)(1), or, (a)(2) or (b)(1) applies, that is purchased or obtained from another manufacturer or supplier, is required to pass through and incorporate the labeling information that accompanies such incorporated product in a warning statement accompanying the manufacturer's finished product. Each importer of a product, or container containing a controlled substance, to which §82.102 (a)(1), (a)(2), or (b)(1) applies, including a component product or container incorporated into the product, that is purchased from a foreign manufacturer or supplier, is required to apply a label, or to ensure that a label has been properly applied, at the site of U.S. Customs clearance.

(b) *Reliance on reasonable belief.* The manufacturer or importer of a product that incorporates another product container from another manufacturer or supplier may rely on the labeling information (or lack thereof) that it receives with the product, and is not required to independently investigate whether the requirements of this subpart are applicable to such purchased product or container, as long as the

manufacturer reasonably believes that the supplier or foreign manufacturer is reliably and accurately complying with the requirements of this subpart.

(c) *Contractual obligations.* A manufacturer's or importer's contractual relationship with its supplier under which the supplier is required to accurately label, consistent with the requirements of this subpart, any products containing a controlled substance or containers of a controlled substance that are supplied to the manufacturer or importer, is evidence of reasonable belief.

§ 82.116 Compliance by manufacturers or importers incorporating products manufactured with controlled substances.

(a) *Compliance by manufacturers or importers incorporating products manufactured with controlled substances, or importing products manufactured with controlled substances.* Each manufacturer or importer of a product incorporating another product to which § 82.102 (a)(3) or (b)(2) applies, that is purchased from another manufacturer or supplier, is not required to pass through and incorporate the labeling information that accompanies such incorporated product in a warning statement accompanying the manufacturer's or importer's finished product. Importers of products to which § 82.102 (a)(3) or (b)(2) applies are required to apply a label, or to ensure that a label has been properly applied at the site of U.S. Customs clearance.

(b) *Reliance on reasonable belief.* The importer of a product purchased or obtained from a foreign manufacturer or supplier, which product may have been manufactured with a controlled substance, may rely on the information that it receives with the purchased product, and is not required to independently investigate whether the requirements of this subpart are applicable to the purchased or obtained product, as long as the importer reasonably believes that there was no use of controlled substances by the final manufacturer of the product being imported.

(c) *Contractual obligations.* An importer's contractual relationship with its supplier under which the supplier is required to accurately label, consistent with the requirements of this subpart, any products manufactured with a controlled substance that are supplied to the importer, or to certify to the importer whether a product was or was not manufactured with a controlled substance is evidence of reasonable belief.

§ 82.118 Compliance by wholesalers, distributors and retailers.

(a) *Requirement of compliance by wholesalers, distributors and retailers.* All wholesalers, distributors and retailers of products or containers to which this subpart applies are required to pass through the labeling information that accompanies the product, except those purchasing from other manufacturers or suppliers spare parts manufactured with controlled substances and selling those parts for the demonstrable sole purpose of repair.

(b) *Reliance on reasonable belief.* The wholesaler, distributor or retailer of a product may rely on the labeling information that it receives with the product or container, and is not required to independently investigate whether the requirements of this subpart are applicable to the product or container, as long as the wholesaler, distributor or retailer reasonably believes that the supplier of the product or container is reliably and accurately complying with the requirements of this subpart.

(c) *Contractual obligations.* A wholesaler, distributor or retailer's contractual relationship with its supplier under which the supplier is required to accurately label, consistent with the requirements of this subpart, any products manufactured with a controlled substance that are supplied to the wholesaler, distributor or retailer is evidence of reasonable belief.

§ 82.120 Petitions.

(a) *Requirements for procedure and timing.* Persons seeking to apply the requirements of this regulation to a product containing a class II substance or a product manufactured with a class I or a class II substance which is not otherwise subject to the requirements, or to temporarily exempt a product manufactured with a class I substance, based on a showing of a lack of currently or potentially available alternatives, from the requirements of this

regulation may submit petitions to: Labeling Program Manager, Stratospheric Protection Division, Office of Atmospheric Programs, U.S. Environmental Protection Agency, 6202–J, 401 M Street, S.W., Washington, D.C. 20460. Such persons must label their products while such petitions are under review by the Agency.

(b) *Requirement for adequate data.* Any petition submitted under paragraph (a) of this section shall be accompanied by adequate data, as defined in § 82.120(c). If adequate data are not included by the petitioner, the Agency may return the petition and request specific additional information.

(c) *Adequate data.* A petition shall be considered by the Agency to be supported by adequate data if it includes all of the following:

(1) A part clearly labeled ''Section I.A.'' which contains the petitioner's full name, company or organization name, address and telephone number, the product that is the subject of the petition, and, in the case of a petition to temporarily exempt a product manufactured with a class I substance from the labeling requirement, the manufacturer or manufacturers of that product.

(2) For petitions to temporarily exempt a product manufactured with a class I substance only, a part clearly labeled ''Section I.A.T.'' which states the length of time for which an exemption is requested.

(3) A part clearly labeled ''Section I.B.'' which includes the following statement, signed by the petitioner or an authorized representative:

''I certify under penalty of law that I have personally examined and am familiar with the information submitted in this petition and all attached documents, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information.''

(4) A part clearly labeled ''Section I.C.'' which fully explains the basis for the petitioner's request that EPA add the labeling requirements to or remove them from the product which is the subject of the petition, based specifically upon the technical facility or laboratory tests, literature, or economic analysis described in paragraphs (c) (5), (6) and (7) of this section.

(5) A part clearly labeled ''Section II.A.'' which fully describes any technical facility or laboratory tests used to support the petitioner's claim.

(6) A part clearly labeled ''Section II.B.'' which fully explains any values taken from literature or estimated on the basis of known information that are used to support the petitioner's claim.

(7) A part clearly labeled ''Section II.C.'' which fully explains any economic analysis used to support the petitioner's claim.

(d) *Criteria for evaluating petitions.* Adequate data in support of any petition to the Agency to add a product to the labeling requirement or temporarily remove a product from the labeling requirement will be evaluated based upon a showing of sufficient quality and scope by the petitioner of whether there are or are not substitute products or manufacturing processes for such product:

(1) That do not rely on the use of such class I or class II substance;

(2) That reduce the overall risk to human health and the environment; and

(3) That are currently or potentially available.

(e) *Procedure for acceptance or denial of petition.* (1) If a petition submitted under this section contains adequate data, as defined under paragraph (c) of this section, the Agency shall within 180 days after receiving the complete petition either accept the petition or deny the petition.

(2) If the Agency makes a decision to accept a petition to apply the requirements of this regulation to a product containing or manufactured with a class II substance, the Agency will notify the petitioner and publish a proposed rule in the FEDERAL REGISTER to apply the labeling requirements to the product.

(3) If the Agency makes a decision to deny a petition to apply the requirements of this regulation to a product containing or manufactured with a

class II substance, the Agency will notify the petitioner and publish an explanation of the petition denial in the FEDERAL REGISTER.

(4) If the Agency makes a decision to accept a petition to temporarily exempt a product manufactured with a class I substance from the requirements of this regulation, the Agency will notify the petitioner and publish a proposed rule in the FEDERAL REGISTER to temporarily exempt the product from the labeling requirements. Upon notification by the Agency, such manufacturer may immediately cease its labeling process for such exempted products.

(5) If the Agency makes a decision to deny a petition to temporarily exempt a product manufactured with a class I substance from the requirements of this regulation, the Agency will notify the petitioner and may, in appropriate circumstances, publish an explanation of the petition denial in the FEDERAL REGISTER.

§ 82.122 Certification, recordkeeping, and notice requirements.

(a) *Certification.* (1) Persons claiming the exemption provided in § 82.106(b)(2) must submit a written certification to the following address: Labeling Program Manager, Stratospheric Protection Division, Office of Atmospheric Programs, 6205–J, 401 M Street, S.W., Washington, D.C. 20460.

(2) The certification must contain the following information:

(i) The exact location of documents verifying calendar year 1990 usage and the 95% reduced usage during a twelve month period;

(ii) A description of the records maintained at that location;

(iii) A description of the type of system used to track usage;

(iv) An indication of which 12 month period reflects the 95% reduced usage, and;

(v) Name, address, and telephone number of a contact person.

(3) Persons who submit certifications postmarked on or before May 15, 1993, need not place warning labels on their products manufactured using CFC–113 or methyl chloroform as a solvent. Persons who submit certifications postmarked after May 15, 1993, must label their products manufactured using CFC–113 or methyl chloroform as a solvent for 14 days following such submittal of the certification.

(4) Persons certifying must also include a statement that indicates their future annual use will at no time exceed 5% of their 1990 usage.

(5) Certifications must be signed by the owner or a responsible corporate officer.

(6) If the Administrator determines that a person's certification is incomplete or that information supporting the exemption is inadequate, then products manufactured using CFC–113 or methyl chloroform as a solvent by such person must be labeled pursuant to § 82.106(a).

(b) *Recordkeeping.* Persons claiming the exemption under section 82.106(b)(2) must retain supporting documentation at one of their facilities.

(c) *Notice Requirements.* Persons who claim an exemption under § 82.106(b)(2) must submit a notice to the address in paragraph (a)(1) of this section within 30 days of the end of any 12 month period in which their usage of CFC–113 or methyl chloroform used as a solvent exceeds the 95% reduction from calendar year 1990.

§ 82.124 Prohibitions.

(a) *Warning statement*—(1) *Absence or presence of warning statement.* (i) Applicable May 15, 1993, except as indicated in paragraph (a)(5) of this section, no container or product identified in § 82.102(a) may be introduced into interstate commerce unless it bears a warning statement that complies with the requirements of § 82.106(a) of this subpart, unless such labeling is not required under § 82.102(c), § 82.106(b), § 82.112 (c) or (d), § 82.116(a), § 82.118(a), or temporarily exempted pursuant to § 82.120.

(ii) On January 1, 2015, or any time between May 15, 1993 and January 1, 2015 that the Administrator determines for a particular product manufactured with or containing a class II substance that there are substitute products or manufacturing processes for such product that do not rely on the use of a class I or class II substance, that reduce the overall risk to human health

and the environment, and that are currently or potentially available, no product identified in §82.102(b) may be introduced into interstate commerce unless it bears a warning statement that complies with the requirements of §82.106, unless such labeling is not required under §82.106(b), §82.112 (c) or (d), §82.116(a) or §82.118(a).

(2) *Placement of warning statement.* (i) On May 15, 1993, except as indicated in paragraph (a)(5) of this section, no container or product identified in §82.102(a) may be introduced into interstate commerce unless it bears a warning statement that complies with the requirements of §82.108 of this subpart, unless such labeling is not required under §82.102(c), §82.106(b), §82.112 (c) or (d), §82.116(a), §82.118(a), or temporarily exempted pursuant to §82.120.

(ii) On January 1, 2015, or any time between May 15, 1993 and January 1, 2015 that the Administrator determines for a particular product manufactured with or containing a class II substance that there are substitute products or manufacturing processes for such product that do not rely on the use of a class I or class II substance, that reduce the overall risk to human health and the environment, and that are currently or potentially available, no product identified in §82.102(b) may be introduced into interstate commerce unless it bears a warning statement that complies with the requirements of §82.108 of this subpart, unless such labeling is not required under §82.106(b), §82.112 (c) or (d), §82.116(a) or §82.118(a).

(3) *Form of label bearing warning statement.* (i) Applicable May 15, 1993, except as indicated in paragraph (a)(5) of this section, no container or product identified in §82.102(a) may be introduced into interstate commerce unless it bears a warning statement that complies with the requirements of §82.110, unless such labeling is not required pursuant to §82.102(c), §82.106(b), §82.112 (c) or (d), §82.116(a), §82.118(a), or temporarily exempted pursuant to §82.120.

(ii) On January 1, 2015, or any time between May 15, 1993 and January 1, 2015 that the Agency determines for a particular product manufactured with or containing a class II substance, that there are substitute products or manufacturing processes that do not rely on the use of a class I or class II substance, that reduce the overall risk to human health and the environment, and that are currently or potentially available, no product identified in §82.102(b) may be introduced into interstate commerce unless it bears a warning statement that complies with the requirements of §82.110, unless such labeling is not required pursuant to §82.106(b), §82.112 (c) or (d), §82.116(a), or §82.118(a).

(4) On or after May 15, 1993, no person may modify, remove or interfere with any warning statement required by this subpart, except as described in §82.112.

(5) In the case of any substance designated as a class I or class II substance after February 11, 1993, the prohibitions in paragraphs (a)(1)(i), (a)(2)(i), and (a)(3)(i) of this section shall be applicable one year after the designation of such substance as a class I or class II substance unless otherwise specified in the designation.

Subpart F—Recycling and Emissions Reduction

SOURCE: 58 FR 28712, May 14, 1993, unless otherwise noted.

§82.150 Purpose and scope.

(a) The purpose of this subpart is to reduce emissions of class I and class II refrigerants to the lowest achievable level during the service, maintenance, repair, and disposal of appliances in accordance with section 608 of the Clean Air Act.

(b) This subpart applies to any person servicing, maintaining, or repairing appliances except for motor vehicle air conditioners. This subpart also applies to persons disposing of appliances, including motor vehicle air conditioners. In addition, this subpart applies to refrigerant reclaimers, appliance owners, and manufacturers of appliances and recycling and recovery equipment.

§82.152 Definitions.

Appliance means any device which contains and uses a class I or class II substance as a refrigerant and which is used for household or commercial purposes, including any air conditioner, refrigerator, chiller, or freezer.

Apprentice means any person who is currently registered as an apprentice in service, maintenance, repair, or disposal of appliances with the U.S. Department of Labor's Bureau of Apprenticeship and Training (or a State Apprenticeship Council recognized by the Bureau of Apprenticeship and Training). If more than two years have elapsed since the person first registered as an apprentice with the Bureau of Apprenticeship and Training (or a State Apprenticeship Council recognized by the Bureau of Apprenticeship and Training), the person shall not be considered an apprentice.

Approved equipment testing organization means any organization which has applied for and received approval from the Administrator pursuant to § 82.160.

Certified refrigerant recovery or recycling equipment means equipment certified by an approved equipment testing organization to meet the standards in § 82.158 (b) or (d), equipment certified pursuant to § 82.36(a), or equipment manufactured before November 15, 1993, that meets the standards in § 82.158 (c), (e), or (g).

Commercial refrigeration means, for the purposes of § 82.156(i), the refrigeration appliances utilized in the retail food and cold storage warehouse sectors. Retail food includes the refrigeration equipment found in supermarkets, convenience stores, restaurants and other food service establishments. Cold storage includes the equipment used to store meat, produce, dairy products, and other perishable goods. All of the equipment contains large refrigerant charges, typically over 75 pounds.

Critical component means, for the purposes of § 82.156(i), a component without which industrial process refrigeration equipment will not function, will be unsafe in its intended environment, and/or will be subject to failures that would cause the industrial process served by the refrigeration appliance to be unsafe.

Custom-built means, for the purposes of § 82.156(i), that the equipment or any of its critical components cannot be purchased and/or installed without being uniquely designed, fabricated and/or assembled to satisfy a specific set of industrial process conditions.

Disposal means the process leading to and including:

(1) The discharge, deposit, dumping or placing of any discarded appliance into or on any land or water;

(2) The disassembly of any appliance for discharge, deposit, dumping or placing of its discarded component parts into or on any land or water; or

(3) The disassembly of any appliance for reuse of its component parts.

Follow-up verification test means, for the purposes of § 82.156(i), those tests that involve checking the repairs within 30 days of the appliance's returning to normal operating characteristics and conditions. Follow-up verification tests for appliances from which the refrigerant charge has been evacuated means a test conducted after the appliance or portion of the appliance has resumed operation at normal operating characteristics and conditions of temperature and pressure, except in cases where sound professional judgment dictates that these tests will be more meaningful if performed prior to the return to normal operating characteristics and conditions. A follow-up verification test with respect to repairs conducted without evacuation of the refrigerant charge means a reverification test conducted after the initial verification test and usually within 30 days of normal operating conditions. Where an appliance is not evacuated, it is only necessary to conclude any required changes in pressure, temperature or other conditions to return the appliance to normal operating characteristics and conditions.

Full charge means, for the purposes of § 82.156(i), the amount of refrigerant required for normal operating characteristics and conditions of the appliance as determined by using one of the following four methods or a combination of one of the following four methods:

(1) The equipment manufacturers' determination of the correct full charge for the equipment;

(2) Determining the full charge by appropriate calculations based on component sizes, density of refrigerant, volume of piping, and all other relevant considerations;

(3) The use of actual measurements of the amount of refrigerant added or evacuated from the appliance; and/or

(4) The use of an established range based on the best available data, regarding the normal operating characteristics and conditions for the appliance, where the mid-point of the range will serve as the full charge, and where records are maintained in accordance with § 82.166(q).

High-pressure appliance means an appliance that uses a refrigerant with a boiling point between −50 and 10 degrees Centigrade at atmospheric pressure (29.9 inches of mercury). This definition includes but is not limited to appliances using refrigerants −12, −22, −114, −500, or −502.

Industrial process refrigeration means, for the purposes of § 82.156(i), complex customized appliances used in the chemical, pharmaceutical, petrochemical and manufacturing industries. These appliances are directly linked to the industrial process. This sector also includes industrial ice machines, appliances used directly in the generation of electricity, and ice rinks. Where one appliance is used for both industrial process refrigeration and other applications, it will be considered industrial process refrigeration equipment if 50 percent or more of its operating capacity is used for industrial process refrigeration.

Industrial process shutdown means, for the purposes of § 82.156(i), that an industrial process or facility temporarily ceases to operate or manufacture whatever is being produced at that facility.

Initial verification test means, for the purposes of § 82.156(i), those leak tests that are conducted as soon as practicable after the repair is completed. An initial verification test, with regard to the leak repairs that require the evacuation of the appliance or portion of the appliance, means a test conducted prior to the replacement of the full refrigerant charge and before the appliance or portion of the appliance has reached operation at normal operating characteristics and conditions of temperature and pressure. An initial verification test with regard to repairs conducted without the evacuation of the refrigerant charge means a test conducted as soon as practicable after the conclusion of the repair work.

Low-loss fitting means any device that is intended to establish a connection between hoses, appliances, or recovery or recycling machines and that is designed to close automatically or to be closed manually when disconnected, minimizing the release of refrigerant from hoses, appliances, and recovery or recycling machines.

Low-pressure appliance means an appliance that uses a refrigerant with a boiling point above 10 degrees Centigrade at atmospheric pressure (29.9 inches of mercury). This definition includes but is not limited to equipment utilizing refrigerants −11, −113, and −123.

Major maintenance, service, or repair means any maintenance, service, or repair involving the removal of any or all of the following appliance components: Compressor, condenser, evaporator, or auxiliary heat exchanger coil.

Motor vehicle air conditioner (MVAC) means any appliance that is a motor vehicle air conditioner as defined in 40 CFR part 82, subpart B.

MVAC-like appliance means mechanical vapor compression, open-drive compressor appliances used to cool the driver's or passenger's compartment of an non-road motor vehicle. This includes the air-conditioning equipment found on agricultural or construction vehicles. This definition is not intended to cover appliances using HCFC–22 refrigerant.

Normal operating characteristics or conditions means, for the purposes of § 82.156(i), temperatures, pressures, fluid flows, speeds and other characteristics that would normally be expected for a given process load and ambient condition during operation. Normal operating characteristics and conditions are marked by the absence of atypical conditions affecting the operation of the refrigeration appliance.

Normally containing a quantity of refrigerant means containing the quantity of refrigerant within the appliance or appliance component when the appliance is operating with a full charge of refrigerant.

Opening an appliance means any service, maintenance, or repair on an appliance that would release class I or class II refrigerant from the appliance to the atmosphere unless the refrigerant were recovered previously from

the appliance. Connecting and disconnecting hoses and gauges to and from the appliance to measure pressures within the appliance and to add refrigerant to or recover refrigerant from the appliance shall not be considered ''opening.''

Person means any individual or legal entity, including an individual, corporation, partnership, association, state, municipality, political subdivision of a state, Indian tribe, and any agency, department, or instrumentality of the United States, and any officer, agent, or employee thereof.

Process stub means a length of tubing that provides access to the refrigerant inside a small appliance or room air conditioner and that can be resealed at the conclusion of repair or service.

Reclaim refrigerant means to reprocess refrigerant to at least the purity specified in appendix A to 40 CFR part 82, subpart F (based on ARI Standard 700–1993, Specifications for Fluorocarbon and Other Refrigerants) and to verify this purity using the analytical methodology prescribed in appendix A. In general, reclamation involves the use of processes or procedures available only at a reprocessing or manufacturing facility.

Recover refrigerant means to remove refrigerant in any condition from an appliance and to store it in an external container without necessarily testing or processing it in any way.

Recovery efficiency means the percentage of refrigerant in an appliance that is recovered by a piece of recycling or recovery equipment.

Recycle refrigerant means to extract refrigerant from an appliance and clean refrigerant for reuse without meeting all of the requirements for reclamation. In general, recycled refrigerant is refrigerant that is cleaned using oil separation and single or multiple passes through devices, such as replaceable core filter-driers, which reduce moisture, acidity, and particulate matter. These procedures are usually implemented at the field job site.

Refrigerant circuit means the parts of an appliance that are normally connected to each other (or are separated only by internal valves) and are designed to contain refrigerant.

Self-contained recovery equipment means refrigerant recovery or recycling equipment that is capable of removing the refrigerant from an appliance without the assistance of components contained in the appliance.

Small appliance means any of the following products that are fully manufactured, charged, and hermetically sealed in a factory with five (5) pounds or less of refrigerant: refrigerators and freezers designed for home use, room air conditioners (including window air conditioners and packaged terminal air conditioners), packaged terminal heat pumps, dehumidifiers, under-the-counter ice makers, vending machines, and drinking water coolers.

Suitable replacement refrigerant means, for the purposes of § 82.156(i)(7)(i), a refrigerant that is acceptable under section 612(c) of the Clean Air Act Amendments of 1990 and all regulations promulgated under that section, compatible with other materials with which it may come into contact, and able to achieve the temperatures required for the affected industrial process in a technically feasible manner.

System-dependent recovery equipment means refrigerant recovery equipment that requires the assistance of components contained in an appliance to remove the refrigerant from the appliance.

System mothballing means the intentional shutting down of a refrigeration appliance undertaken for an extended period of time by the owners or operators of that facility, where the refrigerant has been evacuated from the appliance or the affected isolated section of the appliance, at least to atmospheric pressure.

Technician means any person who performs maintenance, service, or repair that could be reasonably expected to release class I or class II refrigerants from appliances, except for MVACs, into the atmosphere. Technician also means any person who performs disposal of appliances, except for small appliances, MVACs, and MVAC-like appliances, that could be reasonably expected to release class I or class II refrigerants from the appliances into the atmosphere. Performing maintenance, service, repair, or disposal could

be reasonably expected to release refrigerants only if the activity is reasonably expected to violate the integrity of the refrigerant circuit. Activities reasonably expected to violate the integrity of the refrigerant circuit include activities such as attaching and detaching hoses and gauges to and from the appliance to add or remove refrigerant or to measure pressure and adding refrigerant to and removing refrigerant from the appliance. Activities such as painting the appliance, re-wiring an external electrical circuit, replacing insulation on a length of pipe, or tightening nuts and bolts on the appliance are not reasonably expected to violate the integrity of the refrigerant circuit. Performing maintenance, service, repair, or disposal of appliances that have been evacuated pursuant to §82.156 could not be reasonably expected to release refrigerants from the appliance unless the maintenance, service, or repair consists of adding refrigerant to the appliance. Technician includes but is not limited to installers, contractor employees, in-house service personnel, and in some cases, owners.

Very high-pressure appliance means an appliance that uses a refrigerant with a boiling point below −50 degrees Centigrade at atmospheric pressure (29.9 inches of mercury). This definition includes but is not limited to equipment utilizing refrigerants −13 and −503.

Voluntary certification program means a technician testing program operated by a person before that person obtained approval of a technician certification program pursuant to §82.161(c).

[58 FR 28712, May 14, 1993, as amended at 59 FR 42956, Aug. 19, 1994; 59 FR 55925, Nov. 9, 1994; 60 FR 40439, Aug. 8, 1995]

§82.154 Prohibitions.

(a) Effective June 14, 1993, no person maintaining, servicing, repairing, or disposing of appliances may knowingly vent or otherwise release into the environment any class I or class II substance used as refrigerant in such equipment. De minimis releases associated with good faith attempts to recycle or recover refrigerants are not subject to this prohibition. Releases shall be considered de minimis if they occur when:

(1) The required practices set forth in §82.156 are observed and recovery or recycling machines that meet the requirements set forth in §82.158 are used; or

(2) The requirements set forth in 40 CFR part 82, subpart B are observed.

The knowing release of refrigerant subsequent to its recovery from an appliance shall be considered a violation of this prohibition.

(b) Effective July 13, 1993, no person may open appliances except MVACs for maintenance, service, or repair, and no person may dispose of appliances except for small appliances, MVACs, and MVAC-like appliances:

(1) Without observing the required practices set forth in §82.156; and

(2) Without using equipment that is certified for that type of appliance pursuant to §82.158.

(c) Effective November 15, 1993, no person may manufacture or import recycling or recovery equipment for use during the maintenance, service, or repair of appliances except MVACs, and no person may manufacture or import recycling or recovery equipment for use during the disposal of appliances except small appliances, MVACs, and MVAC-like appliances, unless the equipment is certified pursuant to §82.158 (b), (d), or (f), as applicable.

(d) Effective June 14, 1993, no person shall alter the design of certified refrigerant recycling or recovery equipment in a way that would affect the equipment's ability to meet the certification standards set forth in §82.158 without resubmitting the altered design for certification testing. Until it is tested and shown to meet the certification standards set forth in §82.158, equipment so altered will be considered uncertified for the purposes of §82.158.

(e) Effective August 12, 1993, no person may open appliances except MVACs for maintenance, service, or repair, and no person may dispose of appliances except for small appliances, MVACs, and MVAC-like appliances, unless such person has certified to the Administrator pursuant to §82.162 that such person has acquired certified recovery or recycling equipment and is complying with the applicable requirements of this subpart.

(f) Effective August 12, 1993, no person may recover refrigerant from small appliances, MVACs, and MVAC-like appliances for purposes of disposal of these appliances unless such person has certified to the Administrator pursuant to § 82.162 that such person has acquired recovery equipment that meets the standards set forth in § 82.158 (l) and/or (m), as applicable, and that such person is complying with the applicable requirements of this subpart.

(g) No person may sell or offer for sale for use as a refrigerant any class I or class II substance consisting wholly or in part of used refrigerant unless:

(1) The class I or class II substance has been reclaimed as defined at § 82.152;

(2) The class I or class II substance was used only in an MVAC or MVAC-like appliance and is to be used only in an MVAC or MVAC-like appliance; or

(3) The class I or class II substance is contained in an appliance that is sold or offered for sale together with the class I or class II substance.

(h) No person may sell or offer for sale for use as a refrigerant any class I or class II substance consisting wholly or in part of used refrigerant unless:

(1) The class I or class II substance has been reclaimed by a person who has been certified as a reclaimer pursuant to § 82.164;

(2) The class I or class II substance was used only in an MVAC or MVAC-like appliance and is to be used only in an MVAC or MVAC-like appliance; or

(3) The class I or class II substance is contained in an appliance that is sold or offered for sale together with the class I or class II substance.

(i) Effective August 12, 1993, no person reclaiming refrigerant may release more than 1.5% of the refrigerant received by them.

(j) Effective November 15, 1993, no person may sell or distribute, or offer for sale or distribution, any appliances, except small appliances, unless such equipment is equipped with a servicing aperture to facilitate the removal of refrigerant at servicing and disposal.

(k) Effective November 15, 1993, no person may sell or distribute, or offer for sale or distribution any small appliance unless such equipment is equipped with a process stub to facilitate the removal of refrigerant at servicing and disposal.

(l) No technician training or testing program may issue certificates pursuant to § 82.161 unless the program complies with all of the standards of § 82.161 and appendix D, and has been granted approval.

(m) Effective November 14, 1994, no person may sell or distribute, or offer for sale or distribution, any class I or class II substance for use as a refrigerant to any person unless:

(1) The buyer has been certified as a Type I, Type II, Type III, or Universal technician pursuant to § 82.161;

(2) The buyer has successfully completed a voluntary certification program requesting approval under § 82.161(g) by December 9, 1994. This paragraph (m)(2) expires on May 15, 1995.

(3) The buyer has been certified pursuant to 40 CFR part 82, subpart B;

(4) The refrigerant is sold only for eventual resale to certified technicians or to appliance manufacturers (e.g., sold by a manufacturer to a wholesaler, sold by a technician to a reclaimer);

(5) The refrigerant is sold to an appliance manufacturer;

(6) The refrigerant is contained in an appliance, and after January 9, 1995, the refrigerant is contained in an appliance with a fully assembled refrigerant circuit;

(7) The refrigerant is charged into an appliance by a certified technician or an apprentice during maintenance, service, or repair; or

(8) The refrigerant is charged into an appliance by a technician who successfully completed a voluntary certification program requesting approval under § 82.161(g) by December 9, 1994. This paragraph (m)(8) expires on May 15, 1995.

(9) Rules stayed for reconsideration. Notwithstanding any other provisions of this subpart, the effectiveness of 40 CFR 82.154(m), only as it applies to refrigerant contained in appliances without fully assembled refrigerant circuits, is stayed from April 27, 1995, until EPA takes final action on its reconsideration of these provisions. EPA will publish any such final action in the FEDERAL REGISTER.

(n) It is a violation of this subpart to accept a signed statement pursuant to §82.156(f)(2) if the person knew or had reason to know that such a signed statement is false.

[58 FR 28712, May 14, 1993, as amended at 59 FR 42956, Aug. 19, 1994; 59 FR 55926, Nov. 9, 1994; 60 FR 14610, Mar. 17, 1995; 60 FR 24680, May 9, 1995; 61 FR 7726, Feb. 29, 1996; 61 FR 68508, Dec. 27, 1996]

§82.156 Required practices.

(a) Effective July 13, 1993, all persons disposing of appliances, except for small appliances, MVACs, and MVAC-like appliances must evacuate the refrigerant in the entire unit to a recovery or recycling machine certified pursuant to §82.158. All persons opening appliances except for MVACs for maintenance, service, or repair must evacuate the refrigerant in either the entire unit or the part to be serviced (if the latter can be isolated) to a system receiver or a recovery or recycling machine certified pursuant to §82.158. Effective January 9, 1995, certified technicians must verify that the applicable level of evacuation has been reached in the appliance or the part before it is opened.

(1) Persons opening appliances except for small appliances, MVACs, and MVAC-like appliances for maintenance, service, or repair must evacuate to the levels in table 1 before opening the appliance, unless

(i) Evacuation of the appliance to the atmosphere is not to be performed after completion of the maintenance, service, or repair, and the maintenance, service, or repair is not major as defined at §82.152(k); or

(ii) Due to leaks in the appliance, evacuation to the levels in table 1 is not attainable, or would substantially contaminate the refrigerant being recovered; or

(iii) The recycling or recovery equipment was certified pursuant to §82.158(b)(2). In any of these cases, the requirements of §82.156(a)(2) must be followed.

(2)(i) If evacuation of the appliance to the atmosphere is not to be performed after completion of the maintenance, service, or repair, and if the maintenance, service, or repair is not major as defined at §82.152(k), the appliance must:

(A) Be evacuated to a pressure no higher than 0 psig before it is opened if it is a high- or very high-pressure appliance;

(B) Be pressurized to 0 psig before it is opened if it is a low-pressure appliance. Persons pressurizing low-pressure appliances that use refrigerants with boiling points at or below 85 degrees Fahrenheit at 29.9 inches of mercury (standard atmospheric pressure), (e.g., CFC–11 and HCFC–123), must not use methods such as nitrogen, that require subsequent purging. Persons pressurizing low-pressure appliances that use refrigerants with boiling points above 85 degrees Fahrenheit at 29.9 inches of mercury, e.g., CFC–113, must use heat to raise the internal pressure of the appliance as much as possible, but may use nitrogen to raise the internal pressure of the appliance from the level attainable through use of heat to atmospheric pressure; or

(C) For the purposes of oil changes, be evacuated or pressurized to a pressure no higher than 5 psig, before it is opened; or drain the oil into a system receiver to be evacuated or pressurized to a pressure no higher than 5 psig.

(ii) If, due to leaks in the appliance, evacuation to the levels in table 1 is not attainable, or would substantially contaminate the refrigerant being recovered, persons opening the appliance must:

(A) Isolate leaking from non-leaking components wherever possible;

(B) Evacuate non-leaking components to be opened to the levels specified in table 1; and

(C) Evacuate leaking components to be opened to the lowest level that can be attained without substantially contaminating the refrigerant. In no case shall this level exceed 0 psig.

(iii) If the recycling or recovery equipment was certified pursuant to §82.158(b)(2), technicians must follow the manufacturer's directions for achieving the required recovery efficiency.

(3) Persons disposing of appliances except for small appliances, MVACs, and MVAC-like appliances, must evacuate to the levels in table 1 unless, due to leaks in the appliance, evacuation to

the levels in table 1 is not attainable, or would substantially contaminate the refrigerant being recovered. If, due to leaks in the appliance, evacuation to the levels in table 1 is not attainable, or would substantially contaminate the refrigerant being recovered, persons disposing of the appliance must:

(i) Isolate leaking from non-leaking components wherever possible;

(ii) Evacuate non-leaking components to the levels specified in table 1; and

(iii) Evacuate leaking components to the lowest level that can be attained without substantially contaminating the refrigerant. In no case shall this level exceed 0 psig.

TABLE 1.—REQUIRED LEVELS OF EVACUATION FOR APPLIANCES

[Except for small appliances, MVACs, and MVAC-like appliances]

Type of appliance	Inches of Hg vacuum (relative to standard atmospheric pressure of 29.9 inches Hg)	
	Using recovery or recycling equipment manufactured or imported before Nov. 15, 1993	Using recovery or recycling equipment manufactured or imported on or after Nov. 15, 1993
HCFC–22 appliance, or isolated component of such appliance, normally containing less than 200 pounds of refrigerant.	0	0.
HCFC–22 appliance, or isolated component of such appliance, normally containing less than 200 pounds of refrigerant.	0	0.
HCFC–22 appliance, or isolated component of such appliance, normally containing 200 pounds or more of refrigerant.	4	10.
Other high-pressure appliance, or isolated component of such appliance, normally containing less than 200 pounds of refrigerant.	4	10.
Other high-pressure appliance, or isolated component of such appliance, normally containing 200 pounds or more of refrigerant.	4	15.
Very high-pressure appliance	0	0.
Low-pressure appliance	25	25 mm Hg absolute.

(4) Persons opening small appliances for maintenance, service, or repair must:

(i) When using recycling and recovery equipment manufactured before November 15, 1993, recover 80% of the refrigerant in the small appliance; or

(ii) When using recycling or recovery equipment manufactured on or after November 15, 1993, recover 90% of the refrigerant in the appliance when the compressor in the appliance is operating, or 80% of the refrigerant in the appliance when the compressor in the appliance is not operating; or

(iii) Evacuate the small appliance to four inches of mercury vacuum.

(5) Persons opening MVAC-like appliances for maintenance, service, or repair may do so only while properly using, as defined at § 82.32(e), recycling or recovery equipment certified pursuant to § 82.158 (f) or (g), as applicable.

(b) Effective October 18, 1994, all persons opening appliances except for small appliances and MVACs for maintenance, service, or repair and all persons disposing of appliances except small appliances, MVACs, and MVAC-like appliances must have at least one piece of certified, self-contained recovery or recycling equipment available at their place of business. Persons who maintain, service, repair, or dispose of only appliances that they own and that contain pump-out units are exempt from this requirement. This exemption does not relieve such persons from other applicable requirements of § 82.156.

(c) System-dependent equipment shall not be used with appliances normally containing more than 15 pounds of refrigerant, unless the system-dependent equipment is permanently attached to the appliance as a pump-out unit.

(d) All recovery or recycling equipment shall be used in accordance with the manufacturer's directions unless such directions conflict with the requirements of this subpart.

(e) Refrigerant may be returned to the appliance from which it is recovered or to another appliance owned by the same person without being recycled or reclaimed, unless the appliance is an MVAC or MVAC-like appliance.

(f) Effective July 13, 1993, persons who take the final step in the disposal process (including but not limited to scrap recyclers and landfill operators) of a small appliance, room air conditioning, MVACs, or MVAC-like appliances must either:

(1) Recover any remaining refrigerant from the appliance in accordance with paragraph (g) or (h) of this section, as applicable; or

(2) Verify that the refrigerant has been evacuated from the appliance or shipment of appliances previously. Such verification must include a signed statement from the person from whom the appliance or shipment of appliances is obtained that all refrigerant that had not leaked previously has been recovered from the appliance or shipment of appliances in accordance with paragraph (g) or (h) of this section, as applicable. This statement must include the name and address of the person who recovered the refrigerant and the date the refrigerant was recovered or a contract that refrigerant will be removed prior to delivery.

(3) Persons complying with paragraph (f)(2) of this section must notify suppliers of appliances that refrigerant must be properly removed before delivery of the items to the facility. The form of this notification may be warning signs, letters to suppliers, or other equivalent means.

(g) All persons recovering refrigerant from MVACs and MVAC-like appliances for purposes of disposal of these appliances must reduce the system pressure to or below 102 mm of mercury vacuum, using equipment that meets the standards set forth in §82.158(l).

(h) All persons recovering the refrigerant from small appliances for purposes of disposal of these appliances must either:

(1) Recover 90% of the refrigerant in the appliance when the compressor in the appliance is operating, or 80% of the refrigerant in the appliance when the compressor in the appliance is not operating; or

(2) Evacuate the small appliance to four inches of mercury vacuum.

(i)(1) Owners or operators of commercial refrigeration equipment normally containing more than 50 pounds of refrigerant must have leaks repaired in accordance with paragraph (i)(9) of this section, if the appliance is leaking at a rate such that the loss of refrigerant will exceed 35 percent of the total charge during a 12-month period, except as described in paragraphs (i)(6), (i)(8), and (i)(10) of this section and paragraphs (i)(1)(i), (i)(1)(ii), and (i)(1)(iii) of this section. Repairs must bring the annual leak rate to below 35 percent.

(i) If the owners or operators of the federally-owned commercial refrigerant appliances determine that the leaks cannot be repaired in accordance with paragraph (i)(9) of this section and that an extension in accordance with the requirements discussed in this paragraph (i)(1)(i) of this section apply, they must document all repair efforts, and notify EPA of their inability to comply within the 30-day repair requirement, and the reason for the inability must be submitted to EPA in accordance with §82.166(n). Such notification must be made within 30 days of discovering the leaks. EPA will determine if the extension requested in accordance with the requirements discussed in paragraph (i)(1)(i) of this section is justified. If the extension is not justified, EPA will notify the owner/operator within 30 days of receipt of the notification.

(ii) Owners or operators of federally-owned commercial refrigeration equipment may have more than 30 days to repair leaks if the refrigeration appliance is located in an area subject to radiological contamination or where the shutting down of the appliance will directly lead to radiological contamination. Only the additional time needed to conduct and complete repairs in a safe working environment will be permitted.

(iii) Owners or operators of federally-owned commercial refrigeration equipment requesting or who are granted time extensions under this paragraph must comply with paragraphs (i)(3) and (i)(4) of this section.

(2) The owners or operators of industrial process refrigeration equipment normally containing more than 50 pounds of refrigerant must have leaks repaired if the appliance is leaking at a rate such that the loss of refrigerant will exceed 35 percent of the total charge during a 12-month period in accordance with paragraph (i)(9) of this section, except as described in paragraphs (i)(6), (i)(7) and (i)(10) of this section, and paragraphs (i)(2)(i) and (i)(2)(ii) of this section. Repairs must bring annual leak rates to below 35 percent during a 12-month period. If the owners or operators of the industrial process refrigeration equipment determine that the leak rate cannot be brought to below 35 percent during a 12-month period within 30 days (or 120 days, where an industrial process shutdown in accordance with paragraph (i)(2)(ii) of this section is required,) and in accordance with paragraph (i)(9) of this section, and that an extension in accordance with the requirements discussed in this paragraph apply, the owners or operators of the appliance must document all repair efforts, and notify EPA of the reason for the inability in accordance with § 82.166(n) within 30 days of making this determination. Owners or operators who obtain an extension pursuant to this section or elect to utilize the additional time provided in paragraph (i)(2)(i) of this section, must conduct all necessary leak repairs, if any, that do not require any additional time beyond the initial 30 or 120 days.

(i) The owners or operators of industrial process refrigeration equipment are permitted more than 30 days (or 120 days where an industrial process shutdown in accordance with paragraph (i)(2)(ii) of this section is required) to repair leaks, if the necessary parts are unavailable or if requirements of other applicable federal, state, or local regulations make a repair within 30 or 120 days impossible. Only the additional time needed to receive delivery of the necessary parts or to comply with the pertinent regulations will be permitted.

(ii) Owners or operators of industrial process refrigeration equipment will have a 120-day repair period, rather than a 30-day repair period, to repair leaks in instances where an industrial process shutdown is needed to repair a leak or leaks from industrial process refrigeration equipment.

(3) The owners or operators of industrial process refrigeration equipment who are granted additional time under paragraphs (i)(1), (i)(2), and (i)(5) of this section must ensure that the repair efforts performed be those that sound professional judgment indicate will be sufficient to bring the leak rates below the applicable allowable annual rate. When an industrial process shutdown has occurred or when repairs have been made while an appliance is mothballed, an initial verification test shall be conducted at the conclusion of the repairs and a follow-up verification test shall be conducted within 30 days of completing the repairs or within 30 days of bringing the appliance back on-line, if taken off-line, but no sooner than when the system has achieved normal operating characteristics and conditions. When repairs have been conducted without an industrial process shutdown or system mothballing, an initial verification test shall be conducted at the conclusion of the repair efforts and a follow-up verification test shall be conducted within 30 days after the initial follow-up verification test. In all cases, the follow-up verification test shall be conducted at normal operating characteristics and conditions unless sound professional judgment indicates that tests performed at normal operating characteristics and conditions will produce less reliable results, in which case the follow-up verification test shall be conducted at or near the normal operating pressure where practicable, and at or near the normal operating temperature if practicable, and within 30 days of completing the repair efforts.

(i) If industrial process refrigeration equipment is taken off line, it can not be brought back on-line until an initial verification test indicates that the repairs undertaken in accordance with paragraphs (i)(1) (i), (ii), and (iii), or (i)(2) (i) and (ii), or (5) (i), (ii) and (iii) of this section, have been successfully completed, demonstrating the leak or leaks are repaired or where the owners or operators of the industrial process refrigeration equipment will retrofit/

replace/retire the industrial process refrigeration equipment in accordance with paragraph (i)(6) of this section.

(ii) If the follow-up verification test indicates that the repairs to industrial process refrigeration equipment have not been successfully completed, the owner must retrofit or replace the equipment in accordance with paragraph (i)(6) of this section within one year after the failure to verify that the repairs had been successfully completed or such longer time period as may apply in accordance with paragraphs (i)(7) (i), (ii) and (iii) or (i)(8)(i) and (ii) of this section. The owners and operators of industrial process refrigeration equipment are relieved of this requirement if the conditions of paragraphs (i)(3)(iv) and/or (i)(3)(v) of this section are met.

(iii) The owner or operator of industrial process refrigeration equipment that fails a follow-up verification test must notify EPA within 30 days of the failed follow-up verification test in accordance with § 82.166(n).

(iv) The owner or operator is relieved of the obligation to retrofit or replace the industrial process refrigeration equipment as discussed in paragraph (i)(6) of this section if second repair efforts to fix the same leaks that were the subject of the first repair efforts are successfully completed within 30 days or 120 days where an industrial process shutdown is required, after the initial failed follow-up verification test. The second repair efforts are subject to the same verification requirements of paragraphs (i)(3), (i)(3) (i) and (ii) of this section. The owner or operator is required to notify EPA within 30 days of the successful follow-up verification test in accordance with § 82.166(n) and the owner or operator is no longer subject to the obligation to retrofit or replace the appliance that arose as a consequence of the initial failure to verify that the leak repair efforts were successful.

(v) The owner or operator of industrial process refrigeration equipment is relieved of the obligation to retrofit or replace the equipment in accordance with paragraph (i)(6) of this section if within 180 days of the initial failed follow-up verification test, the owner or operator establishes that the appliance's annual leak rate does not exceed the applicable allowable annual leak rate, in accordance with paragraph (i)(4) of this section. If the appliance's owner or operator establishes that the appliance's annual leak rate does not exceed the applicable allowable annual leak rate, the owner or operator is required to notify EPA within 30 days of that determination in accordance with § 82.166(n) and the owner or operator would no longer be subject to the obligation to retrofit or replace the equipment that arose as a consequence of the initial failure to verify that the leak repair efforts were successful.

(4) In the case of a failed follow-up verification test subject to paragraph (i)(3)(v) of this section, the determination of whether industrial process refrigeration equipment has an annual leak rate that exceeds the applicable allowable annual leak rate will be made in accordance with parameters identified by the owner or operator in its notice to EPA regarding the failure of the initial follow-up verification test, if those parameters are acceptable to EPA; otherwise by parameters selected by EPA. The determination must be based on the full charge for the affected industrial process refrigeration equipment. The leak rate determination parameters in the owner's or operator's notice will be considered acceptable unless EPA notifies the owners or operators within 30 days of receipt of the notice. Where EPA does not accept the parameters identified by the owner or operator in its notice, EPA will not provide additional time beyond the additional time permitted in paragraph (i)(3)(v) of this section unless specifically stated in the parameters selected by EPA.

(5) Owners or operators of appliances normally containing more than 50 pounds of refrigerant and not covered by paragraph (i)(1) or (i)(2) of this section must have leaks repaired in accordance with paragraph (i)(9) of this section if the appliance is leaking at a rate such that the loss of refrigerant will exceed 15 percent of the total charge during a 12-month period, except as described in paragraphs (i)(6), (i)(8) and (i)(10) of this section and paragraphs (i)(5)(i), (i)(5)(ii) and (i)(5)(iii) of this section. Repairs must

bring the annual leak rate to below 15 percent.

(i) If the owners or operators of federally-owned comfort-cooling appliances determine that the leaks cannot be repaired in accordance with paragraph (i)(9) of this section and that an extension in accordance with the requirements discussed in paragraph (i)(5) of this section apply, they must document all repair efforts, and notify EPA of their inability to comply within the 30-day repair requirement, and the reason for the inability must be submitted to EPA in accordance with § 82.166(n). Such notification must be made within 30 days of discovering that leak repair efforts cannot be completed within 30 days.

(ii) Owners or operators of federally-owned comfort-cooling appliances may have more than 30 days to repair leaks where the refrigeration appliance is located in an area subject to radiological contamination or where the shutting down of the appliance will directly lead to radiological contamination. Only the additional time needed to conduct and complete work in a safe environment will be permitted.

(iii) Owners or operators of federally-owned comfort-cooling appliances requesting, or who are granted, time extensions under this paragraph must comply with paragraphs (i)(3) and (i)(4) of this section.

(6) Owners or operators are not required to repair the leaks defined in paragraphs (i)(1), (i)(2) and (i)(5) of this section if, within 30 days of discovering the exceedance of the applicable leak rate or within 30 days of a failed follow-up verification test in accordance with paragraph (i)(3)(ii) of this section, they develop a one-year retrofit or retirement plan for the leaking appliance. This plan (or a legible copy) must be kept at the site of the appliance. The original must be made available for EPA inspection upon request. The plan must be dated and all work under the plan must be completed within one year of the plan's date, except as described in paragraphs (i)(7) and (i)(8) of this section. Owners are temporarily relieved of this obligation if the appliance has undergone system mothballing as defined in § 82.152.

(i) If the owner or operator has made good faith efforts to repair leaks in accordance with paragraphs (i)(1), (i)(2), or (i)(5) of this section, and has determined to proceed with a plan to retrofit or retire the appliance in accordance with paragraph (i)(6) of this section, the owner or operator must develop a retrofit or retirement plan within 30 days of the determination to retrofit or retire the appliance, to be completed within one year of when the owner or operator discovered that the leak rate exceeded the applicable allowable leak rate, except as provided in paragraphs (i)(7) and (i)(8) of this section.

(ii) In all cases, subject to paragraph (i)(6)(i) of this section, the written plan shall be prepared no later than 30 days after the owner or operator has determined to proceed with retrofitting or retiring the appliance. All reports required under § 82.166(o) shall be due at the time specified in the paragraph imposing the specific reporting requirement, or no later than 30 days after the decision to retrofit or retire the appliance, whichever is later.

(iii) In cases where the owner or operator of industrial process refrigeration equipment has made good faith efforts to retrofit or retire industrial process refrigeration equipment prior to August 8, 1995, and where these efforts are not complete, the owner or operator must develop a retrofit or retirement plan that will complete the retrofit or retirement of the affected appliance by August 8, 1996. This plan (or a legible copy) must be kept at the site of the appliance. The original must be made available for EPA inspection upon request. Where the conditions of paragraphs (i)(7) and (i)(8) of this section apply, and where the length of time necessary to complete the work is beyond August 8, 1996, all records must be submitted to EPA in accordance with § 82.166(o), as well as maintained on-site.

(7) The owners or operators of industrial process refrigeration equipment will be allowed additional time to complete the retrofit or retirement of industrial process refrigeration equipment if the conditions described in paragraphs (i)(7)(i) or (i)(7)(ii) of this

section are met. The owners or operators of industrial process refrigeration equipment will be allowed additional time beyond the additional time provided in paragraph (i)(7)(ii) of this section if the conditions described in paragraph (i)(7)(iii) of this section are met.

(i) Additional time, to the extent reasonably necessary will be allowed for retrofitting or retiring industrial process refrigeration equipment due to delays occasioned by the requirements of other applicable federal, state, or local laws or regulations, or due to the unavailability of a suitable replacement refrigerant with a lower ozone depletion potential. If these circumstances apply, the owner or operator of the facility must notify EPA within six months after the 30-day period following the discovery of an exceedance of the 35 percent leak rate. Records necessary to allow EPA to determine that these provisions apply and the length of time necessary to complete the work must be submitted to EPA in accordance with §82.166(o), as well as maintained on-site. EPA will notify the owner or operator of its determination within 60 days of receipt the submittal.

(ii) An additional one-year period beyond the initial one-year retrofit period is allowed for industrial process refrigeration equipment where the following criteria are met:

(A) The new or the retrofitted industrial process refrigerant equipment is custom-built;

(B) The supplier of the appliance or one or more of its critical components has quoted a delivery time of more than 30 weeks from when the order is placed;

(C) The owner or operator notifies EPA within six months of the expiration of the 30-day period following the discovery of an exceedance of the 35 percent leak rate to identify the owner or operator, describe the appliance involved, explain why more than one year is needed, and demonstrate that the first two criteria are met in accordance with §82.166(o); and

(D) The owner or operator maintains records that are adequate to allow a determination that the criteria are met.

(iii) The owners or operators of industrial process refrigeration equipment may request additional time to complete retrofitting or retiring industrial process refrigeration equipment beyond the additional one-year period if needed and where the initial additional one year was granted in accordance with paragraph (i)(7)(ii) of this section. The request shall be submitted to EPA before the end of the ninth month of the first additional year and shall include revisions of information required under §82.166(o). Unless EPA objects to this request submitted in accordance with §82.166(o) within 30 days of receipt, it shall be deemed approved.

(8) Owners or operators of federally-owned commercial or comfort-cooling appliances will be allowed an additional year to complete the retrofit or retirement of the appliances if the conditions described in paragraph (i)(8)(i) of this section are met, and will be allowed one year beyond the additional year if the conditions in paragraph (i)(8)(ii) of this section are met.

(i) Up to one additional one-year period beyond the initial one-year retrofit period is allowed for such equipment where the following criteria are met:

(A) Due to complications presented by the federal agency appropriations and/or procurement process, a delivery time of more than 30 weeks from the beginning of the official procurement process is quoted, or where the appliance is located in an area subject to radiological contamination and creating a safe working environment will require more than 30 weeks;

(B) The operator notifies EPA within six months of the expiration of the 30-day period following the discovery of an exceedance of the applicable allowable annual leak rate to identify the operator, describe the appliance involved, explain why more than one year is needed, and demonstrate that the first criterion is met in accordance with §82.166(o); and

(C) The operator maintains records adequate to allow a determination that the criteria are met.

(ii) The owners or operators of federally-owned commercial or comfort-cooling appliances may request additional time to complete retrofitting,

replacement or retiring such appliances beyond the additional one-year period if needed and where the initial additional one year was granted in accordance with paragraph (i)(8)(i) of this section. The request shall be submitted to EPA before the end of the ninth month of the first additional year and shall include revisions of information earlier submitted as required under § 82.166(o). Unless EPA objects to this request submitted in accordance with § 82.166(o) within 30 days of receipt, it shall be deemed approved.

(9) Owners or operators must repair leaks pursuant to paragraphs (i)(1), (i)(2) and (i)(5) of this section within 30 days after discovery, or within 30 days after when the leaks should have been discovered if the owners intentionally shielded themselves from information which would have revealed a leak, unless granted additional time pursuant to § 82.156(i).

(10) The amount of time for owners and operators to complete repairs, retrofit plans or retrofits/replacements/retirements under paragraphs (i)(1), (i)(2), (i)(5), (i)(6), (i)(7), (i)(8), and (i)(9) of this section is temporarily suspended at the time an appliance is mothballed as defined in § 82.152. The time for owners and operators to complete repairs, retrofit plans, or retrofits/replacements will resume on the day the appliance is brought back online and is no longer considered mothballed. All initial and follow-up verification tests must be performed in accordance with paragraphs (i)(3), (i)(3)(i), and (i)(3)(ii) of this section.

(11) In calculating annual leak rates, purged refrigerant that is destroyed at a verifiable destruction efficiency of 98 percent or greater will not be counted toward the leak rate. Owners or operators destroying purged refrigerants must maintain information as set forth in § 82.166(p)(1) and submit to EPA, within 60 days after the first time such exclusion is used by that facility, information set forth in § 82.166(p)(2).

[58 FR 28712, May 14, 1993, as amended at 59 FR 42956, 42962, Aug. 19, 1994; 59 FR 55926, Nov. 9, 1994; 60 FR 40440, Aug. 8, 1995]

§ 82.158 Standards for recycling and recovery equipment.

(a) Effective November 15, 1993, all manufacturers and importers of recycling and recovery equipment intended for use during the maintenance, service, or repair of appliances except MVACs and MVAC-like appliances or during the disposal of appliances except small appliances, MVACs, and MVAC-like appliances, shall have had such equipment certified by an approved equipment testing organization to meet the applicable requirements in paragraph (b) or (d) of this section. All manufacturers and importers of recycling and recovery equipment intended for use during the maintenance, service, or repair of MVAC-like appliances shall have had such equipment certified pursuant to § 82.36(a).

(b) Equipment manufactured or imported on or after November 15, 1993 for use during the maintenance, service, or repair of appliances except small appliances, MVACs, and MVAC-like appliances or during the disposal of appliances except small appliances, MVACs, and MVAC-like appliances must be certified by an approved equipment testing organization to meet the following requirements:

(1) In order to be certified, the equipment must be capable of achieving the level of evacuation specified in Table 2 of this section under the conditions of the ARI Standard 740–1993, Performance of Refrigerant Recovery, Recycling and/or Reclaim Equipment (ARI 740–1993) (Appendix B):

TABLE 2.—LEVELS OF EVACUATION WHICH MUST BE ACHIEVED BY RECOVERY OR RECYCLING EQUIPMENT INTENDED FOR USE WITH APPLIANCES [1]

[Manufactured on or after November 15, 1993]

Type of appliance with which recovery or recycling machine is intended to be used	Inches of Hg vacuum
HCFC–22 appliances, or isolated component of such appliances, normally containing less than 200 pounds of refrigerant	0
HCFC–22 appliances, or isolated component of such appliances, normally containing 200 pounds or more of refrigerant	10
Very high-pressure appliances	0
Other high-pressure appliances, or isolated component of such appliances, normally containing less than 200 pounds of refrigerant	10

TABLE 2.—LEVELS OF EVACUATION WHICH MUST BE ACHIEVED BY RECOVERY OR RECYCLING EQUIPMENT INTENDED FOR USE WITH APPLIANCES [1]—Continued

[Manufactured on or after November 15, 1993]

Type of appliance with which recovery or recycling machine is intended to be used	Inches of Hg vacuum
Other high-pressure appliances, or isolated component of such appliances, normally containing 200 pounds or more of refrigerant	15
Low-pressure appliances	[2] 25

[1] Except for small appliances, MVACs, and MVAC-like appliances.
[2] mm Hg absolute.

The vacuums specified in inches of Hg vacuum must be achieved relative to an atmospheric pressure of 29.9 inches of Hg absolute.

(2) Recovery or recycling equipment whose recovery efficiency cannot be tested according to the procedures in ARI 740–1993 may be certified if an approved third-party testing organization adopts and performs a test that demonstrates, to the satisfaction of the Administrator, that the recovery efficiency of that equipment is equal to or better than that of equipment that:

(i) Is intended for use with the same type of appliance; and

(ii) Achieves the level of evacuation in Table 2. The manufacturer's instructions must specify how to achieve the required recovery efficiency, and the equipment must be tested when used according to these instructions.

(3) The equipment must meet the minimum requirements for ARI certification under ARI 740–1993.

(4) If the equipment is equipped with a noncondensables purge device:

(i) The equipment must not release more than five percent of the quantity of refrigerant being recycled through noncondensables purging under the conditions of ARI 740–1993; and

(ii) Effective May 14, 1995, the equipment must not release more than three percent of the quantity of refrigerant being recycled through noncondensables purging under the conditions of ARI 740–1993.

(5) The equipment must be equipped with low-loss fittings on all hoses.

(6) The equipment must have its liquid recovery rate and its vapor recovery rate measured under the conditions of ARI 740–1993, unless the equipment has no inherent liquid or vapor recovery rate.

(c) Equipment manufactured or imported before November 15, 1993 for use during the maintenance, service, or repair of appliances except small appliances, MVACs, and MVAC-like appliances or during the disposal of appliances except small appliances, MVACs, and MVAC-like appliances will be considered certified if it is capable of achieving the level of evacuation specified in Table 3 of this section when tested using a properly calibrated pressure gauge:

TABLE 3.—LEVELS OF EVACUATION WHICH MUST BE ACHIEVED BY RECOVERY OR RECYCLING MACHINES INTENDED FOR USE WITH APPLIANCES [1]

[Manufactured before November 15, 1993]

Type of air-conditioning or refrigeration equipment with which recovery or recycling machine is intended to be used	Inches of vacuum (relative to standard atmospheric pressure of 29.9 inches Hg)
HCFC–22 equipment, or isolated component of such equipment, normally containing less than 200 pounds of refrigerant	0
HCFC–22 equipment, or isolated component of such equipment, normally containing 200 pounds or more of refrigerant	4
Very high-pressure equipment	0
Other high-pressure equipment, or isolated component of such equipment, normally containing less than 200 pounds of refrigerant	4
Other high-pressure equipment, or isolated component of such equipment, normally containing 200 pounds or more of refrigerant	4
Low-pressure equipment	25

[1] Except for small appliances, MVACs, and MVAC-like appliances.

(d) Equipment manufactured or imported on or after November 15, 1993 for use during the maintenance, service, or repair of small appliances must be certified by an approved equipment testing organization to be capable of either:

(1) Recovering 90% of the refrigerant in the test stand when the compressor of the test stand is operating and 80% of the refrigerant when the compressor of the test stand is not operating when used in accordance with the manufacturer's instructions under the conditions of appendix C, Method for Testing Recovery Devices for Use with Small Appliances; or

(2) Achieving a four-inch vacuum under the conditions of appendix B, ARI 740–1993.

(e) Equipment manufactured or imported before November 15, 1993 for use with small appliances will be considered certified if it is capable of either:

(1) Recovering 80% of the refrigerant in the system, whether or not the compressor of the test stand is operating, when used in accordance with the manufacturer's instructions under the conditions of appendix C, Method for Testing Recovery Devices for Use with Small Appliances; or

(2) Achieving a four-inch vacuum when tested using a properly calibrated pressure gauge.

(f) Equipment manufactured or imported on or after November 15, 1993 for use during the maintenance, service, or repair of MVAC-like appliances must be certified in accordance with § 82.36(a).

(g) Equipment manufactured or imported before November 15, 1993 for use during the maintenance, service, or repair of MVAC-like appliances must be capable of reducing the system pressure to 102 mm of mercury vacuum under the conditions of the SAE Standard, SAE J1990 (appendix A to 40 CFR part 82, subpart B).

(h) Manufacturers and importers of equipment certified under paragraphs (b) and (d) of this section must place a label on each piece of equipment stating the following:

THIS EQUIPMENT HAS BEEN CERTIFIED BY [APPROVED EQUIPMENT TESTING ORGANIZATION] TO MEET EPA's MINIMUM REQUIREMENTS FOR RECYCLING OR RECOVERY EQUIPMENT INTENDED FOR USE WITH [APPROPRIATE CATEGORY OF APPLIANCE].

The label shall also show the date of manufacture and the serial number (if applicable) of the equipment. The label shall be affixed in a readily visible or accessible location, be made of a material expected to last the lifetime of the equipment, present required information in a manner so that it is likely to remain legible for the lifetime of the equipment, and be affixed in such a manner that it cannot be removed from the equipment without damage to the label.

(i) The Administrator will maintain a list of equipment certified pursuant to paragraphs (b), (d), and (f) of this section by manufacturer and model. Persons interested in obtaining a copy of the list should send written inquiries to the address in § 82.160(a).

(j) Manufacturers or importers of recycling or recovery equipment intended for use during the maintenance, service, or repair of appliances except MVACs or MVAC-like appliances or during the disposal of appliances except small appliances, MVACs, and MVAC-like appliances must periodically have approved equipment testing organizations conduct either:

(1) Retests of certified recycling or recovery equipment; or

(2) Inspections of recycling or recovery equipment at manufacturing facilities to ensure that each equipment model line that has been certified under this section continues to meet the certification criteria.

Such retests or inspections must be conducted at least once every three years after the equipment is first certified.

(k) An equipment model line that has been certified under this section may have its certification revoked if it is subsequently determined to fail to meet the certification criteria. In such cases, the Administrator or her or his designated representative shall give notice to the manufacturer or importer setting forth the basis for her or his determination.

(l) Equipment used to evacuate refrigerant from MVACs and MVAC-like appliances before they are disposed of must be capable of reducing the system pressure to 102 mm of mercury vacuum under the conditions of the SAE Standard, SAE J1990 (appendix A to 40 CFR part 82, subpart B).

(m) Equipment used to evacuate refrigerant from small appliances before they are disposed of must be capable of either:

(1) Removing 90% of the refrigerant when the compressor of the small appliance is operating and 80% of the refrigerant when the compressor of the small appliance is not operating, when used in accordance with the manufacturer's instructions under the conditions of appendix C, Method for Testing

Recovery Devices for Use With Small Appliances; or

(2) Evacuating the small appliance to four inches of vacuum when tested using a properly calibrated pressure gauge.

[58 FR 28712, May 14, 1993, as amended at 59 FR 42957, Aug. 19, 1994]

§82.160 Approved equipment testing organizations.

(a) Any equipment testing organization may apply for approval by the Administrator to certify equipment pursuant to the standards in §82.158 and appendices B or C of this subpart. The application shall be sent to: Section 608 Recycling Program Manager, Stratospheric Protection Division, 6205–J, U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460.

(b) Applications for approval must include written information verifying the following:

(1) The list of equipment present at the organization that will be used for equipment testing.

(2) Expertise in equipment testing and the technical experience of the organization's personnel.

(3) Thorough knowledge of the standards as they appear in §82.158 and appendices B and/or C (as applicable) of this subpart.

(4) The organization must describe its program for verifying the performance of certified recycling and recovery equipment manufactured over the long term, specifying whether retests of equipment or inspections of equipment at manufacturing facilities will be used.

(5) The organization must have no conflict of interest and receive no direct or indirect financial benefit from the outcome of certification testing.

(6) The organization must agree to allow the Administrator access to records and personnel to verify the information contained in the application.

(c) Organizations may not certify equipment prior to receiving approval from EPA. If approval is denied under this section, the Administrator or her or his designated representative shall give written notice to the organization setting forth the basis for her or his determination.

(d) If at any time an approved testing organization is found to be conducting certification tests for the purposes of this subpart in a manner not consistent with the representations made in its application for approval under this section, the Administrator reserves the right to revoke approval. In such cases, the Administrator or her or his designated representative shall give notice to the organization setting forth the basis for her or his determination.

(e) Testing organizations seeking approval of an equipment certification program may also seek approval to certify equipment tested previously under the program. Interested organizations may submit to the Administrator at the address in §82.160(a) verification that the program met all of the standards in §82.160(b) and that equipment to be certified was tested to and met the applicable standards in §82.158 (b) or (d). Upon EPA approval, the previously tested equipment may be certified without being retested (except insofar as such retesting is part of the testing organization's program for verifying the performance of equipment manufactured over the long term, pursuant to §82.160(b)(4)).

[58 FR 28712, May 14, 1993, as amended at 59 FR 42962, Aug. 19, 1994]

§82.161 Technician certification.

(a) Effective November 14, 1994, technicians, except technicians who successfully completed voluntary certification programs that apply for approval under §82.161(g) by December 9, 1994, must be certified by an approved technician certification program under the requirements of this paragraph (a). Effective May 15, 1995, all technicians must be certified by an approved technician certification program under the requirements of this paragraph (a).

(1) Technicians who maintain, service, or repair small appliances as defined in §82.152(x) must be properly certified as Type I technicians.

(2) Technicians who maintain, service, or repair high or very high-pressure appliances, except small appliances and MVACs, or dispose of high or very high-pressure appliances, except small appliances and MVACs, must be properly certified as Type II technicians.

(3) Technicians who maintain, service, or repair low-pressure appliances or dispose of low-pressure appliances must be properly certified as Type III technicians.

(4) Technicians who maintain, service, or repair low- and high-pressure equipment as described in § 82.161(a) (1), (2) and (3) must be properly certified as Universal technicians.

(5) Technicians who maintain, service, or repair MVAC-like appliances must either be properly certified as Type II technicians or complete the training and certification test offered by a training and certification program approved under § 82.40.

(6) Apprentices are exempt from this requirement provided the apprentice is closely and continually supervised by a certified technician while performing any maintenance, service, repair, or disposal that could reasonably be expected to release refrigerant from appliances into the environment. The supervising certified technician is responsible for ensuring that the apprentice complies with this subpart.

(b) *Test Subject Material.* The Administrator shall maintain a bank of test questions divided into four groups, including a core group and three technical groups. The Administrator shall release this bank of questions only to approved technician certification programs. Tests for each type of certification shall include a minimum of 25 questions drawn from the core group and a minimum of 25 questions drawn from each relevant technical group. These questions shall address the subject areas listed in appendix D.

(c) *Program Approval.* Persons may seek approval of any technician certification program (program), in accordance with the provisions of this paragraph, by submitting to the Administrator at the address in § 82.160(a) verification that the program meets all of the standards listed in appendix D and the following standards:

(1) *Alternative Examinations.* Programs are encouraged to make provisions for non-English speaking technicians by providing tests in other languages or allowing the use of a translator when taking the test. If a translator is used, the certificate received must indicate that translator assistance was required. A test may be administered orally to any person who makes this request, in writing, to the program at least 30 days before the scheduled date for the examination. The letter must explain why the request is being made.

(2) *Recertification.* The Administrator reserves the right to specify the need for technician recertification at some future date, if necessary, by placing a notice in the FEDERAL REGISTER.

(3) *Proof of Certification.* Programs must issue individuals a wallet-sized card to be used as proof of certification, upon successful completion of the test. Programs must issue an identification card to technicians that receive a score of 70 percent or higher on the closed-book certification exam, within 30 days. Programs providing Type I certification using the mail-in format, must issue a permanent identification card to technicians that receive a score of 84 percent or higher on the certification exam, no later than 30 days after the program has received the exam and any additional required material. Each card must include, at minimum, the name of the certifying program, and the date the organization became a certifying program, the name of the person certified, the type of certification, a unique number for the certified person, and the following text:

[Name of person] has been certified as a [Type I, Type II, Type III, and/or Universal, as appropriate] technician as required by 40 CFR part 82, subpart F.

(4) The Administrator reserves the right to consider other factors deemed relevant to ensure the effectiveness of certification programs.

(d) If approval is denied under this section, the Administrator shall give written notice to the program setting forth the basis for her or his determination.

(e) If at any time an approved program violates any of the above requirements, the Administrator reserves the right to revoke approval. In such cases, the Administrator or her or his designated representative shall give notice to the organization setting forth the basis for her or his determination.

(f) Authorized representatives of the Administrator may require technicians

to demonstrate on the business entity's premises their ability to perform proper procedures for recovering and/or recycling refrigerant. Failure to demonstrate or failure to properly use the equipment may result in revocation of the certificate. Failure to abide by any of the provisions of this subpart may also result in revocation or suspension of the certificate. If a technician's certificate is revoked, the technician would need to recertify before maintaining, servicing, repairing or disposing of any appliances.

(g)(1) Any person seeking approval of a technician certification program may also seek approval to certify technicians who successfully completed a voluntary certification program operated previously by that person. Interested persons must submit to the Administrator at the address in §82.160(a) verification that the voluntary certification program substantially complied with most of the standards of §82.161(c) and appendix D of subpart F of this part. If the program did not test or train participants on some elements of the test subject material, the person must submit supplementary information on the omitted material to the Administrator for approval and verify that the approved information will be provided to technicians pursuant to section j of appendix D of subpart F of this part. In this case, the person may not issue a certification card to a technician until he or she has received a signed statement from the technician indicating that the technician has read the supplementary information. Approval may be granted for Type I, Type II, or Type III certification, or some combination of these, depending upon the coverage in the voluntary certification program of the information in each Type. In order to have their voluntary programs considered for approval, persons must submit applications both for approval as a technician certification program and for approval as a voluntary program by December 9, 1994.

(2)(i) Persons who are approved to certify technicians who successfully completed their voluntary programs pursuant to §82.161(g)(1) must:

(A) Notify technicians who successfully completed their voluntary programs of the Administrator's decision within 60 days of that decision;

(B) Send any supplementary materials required pursuant to §82.161(g)(1) to technicians who successfully completed their voluntary programs within 60 days of the Administrator's decision; and

(C) Send certification cards to technicians who successfully completed their voluntary programs within 60 days of receipt of signed statements from the technicians indicating that the technicians have read the supplementary information.

(ii) Persons who are disapproved to certify technicians who successfully completed their voluntary programs pursuant to §82.161(g)(1) must notify technicians who successfully completed their voluntary programs of the Administrator's decision within 30 days of that decision.

(iii) Persons who withdraw applications for voluntary program approval submitted pursuant to §82.161(g)(1) must inform technicians who successfully completed their voluntary programs of the withdrawal by the later of 30 days after the withdrawal or December 9, 1994.

(3) Technicians who successfully completed voluntary certification programs may receive certification in a given Type through that program only if:

(i) The voluntary certification program successfully completed by the technician is approved for that Type pursuant to §82.161(g)(1);

(ii) The technician successfully completed the portions of the voluntary certification program that correspond to that Type; and

(iii) The technician reads any supplementary materials required by the Administrator pursuant to §82.161(g)(1) and section j of appendix D of subpart F of this part, and returns the signed statement required by §82.161(g)(1).

[58 FR 28712, May 14, 1993, as amended at 59 FR 42957, 42962, Aug. 19, 1994]

§82.162 Certification by owners of recovery and recycling equipment.

(a) No later than August 12, 1993, or within 20 days of commencing business for those persons not in business at the

time of promulgation, persons maintaining, servicing, or repairing appliances except for MVACs, and persons disposing of appliances except for small appliances and MVACs, must certify to the Administrator that such person has acquired certified recovery or recycling equipment and is complying with the applicable requirements of this subpart. Such equipment may include system-dependent equipment but must include self-contained equipment, if the equipment is to be used in the maintenance, service, or repair of appliances except for small appliances. The owner or lessee of the recovery or recycling equipment may perform this certification for his or her employees. Certification shall take the form of a statement signed by the owner of the equipment or another responsible officer and setting forth:

(1) The name and address of the purchaser of the equipment, including the county name;

(2) The name and address of the establishment where each piece of equipment is or will be located;

(3) The number of service trucks (or other vehicles) used to transport technicians and equipment between the establishment and job sites and the field;

(4) The manufacturer name, the date of manufacture, and if applicable, the model and serial number of the equipment; and

(5) The certification must also include a statement that the equipment will be properly used in servicing or disposing of appliances and that the information given is true and correct. Owners or lessees of recycling or recovery equipment having their places of business in:

Connecticut
Maine
Massachusetts
New Hampshire
Rhode Island
Vermont

must send their certifications to:

CAA §608 Enforcement Contact, EPA Region I, Mail Code APC, JFK Federal Building, One Congress Street, Boston, MA 02203.

Owners or lessees of recycling or recovery equipment having their places of business in:

New York
New Jersey
Puerto Rico
Virgin Islands

must send their certifications to:

CAA §608 Enforcement Contact, EPA Region II, Jacob K. Javits Federal Building, 26 Federal Plaza, Room 5000, New York, NY 10278.

Owners or lessees of recycling or recovery equipment having their places of business in:

Delaware
District of Columbia
Maryland
Pennsylvania
Virginia
West Virginia

must send their certifications to:

CAA §608 Enforcement Contact, EPA Region III, Mail Code 3AT21, 841 Chestnut Building, Philadelphia, PA 19107.

Owners or lessees of recycling or recovery equipment having their places of business in:

Alabama
Florida
Georgia
Kentucky
Mississippi
North Carolina
South Carolina
Tennessee

must send their certifications to:

CAA §608 Enforcement Contact, EPA Region IV, 345 Courtland Street, NE., Mail Code APT–AE, Atlanta, GA 30365.

Owners or lessees of recycling or recovery equipment having their places of business in:

Illinois
Indiana
Michigan
Minnesota
Ohio
Wisconsin

must send their certifications to:

CAA §608 Enforcement Contact, EPA Region V, Mail Code AT18J, 77 W. Jackson Blvd., Chicago, IL 60604–3507.

Owners or lessees of recycling or recovery equipment having their places of business in:

Arkansas
Louisiana
New Mexico

Oklahoma
Texas

must send their certifications to:

CAA §608 Enforcement Contact, EPA Region VI, Mail Code 6T–EC, First Interstate Tower at Fountain Place, 1445 Ross Ave., Suite 1200, Dallas, TX 75202–2733.

Owners or lessees of recycling or recovery equipment having their places of business in:

Iowa
Kansas
Missouri
Nebraska

must send their certifications to:

CAA §608 Enforcement Contact, EPA Region VII, Mail Code ARTX/ARBR, 726 Minnesota Ave., Kansas City, KS 66101.

Owners or lessees of recycling or recovery equipment having their places of business in:

Colorado
Montana
North Dakota
South Dakota
Utah
Wyoming

must send their certifications to:

CAA §608 Enforcement Contact, EPA Region VIII, Mail Code 8AT–AP, 999 18th Street, Suite 500, Denver, CO 80202–2405.

Owners or lessees of recycling or recovery equipment having their places of business in:

American Samoa
Arizona
California
Guam
Hawaii
Nevada

must send their certifications to:

CAA §608 Enforcement Contact, EPA Region IX, Mail Code A–3, 75 Hawthorne Street, San Francisco, CA 94105.

Owners or lessees of recycling or recovery equipment having their places of business in:

Alaska
Idaho
Oregon
Washington

must send their certifications to:

CAA §608 Enforcement Contact, EPA Region X, Mail Code AT–082, 1200 Sixth Ave., Seattle, WA 98101.

(b) Certificates under paragraph (a) of this section are not transferable. In the event of a change of ownership of an entity that maintains, services, or repairs appliances except MVACs, or that disposes of appliances except small appliances, MVACs, and MVAC-like appliances, the new owner of the entity shall certify within 30 days of the change of ownership pursuant to paragraph (a) of this section.

(c) No later than August 12, 1993, persons recovering refrigerant from small appliances, MVACs, and MVAC-like appliances for purposes of disposal of these appliances must certify to the Administrator that such person has acquired recovery equipment that meets the standards set forth in §82.158 (l) and/or (m), as applicable, and that such person is complying with the applicable requirements of this subpart. Such equipment may include system-dependent equipment but must include self-contained equipment, if the equipment is to be used in the disposal of appliances except for small appliances. The owner or lessee of the recovery or recycling equipment may perform this certification for his or her employees. Certification shall take the form of a statement signed by the owner of the equipment or another responsible officer and setting forth:

(1) The name and address of the purchaser of the equipment, including the county name;

(2) The name and address of the establishment where each piece of equipment is or will be located;

(3) The number of service trucks (or other vehicles) used to transport technicians and equipment between the establishment and job sites and the field;

(4) The manufacturer's name, the date of manufacture, and if applicable, the model and serial number of the equipment; and

(5) The certification must also include a statement that the equipment will be properly used in recovering refrigerant from appliances and that the information given is true and correct. The certification shall be sent to the appropriate address in paragraph (a).

(d) Failure to abide by any of the provisions of this subpart may result in revocation or suspension of certification under paragraph (a) or (c) of this section. In such cases, the Administrator or her or his designated representative shall give notice to the organization setting forth the basis for her or his determination.

[58 FR 28712, May 14, 1993, as amended at 59 FR 42962, Aug. 19, 1994]

§ 82.164 Reclaimer certification.

Effective October 18, 1994, all persons reclaiming used refrigerant for sale to a new owner, except for persons who properly certified under this section prior to October 18, 1994, must certify to the Administrator that such person will:

(a) Return refrigerant to at least the standard of purity set forth in appendix A (based on ARI Standard 700–1993, Specifications for Fluorocarbon and Other Refrigerants);

(b) Verify this purity using the methods set forth in appendix A;

(c) Release no more than 1.5 percent of the refrigerant during the reclamation process; and

(d) Dispose of wastes from the reclamation process in accordance with all applicable laws and regulations.

(e) The data elements for certification are as follows:

(1) The name and address of the reclaimer;

(2) A list of equipment used to reprocess and analyze the refrigerant; and

(3) The owner or a responsible officer of the reclaimer must sign the certification stating that the refrigerant will be returned to at least the standard of purity set forth in appendix A, that the purity of the refrigerant will be verified using the methods set forth in appendix A, that no more than 1.5 percent of the refrigerant will be released during the reclamation process, that wastes from the reclamation process will be properly disposed of, and that the information given is true and correct. The certification should be sent to the following address: Section 608 Recycling Program Manager, Reclaimer Certification, Stratospheric Protection Division (6205J), U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460.

(f) Certificates are not transferable. In the event of a change in ownership of an entity which reclaims refrigerant, the new owner of the entity shall certify within 30 days of the change of ownership pursuant to this section.

(g) Failure to abide by any of the provisions of this subpart may result in revocation or suspension of the certification of the reclaimer. In such cases, the Administrator or her or his designated representative shall give notice to the organization setting forth the basis for her or his determination.

[58 FR 28712, May 14, 1993, as amended at 59 FR 42957, 42962, Aug. 19, 1994; 59 FR 55927, Nov. 9, 1994]

§ 82.166 Reporting and recordkeeping requirements.

(a) Effective November 14, 1994, all persons who sell or distribute any class I or class II substance for use as a refrigerant must retain invoices that indicate the name of the purchaser, the date of sale, and the quantity of refrigerant purchased.

(b) Purchasers of any class I or class II refrigerants who employ certified technicians may provide evidence that at least one technician is properly certified to the wholesaler who sells them refrigerant; the wholesaler will then keep this information on file and may sell refrigerant to the purchaser or his authorized representative even if such purchaser or authorized representative is not a properly certified technician. In such cases, the purchaser must notify the wholesaler in the event that the purchaser no longer employs at least one properly certified technician. The wholesaler is then prohibited from selling class I or class II refrigerants to the purchaser until such time as the purchaser employs at least one properly certified technician. At that time, the purchaser must provide new evidence that at least one technician is properly certified.

(c) Approved equipment testing organizations must maintain records of equipment testing and performance and a list of equipment that meets EPA requirements. A list of all certified equipment shall be submitted to

EPA within 30 days of the organization's approval by EPA and annually at the end of each calendar year thereafter.

(d) Approved equipment testing organizations shall submit to EPA within 30 days of the certification of a new model line of recycling or recovery equipment the name of the manufacturer and the name and/or serial number of the model line.

(e) Approved equipment testing organizations shall notify EPA if retests of equipment or inspections of manufacturing facilities conducted pursuant to §82.158(j) show that a previously certified model line fails to meet EPA requirements. Such notification must be received within thirty days of the retest or inspection.

(f) Programs certifying technicians must maintain records in accordance with section (g) of appendix D of this subpart.

(g) Reclaimers must maintain records of the names and addresses of persons sending them material for reclamation and the quantity of the material (the combined mass of refrigerant and contaminants) sent to them for reclamation. Such records shall be maintained on a transactional basis.

(h) Reclaimers must maintain records of the quantity of material sent to them for reclamation, the mass of refrigerant reclaimed, and the mass of waste products. Reclaimers must report this information to the Administrator annually within 30 days of the end of the calendar year.

(i) Persons disposing of small appliances, MVACs, and MVAC-like appliances must maintain copies of signed statements obtained pursuant to §82.156(f)(2).

(j) Persons servicing appliances normally containing 50 or more pounds of refrigerant must provide the owner/operator of such appliances with an invoice or other documentation, which indicates the amount of refrigerant added to the appliance.

(k) Owners/operators of appliances normally containing 50 or more pounds of refrigerant must keep servicing records documenting the date and type of service, as well as the quantity of refrigerant added. The owner/operator must keep records of refrigerant purchased and added to such appliances in cases where owners add their own refrigerant. Such records should indicate the date(s) when refrigerant is added.

(l) Technicians certified under §82.161 must keep a copy of their certificate at their place of business.

(m) All records required to be maintained pursuant to this section must be kept for a minimum of three years unless otherwise indicated. Entities that dispose of appliances must keep these records on-site.

(n) The owners or operators of appliances must maintain on-site and report to EPA at the address listed in §82.160 the following information, where such reporting and recordkeeping is required and within the timelines specified under §82.156 (i)(1), (i)(2), (i)(3) and (i)(5). This information must be relevant to the affected appliance and must include: identification of the facility; the leak rate; the method used to determine the leak rate and full charge; the date a leak rate of greater than the allowable annual leak rate was discovered; the location of leaks(s) to the extent determined to date; and any repair work that has been completed thus far and the date that work was completed.

(1) The reasons why more than 30 days are needed to complete the work and an estimate of when repair work will be completed must be submitted with the initial information submitted with the information listed in paragraph (n) of this section. If changes from the original estimate of when work will be completed result in moving the completion date forward from the date submitted to EPA, the reasons for these changes must be documented and submitted to EPA within 30 days of discovering the need for such a change.

(2) If the owners or operators intend to establish that the appliance's annual leak rate does not exceed the applicable allowable annual leak rate in accordance with §82.156(i)(3)(v), the owner or operator is required to submit a plan to fix other outstanding leaks for which repairs are planned but not yet completed to achieve a rate below the applicable allowable leak rate with the information listed in paragraph (n)

of this section. Identification of the facility and date the original information regarding additional time beyond the initial 30 days was filed, and notification of the determination that the leak rate no longer exceeds the allowable annual leak rate must be included within 30 days of making such determination.

(3) The dates and types of all initial and follow-up verification tests performed and the test results for all initial and follow-up verification tests must be maintained and submitted to EPA within 30 days after conducting each test where recordkeeping and reporting is required within the timelines specified under § 82.156 (i)(1), (i)(2), (i)(3) and (i)(5).

(o) The owners or operators of appliances must maintain on-site and report to EPA at the address specified in § 82.160 the following information where such reporting and recordkeeping is required and in the timelines specified in § 82.156 (i)(7) and (i)(8), in accordance with § 82.156 (i)(7) and (i)(8). This information must be relevant to the affected appliance and must include:

(1) The identification of the industrial process facility;

(2) The leak rate;

(3) The method used to determine the leak rate and full charge;

(4) The date a leak rate of 35 percent or greater was discovered;

(5) The location of leaks(s) to the extent determined to date;

(6) Any repair work that has been completed thus far and the date that work was completed;

(7) A plan to complete the retrofit or replacement of the system;

(8) The reasons why more than one year is necessary to retrofit to replace the system;

(9) The date of notification to EPA; and

(10) An estimate of when retrofit or replacement work will be completed.

(i) If the estimated date of completion changes from the original estimate and results in moving the date of completion forward, documentation of the reason for these changes must be submitted within 30 days of occurring.

(ii) If the estimated date of completion changes from the original estimate and results in moving the date of completion forward, the date of notification to EPA regarding this change and the estimate of when the work will be completed must be maintained and submitted.

(p)(1) Owners or operators who wish to exclude purged refrigerants that are destroyed from annual leak rate calculations must maintain records on-site to support the amount of refrigerant claimed as sent for destruction. Records shall be based on a monitoring strategy that provides reliable data to demonstrate that the amount of refrigerant claimed to have been destroyed is not greater than the amount of refrigerant actually purged and destroyed and that the 98 percent or greater destruction efficiency is met. Records shall include flow rate, quantity or concentration of the refrigerant in the vent stream, and periods of purge flow.

(2) Owners or operators who wish to exclude purged refrigerants that are destroyed from annual leak rate calculations must maintain on-site and make available to EPA upon request the following information after the first time the exclusion is utilized by the facility:

(i) The identification of the facility and a contact person, including the address and telephone number;

(ii) A general description of the refrigerant appliance, focusing on aspects of the appliance relevant to the purging of refrigerant and subsequent destruction;

(iii) A description of the methods used to determine the quantity of refrigerant sent for destruction and type of records that are being kept by the owners or operators where the appliance is located;

(iv) The frequency of monitoring and data-recording; and

(v) A description of the control device, and its destruction efficiency.

This information must also be included, where applicable, in any reporting requirements required for compliance with the leak repair and retrofit requirements for industrial process refrigeration equipment, as set forth in paragraphs (n) and (o) of this section.

(q) Owners or operators choosing to determine the full charge as defined in § 82.152 of an affected appliance by using an established range or using

that methodology in combination with other methods for determining the full charge defined in the following information:

(1) The identification of the owner or operator of the appliance;

(2) The location of the appliance;

(3) The original range for the full charge of the appliance, its midpoint, and how the range was determined;

(4) Any and all revisions of the full charge range and how they were determined; and

(5) The dates such revisions occurred.

[58 FR 28712, May 14, 1993, as amended at 59 FR 42957, Aug. 19, 1994; 60 FR 40443, Aug. 8, 1995]

APPENDIX A TO SUBPART F—SPECIFICATIONS FOR FLUOROCARBON REFRIGERANTS

This appendix is based on Air-Conditioning and Refrigeration Institute Standard 700–93:

Section 1. Purpose

1.1 *Purpose.* The purpose of this standard is to evaluate and accept/reject refrigerants regardless of source (new, reclaimed and/or repackaged) for use in new and existing refrigeration and air-conditioning products.

1.1.1 This standard is intended for the guidance of the industry including manufacturers, refrigerant reclaimers, repackagers, distributors, installers, servicemen, contractors and for consumers.

1.2 *Review and Amendment.* This standard is subject to review and amendment as the technology advances. The dynamics of this technology is advancing so rapidly that changes to this standard must be frequent.

Section 2. Scope

2.1 *Scope.* This standard specifies acceptable levels of contaminants (purity requirements) for various fluorocarbon refrigerants regardless of source and lists acceptable test methods. These refrigerants are R11; R12; R13; R22; R113; R114; R123; R124; R500; R502 and R503 as referenced in the ANSI/ASHRAE Standard Number Designation and Safety Classification of Refrigerants (American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc., Standard 34 1992). Copies may be obtained from ASHRAE Publications Sales, 1791 Tullie Circle, NE., Atlanta, GA 30329. Copies may also be inspected at Public Docket No. A–92–01, Waterside Mall (Ground Floor) Environmental Protection Agency, 401 M Street, SW., Washington, DC in room M–1500. In addition the following blends are listed: R22/152a/124 (53/13/34); R22/152a/124 (61/11/28); R125/290/22 (60/2/38); R125/290/22 (38/2/60).

Section 3. Definitions

3.1 *''Shall'', ''Should'', ''Recommended''*, or *''It Is Recommended''*. ''Shall'', ''should'', ''recommended'', or ''it is recommended'' shall be interpreted as follows:

3.1.1 *Shall.* Where ''shall'' or ''shall not'' is used for a provision specified, that provision is mandatory if compliance with the standard is claimed.

3.1.2 *Should, Recommended,* or *It is Recommended.* ''Should '', ''recommended'', or ''it is recommended'' is used to indicate provisions which are not mandatory but which are desirable as good practice.

Section 4. Characterization of Refrigerants and Contaminants

4.1 *Characterization.* Characterization of refrigerants and contaminants addressed are listed in the following general classifications:

4.1.1 *Characterization:*

a. Gas Chromatography

b. Boiling point and boiling point range

4.1.2 *Contaminants*

a. Water

b. Chloride

c. Acidity

d. High boiling residue

e. Particulates/solids

f. Non-condensables

g. Impurities including other refrigerants

Section 5. Sampling, Summary of Test Methods and Maximum Permissible Contaminant Levels

5.1 *Referee Test.* The referee test methods for the various contaminants are summarized in the following paragraphs. Detailed test procedures are included in Parts 1 through 9, 12 through 15, and 19 through 23 of Appendix–93 to ARI Standard 700: Analytical Procedures of ARI Standard 700–93, 1994, the Air-Conditioning and Refrigeration Institute. These parts of Appendix–93 to ARI 700 are incorporated by reference. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from the Air-Conditioning and Refrigeration Institute, 4301 North Fairfax Drive, Arlington, Virginia 22203. Copies may also be inspected at Public Docket No. A–92–01, Waterside Mall (Ground Floor) Environmental Protection Agency, 401 M Street, SW., Washington, DC in room M–1500 or at the Office of the Federal Register, 800 North Capitol Street, NW., Suite 700, Washington, DC. If alternate test methods are employed, the user must be able to demonstrate that they produce results equivalent to the specified referee method.

5.2 Refrigerant Sampling.

5.2.1 *Sampling Precautions.* Special precautions should be taken to assure that representative samples are obtained for analysis. Sampling shall be done by trained laboratory personnel following accepted sampling and safety procedures.

5.2.2 *Gas Phase Sample.* A gas phase sample shall be obtained for determining the noncondensables. Since non-condensable gases, if present, will concentrate in the vapor phase of the refrigerant, care must be exercised to eliminate introduction of air during the sample transfer. Purging is not an acceptable procedure for a gas phase sample since it may introduce a foreign product. Since R11, R113 and R123 have normal boiling points at or above room temperature, noncondensable determination is not required for these refrigerants.

5.2.2.1 *Connection.* The sample cylinder shall be connected to an evacuated gas sampling bulb by means of a manifold. The manifold should have a valve arrangement that facilitates evacuation of all connecting tubing leading to the sampling bulb.

5.2.2.2 *Equalizing Pressures.* After the manifold has been evacuated, close the valve to the pump and open the valve on the system. Allow the pressure to equilibrate and close valves.

5.2.3 *Liquid Phase Sample.* A liquid phase sample is required for all tests listed in this standard except the test for noncondensables.

5.2.3.1 *Preparation.* Place an empty sample cylinder with the valve open in an oven at 230 °F [110 °C] for one hour. Remove it from the oven while hot, immediately connect to an evacuation system and evacuate to less than 1 mm mercury (1000 microns). Close the valve and allow it to cool.

5.2.3.2 *Manifolding.* The valve and lines from the unit to be sampled shall be clean and dry. The cylinder shall be connected to an evacuated gas sampling cylinder by means of a manifold. The manifold should have a valve arrangement that facilitates evacuation of all connecting tubing leading to the sampling cylinder.

5.2.3.3 *Liquid Sampling.* After the manifold has been evacuated, close the valve to the pump and open the valve on the system. Take the sample as a liquid by chilling the sample cylinder slightly. Accurate analysis requires that the sample container be filled to at least 60% by volume, however under no circumstances should the cylinder be filled to more than 80% by volume. This can be accomplished by weighing the empty cylinder and then the cylinder with refrigerant. When the desired amount of refrigerant has been collected, close the valve(s) and disconnect the sample cylinder immediately.

5.2.3.4 *Record Weight.* Check the sample cylinder for leaks and record the gross weight.

5.3 Refrigerant Purity Characterization.

5.3.1 *Primary Method.* The primary method shall be gas chromatography (GC) as described in Appendix-93 to ARI Standard 700. The chromatogram of the sample shall be compared to known standards.

5.3.2 *Alternative Method.* Determination of the boiling point and boiling point range is an acceptable alternative test method which can be used to characterize refrigerants. The test method shall be that described in the Federal Specification for ''Fluorocarbon Refrigerants,'' BB–F–1421 B, dated March 5, 1982, section 4.4.3 which is incorporated by reference. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from the U.S. Government Printing Office, Superintendent of Documents, Mail Stop: SSOP, Washington, DC 20402–9328. Copies may also be inspected at Public Docket No. A–92–01, Waterside Mall (Ground Floor) Environmental Protection Agency, 401 M Street, SW., Washington, DC in room M–1500 or at the Office of the Federal Register, 800 North Capitol Street, NW., Suite 700, Washington, DC.

5.3.3 *Required Values.* The required values for boiling point and boiling point range are given in table 1, Physical Properties of Fluorocarbon Refrigerants and Maximum Contaminant Levels.

5.4 Water Content.

5.4.1 *Method.* The Coulometric Karl Fischer Titration shall be the primary test method for determining the water content of refrigerants. This method is described in Appendix-93 to ARI Standard 700. This method can be used for refrigerants that are either a liquid or a gas at room temperature, including refrigerants 11 and 113, and 123. For all refrigerants, the sample for water analysis shall be taken from the liquid phase of the container to be tested. Proper operation of the analytical method requires special equipment and an experienced operator. The precision of the results is excellent if proper sampling and handling procedures are followed. Refrigerants containing a colored dye can be successfully analyzed for water using this method.

5.4.2 *Alternative Method.* The Karl Fischer Test Method is an acceptable alternative test method to the Coulometric Karl Fischer Titration for determining the water content of refrigerants. This method is described in ASTM E700–79, (Reapproved 1990), Standard Test Method for Water in Gases Using Karl Fischer Reagent (American Society for Testing and Materials, Philadelphia, PA), which is incorporated by reference. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from the American Society for Testing and Materials, Philadelphia, PA.

Copies may also be inspected at Public Docket No. A–92–01, Waterside Mall (Ground Floor) Environmental Protection Agency, 401 M Street, SW., Washington, DC in room M–1500 or at the Office of the Federal Register, 800 North Capitol Street, NW., Suite 700, Washington, DC.

5.4.3 *Limits.* The value for water content shall be expressed as parts per million by weight and shall not exceed the maximum specified (see tables 1 and 1a).

5.5 *Chloride.* The refrigerant shall be tested for chloride as an indication of the presence of hydrochloric acid and/or metal chlorides. The recommended procedure is intended for use with new or reclaimed refrigerants. Significant amounts of oil may interfere with the results by indicating a failure in the absence of chloride.

5.5.1 *Method.* The test method shall be that described in Appendix-93 to ARI Standard 700. The test will show noticeable turbidity at chloride levels of about 3 ppm by weight or higher.

5.5.2 *Turbidity.* The results of the test shall not exhibit any sign of turbidity. Report the results as ''pass'' or ''fail.''

5.6 Acidity.

5.6.1 *Method.* The acidity test uses the titration principle to detect any compound that is highly soluble in water and ionizes as an acid. The test method shall be that described in Appendix- 93 to ARI Standard 700. This test may not be suitable for determination of high molecular weight organic acids; however these acids will be found in the high boiling residue test outlined in 5.7. The test requires a 100 to 120 gram sample and has a detection limit of 0.1 ppm by weight calculated as HCl.

5.6.2 *Limits.* The maximum permissible acidity is 1 ppm by weight as HCl.

5.7 High Boiling Residue.

5.7.1 *Method.* High boiling residue shall be determined by measuring the residue of a standard volume of refrigerant after evaporation. The refrigerant sample shall be evaporated at room temperature or at a temperature 50 °F [28K], above the boiling point of the sample using a Goetz bulb as specified in Appendix- 93 to ARI Standard 700. Oils and or organic acids will be captured by this method.

5.7.2 *Limits.* The value for high boiling residue shall be expressed as a percentage by volume and shall not exceed the maximum percent specified (see tables 1 and 1a).

5.8 Particulates/Solids.

5.8.1 *Method.* A measured amount of sample is evaporated from a Goetz bulb under controlled temperature conditions. The particulates/solids shall be determined by visual examination of the Goetz bulb prior to the evaporation of refrigerant. Presence of dirt, rust or other particulate contamination is reported as ''fail.'' For details of this test method, refer to Appendix-93 to ARI Standard 700.

5.9 Non-Condensables.

5.9.1 *Sample.* A vapor phase sample shall be used for determination of non-condensables. Non-condensable gases consist primarily of air accumulated in the vapor phase of refrigerants. The solubility of air in the refrigerants liquid phase is extremely low and air is not significant as a liquid phase contaminant. The presence of non-condensable gases may reflect poor quality control in transferring refrigerants to storage tanks and cylinders.

5.9.2 *Method.* The test method shall be gas chromatography with a thermal conductivity detector as described in Appendix-93 to ARI Standard 700.

5.9.3 *Limit.* The maximum level of non-condensables in the vapor phase of a refrigerant in a container shall not exceed 1.5% by volume (see table 1 and 1a).

5.10 Impurities, including Other Refrigerants.

5.10.1 *Method.* The amount of other impurities including other refrigerants in the subject refrigerant shall be determined by gas chromatography as described in Appendix-93 to ARI Standard 700.

5.10.2 *Limit.* The subject refrigerant shall not contain more than 0.50% by weight of impurities including other refrigerants (see table 1 and 1a).

Section 6. Reporting Procedure

6.1 *Reporting Procedure.* The source (manufacturer, reclaimer or repackager) of the packaged refrigerant shall be identified. The refrigerant shall be identified by its accepted refrigerant number and/or its chemical name. Maximum permissible levels of contaminants are shown in table 1. Test results shall be tabulated in a like manner.

TABLE 1.—CHARACTERISTICS OF REFRIGERANTS AND MAXIMUM CONTAMINANT LEVELS

	Reporting units	Reference (subclause)	R11	R12	R13	R22	R113	R114	R123	R124
Characteristics*:										
Boiling Point*	F @ 1.00 atm		74.9	−21.6	−114.6	−41.4	117.6	38.8	82.6	12.2
	°C @ 1.00 atm		23.8	−29.8	−81.4	−40.8	47.6	3.8	27.9	−11.0
Boiling Point Range*	K		0.3	0.3	0.5	0.3	0.3	0.3	0.3	0.3
Typical Isomer Content	By weight						0–1%	0–30%	0–8%	0–5%
							R113a	R114a	R123a	R124a
Vapor phase contaminants:										
Air and other non-condensables	% by volume @ 25 °C	5.9	N/A**	1.5	1.5	1.5	N/A**	1.5	N/A**	1.5
Liquid phase contaminants:										
Water	ppm by weight	5.4	20	10	10	10	20	10	20	10
All other impurities including refrigerants	% by weight	5.10	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
High boiling residue	% by volume	5.7	0.01	0.01	0.05	0.01	0.03	0.01	0.01	0.01
Particulates/solids	Visually clean to pass	5.8	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Acidity	ppm by weight	5.6	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Chlorides***	No visible turbidity	5.5	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass

*Boiling points and boiling point ranges, although not required, are provided for informational purposes.
**Since R11, R113 and R123 have normal boiling points at or above room temperature, non-condensable determinations are not required for these refrigerants.
***Recognized Chloride level for pass/fail is 3ppm.

TABLE 1A.—CHARACTERISTCS OF REFRIGERANTS AND MAXIMUM CONTAMINANT LEVELS

	Reporting units	Reference (subclause)	R401A	R401B	R402A	R402B	R500	R502	R503
Characteristics*:									
Refrigerant Components			R22/152a/124	R22/152a/124	R125/290/22	R125/290/22	R12/152A	522/115	R23/13
Nominal Comp, weight%			53/13/34	61/11/28	60/2/38	38/2/60	73.8/26.2	48.8/51.2	40.1/59.9
Allowable Comp, weight%			51–55/11.5–13.5/33–35	59–63/9.5–11.5/27–29	58–62/1–3/36–40	6–40/1–3/58–62	72.8–74.8/25.2–27.2	44.8–52.8/47.2–55.2	39–41/59–61
Boiling Point*	F @ 1.00 atm		−27.6 to −16.0	−30.4 to −18.5	−56.5 to −52.9	−53.3 to −49.0			
	C @ 1.00 atm		−33.4 to −26.6	−34.7 to −28.6	−49.1 to −47.2	−47.4 to −45.0	−33.5	−45.4	−88.7
Boiling Point Range*	K						0.5	0.5	0.5
Vapor Phase Contaminants:									
Air and other non-condensables	% by volume @ 25°C	5.9	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Liquid Phase Contaminants:									
Water	ppm by weight	5.4	10	10	10	10	10	10	10
All other impurities including refrigerants	% by weight	5.10	0.50	0.50	0.50	0.50	0.50	0.50	0.50
High boiling residue	% by volume	5.7	0.01	0.01	0.01	0.01	0.05	0.01	0.01
Particulates/solids	Visually clean to pass	5.8	Pass	Pass	Pass	Pass	Pass	Pass	Pass

Acidity	ppm by weight	5.6	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Chlorides**	No visible turbidity	5.5	Pass	Pass	Pass	Pass	Pass	Pass	Pass

*Boiling points and boiling point ranges, although not required, are provided for informational purposes.
**Recognized Chloride level for pass/fail is 3ppm.

[59 FR 42957, Aug. 19, 1994]

APPENDIX B TO SUBPART F—PERFORMANCE OF REFRIGERANT RECOVERY, RECYCLING AND/OR RECLAIM EQUIPMENT

This appendix is based on Air-Conditioning and Refrigeration Institute Standard 740–93.

REFRIGERANT RECOVERY/RECYCLING EQUIPMENT

Section 1. Purpose

1.1 *Purpose.* The purpose of this standard is to establish methods of testing for rating and evaluating the performance of refrigerant recovery, and/or recycling equipment, and general equipment requirements (herein referred to as ''equipment'') for containment or purity levels, capacity, speed, and purge loss to minimize emission into the atmosphere of designated refrigerants.

1.1.1 This standard is intended for the guidance of the industry, including manufacturers, refrigerant reclaimers, repackers, distributors, installers, servicemen, contractors and for consumers.

1.1.2 This standard is not intended to be used as a guide in defining maximum levels of contaminants in recycled or reclaimed refrigerants used in various applications.

1.2 *Review and Amendment.* This standard is subject to review and amendment as the technology advances.

Section 2. Scope

2.1 *Scope.* This standard defines general equipment requirements and the test apparatus, test mixtures, sampling and analysis techniques that will be used to determine the performance of recovery and/or recycling equipment for various refrigerants including R11, R12, R13, R22, R113, R114, R123, R134a, R500, R502, and R503, as referenced in the ANSI/ASHRAE Standard 34–1992, ''Number Designation of Refrigerants'' (American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc.).

Section 3. Definitions

3.1 *Recovered refrigerant.* Refrigerant that has been removed from a system for the purpose of storage, recycling, reclamation or transportation.

3.2 *Recover.* To remove refrigerant in any condition from a system and store it in an external container without necessarily testing or processing it in any way.

3.3 *Recycle.* To reduce contaminants in used refrigerant by oil separation, non-condensable removal and single or multiple passes through devices which reduce moisture, acidity and particulate matter, such as replaceable core filter-driers. This term usually applies to procedures implemented at the field job site or in a local service shop.

3.4 *Reclaim.* To reprocess refrigerant to new product specifications by means which may include distillation. Chemical analysis of the refrigerant is required to determine that appropriate product specifications are met. The identification of contaminants, required chemical analysis, and acceptable contaminant levels will be established in the latest edition of ARI Standard 700 ''Specifications of Fluorocarbon and other Refrigerants.'' This term usually implies the use of processes or procedures available only at a reprocessing or manufacturing facility.

3.5 *Standard Contaminated Refrigerant Sample.* A mixture of new and/or reclaimed refrigerant and specified quantities of identified contaminants which are representative of field obtained, used refrigerant samples and which constitute the mixture to be processed by the equipment under test.

3.6 *Push/Pull Method.* The push/pull refrigerant recovery method is defined as the process of transferring liquid refrigerant from a refrigeration system to a receiving vessel by lowering the pressure in the vessel and raising the pressure in the system, and by connecting a separate line between the system liquid port and the receiving vessel.

3.7 *Recycle Rate.* The amount of refrigerant processed (in pounds) divided by the time elapsed in the recycling mode in pounds per minute. For equipment which uses a separate recycling sequence, the recycle rate does not include the recovery rate (or elapsed time). For equipment which does not use a separate recycling sequence, the recycle rate is a maximum rate based solely on the higher of the liquid or vapor recovery rate, by which the rated contaminant levels can be achieved.

3.8 *Equipment Classification.*

3.8.1 *Self Contained Equipment.* A refrigerant recovery or recycling system which is capable of refrigerant extraction without the assistance of components contained within an air conditioning or refrigeration system.

3.8.2 *System Dependent Equipment.* Refrigerant recovery equipment which requires for its operation the assistance of components contained in an air conditioning or refrigeration system.

3.9 *''Shall'', ''Should'', ''Recommended''* or *''It is Recommended''*, ''Shall'' ''Should'', ''recommended'', or ''it is recommended'' shall be interpreted as follows:

3.9.1 *Shall.* Where ''shall'' or ''shall not'' is used for a provision specified, that provision is mandatory if compliance with the standard is claimed.

3.9.2 *Should, Recommended,* or *It is Recommended,* ''Should'', ''recommended'', is used to indicate provisions which are not mandatory but which are desirable as good practice.

Section 4. General Equipment Requirements

4.1 The equipment manufacturer shall provide operating instructions, necessary maintenance procedures, and source information for replacement parts and repair.

4.2 The equipment shall indicate when any filter/drier(s) needs replacement. This requirement can be met by use of a moisture transducer and indicator light, by use of a sight glass/moisture indicator, or by some measurement of the amount of refrigerant processed such as a flow meter or hour meter. Written instructions such as ''to change the filter every 400 pounds, or every 30 days'' shall not be acceptable except for equipment in large systems where the Liquid Recovery Rate is greater than 25 lbs/min [11.3 Kg/min] where the filter/drier(s) would be changed for every job.

4.3 The equipment shall either automatically purge non-condensables if the rated level is exceeded or alert the operator that the non-condensable level has been exceeded. While air purge processes are subject to the requirements of this section, there is no specific requirement to include an air purge process for ''recycle'' equipment.

4.4 The equipment's refrigerant loss due to non-condensable purging shall not be exceeded 5% by weight of total recovered refrigerant. (See Section 9.4)

4.5 Internal hose assemblies shall not exceed a permeation rate of 12 pounds mass per square foot [5.8 g/cm^2] of internal surface per year at a temperature of 120 F [48.8 °C] for any designated refrigerant.

4.6 The equipment shall be evaluated at 75 F [24 °C] per 7.1. Normal operating conditions range from 50 °F to 104 F [10 °C to 40 °C].

4.7 *Exemptions:*

4.7.1 Equpment intended for recovery only shall be exempt from sections 4.2 and 4.3.

TABLE 1.—STANDARD CONTAMINATED REFRIGERANT SAMPLES

	R11	R12	R13	R22	R113	R114	R123	R134a	R500	R502	R503
Moisture content:											
PPM by weight of pure refrigerant	100	80	30	200	100	85	100	200	200	200	30
Particulate content:											
PPM by weight of pure refrigerant characterized by[1]	80	80	80	80	80	80	80	80	80	80	80
Acid content:											
PPM by weight of pure refrigerant—(mg KOH per kg refrig.) characterized by[2]	500	100	NA	500	400	200	500	100	100	100	NA
Mineral oil content:											
% by weight of pure refrigerant	20	5	NA	5	20	20	20	5	5	5	NA
Viscosity (SUS)	300	150	.....	300	300	300	300	150	150	150	.....
Non condensable gases air content % volume[3]	NA	3	3	3	NA	3	3	3	3	3	3

[1] Particulate content shall consist of inert materials and shall comply with particulate requirements in *ASHRAE* Standard 63.2, ''Method of Testing of Filtration Capacity of Refrigerant Liquid Line Filters and Filter Driers.''
[2] Acid consists of 60% oleic acid and 40% hydrochloric acid on a total number basis.
[3] Synthetic ester based oil.

Section 5. Contaminated Refrigerants

5.1 The standard contaminated refrigerant sample shall have the characteristics specified in Table 1, except as provided in 5.2

5.2 Recovery equipment not rated for any specific contaminant can be tested with new or reclaimed refrigerant.

Section 6. Test Apparatus

6.1 Self Contained Equipment Test Apparatus. The apparatus as shown in Figure 1 consists of a 3 cubic foot [0.085 m^3] mixing chamber with a conical-shaped bottom, although a larger mixing chamber is permissible. The size of the mixing chamber depends upon the size of the equipment. The outlet at the bottom of the cone and all restrictions and valves for liquid and vapor refrigerant lines in the test apparatus shall be a minimum of 0.375 in. [9.5 mm] inside diameter or equivalent. The minimum inside diameter for large equipment for use on chillers shall be 1.5 in. [38 mm.]. The mixing chamber

shall contain various ports for receiving liquid refrigerant, oil, and contaminants. A recirculating line connected from the bottom outlet through a recirculating pump and then to a top vapor port shall be provided for stirring of the mixture. Isolation valves may be required for the pump. Alternative stirring means may be used if demonstrated to be equally effective.

6.1.1 For liquid refrigerant feed, the liquid valve is opened. For vapor refrigerant feed, the vapor valve is opened and refrigerant passes through an evaporator coil. Flow is controlled by a thermostatic expansion valve to create 5 F [3 °C] superheat at an evaporator temperature of 70 F ±3 F[21 °C±2°]. The evaporator coil or equivalent evaporator means shall be either sized large enough for the largest system or be sized for each system.

6.1.2 An alternative method for vapor refrigerant feed is to pass through a boiler and then an automatic pressure regulating valve set at refrigerant saturation pressure at 75 F ±3 F [24 °C ±2 °C].

6.2 System Dependent Equipment Test Apparatus. This test apparatus is to be used for final recovery vacuum rating of all system dependent equipment.

6.2.1 The test apparatus shown in Figure 2 consists of a complete refrigeration system. The manufacturer shall identify the refrigerants to be tested. The test apparatus can be modified to facilitate operation or testing of the system dependent equipment if the modifications to the apparatus are specifically described within the manufacturer's literature. (*See Figure 2.*) A ¼ inch [6.3 mm] balance line shall be connected across the test apparatus between the high and low pressure sides, with an isolation valve located at the connection to the compressor high side. A ¼ inch [6.3 mm] access port with a valve core shall be located in the balance line for the purpose of measuring final recovery vacuum at the conclusion of the test.

FIGURE 1

Test Apparatus for Self-Contained Equipment

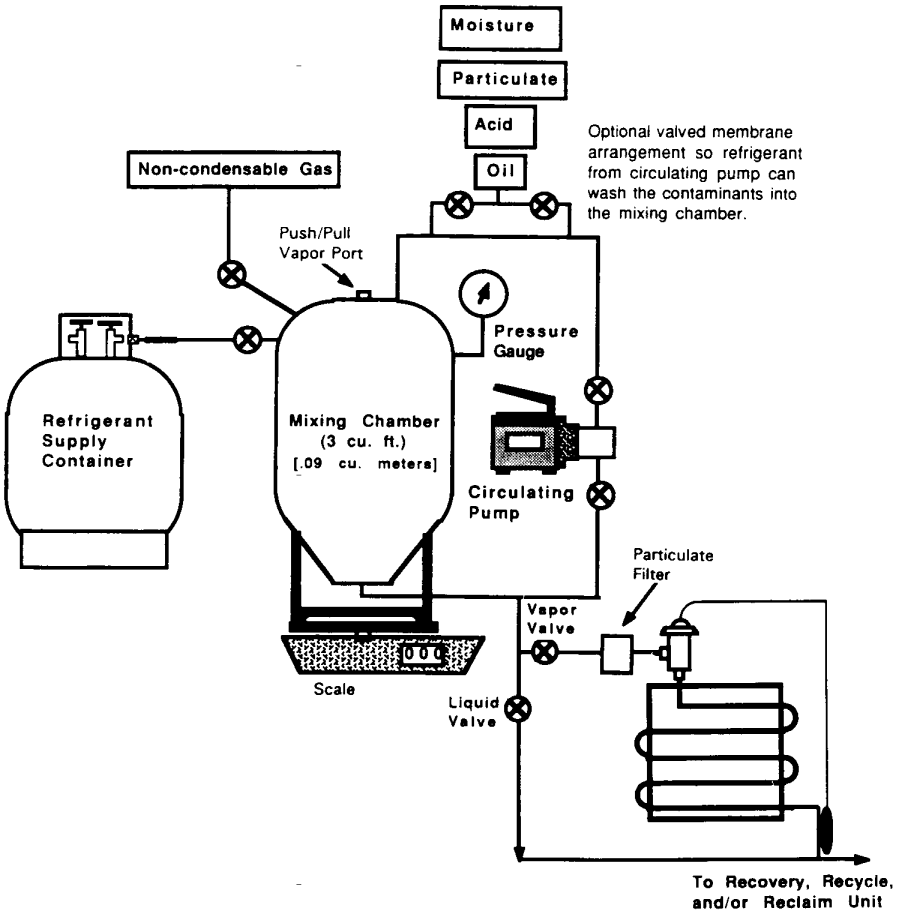
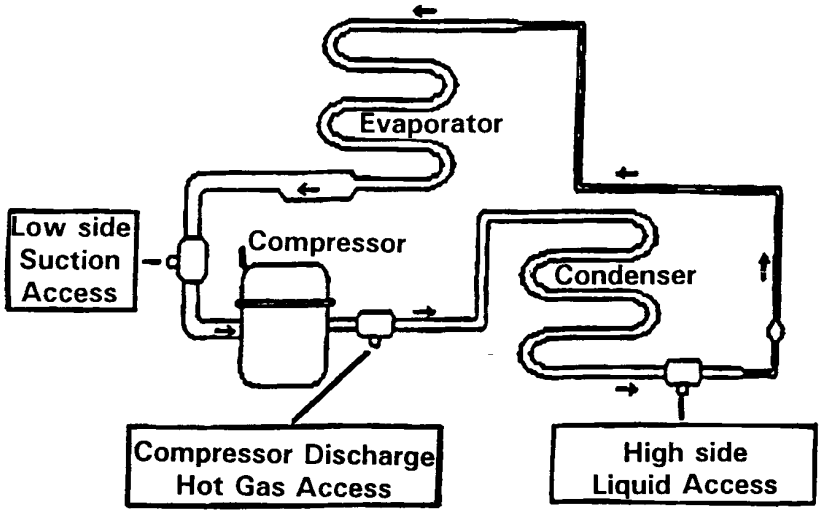


FIGURE 2

System-Dependent Equipment Test Apparatus

Configuration of a standard air conditioning or refrigeration system for use as a test apparatus



Section 7. Performance Testing

7.1 Contaminant removal and performance testing shall be conducted at 75 F ± 2 F [23.9 °C ±1.1 °C].

7.1.1 The equipment shall be prepared for operation per the instruction manual.

7.1.2 The contaminated sample batch shall consist of not less than the sum of the amounts required to complete steps 7.1.2.2 and 7.1.2.3 below.

7.1.2.1 A liquid sample shall be drawn from the mixing chamber prior to starting the test to assure quality control of the mixing process.

7.1.2.2 Vapor refrigerant feed testing, if elected, shall normally be processed first. After the equipment reaches stabilized conditions of condensing temperature and/or storage tank pressure, the vapor feed recovery rate shall be measured. One method is to start measuring the vapor refrigerant recovery rate when 85% of refrigerant remains in the mixing chamber and continue for a period of time sufficient to achieve the accuracy in 9.2. If liquid feed is not elected, complete Step 7.1.2.4.

7.1.2.3 Liquid refrigerant feed testing, if elected, shall be processed next. After the equipment reaches stabilized conditions, the liquid feed recovery rate shall be measured. One method is to wait 2 minutes after starting liquid feed and then measure the liquid refrigerant recovery rate for a period of time sufficient to achieve the accuracy in 9.1. Continue liquid recovery operation as called for in 7.1.2.4.

7.1.2.4 Continue recovery operation until all liquid is removed from the mixing chamber and vapor is removed to the point where the equipment shuts down per automatic means or is manually stopped per the operating instructions.

7.1.2.5 After collecting the first contaminated refrigerant sample batch, the liquid and vapor value of the apparatus shall be closed and the mixing chamber pressure recorded after 1 minute as required in 9.5. After preparing a second contaminated refrigerant sample batch, continue recovery until the storage container reaches 80% liquid fill level. After recycling and measuring

the recycle rate per section 7.1.3, set this container aside for the vapor sample in 8.2.2.

7.1.2.6 Interruptions in equipment operations as called for in instruction manual are allowable.

7.1.3 Recycle as called for in equipment operating instructions. Determine recycle rate by appropriate means as required in 9.3.

7.1.4 Repeat steps 7.1.2, 7.1.2.4, and 7.1.3 with contaminated refrigerant sample until equipment indicator(s) show need to change filter(s). It will not be necessary to repeat the recycle rate determination in 7.1.3.

7.1.4.1 For equipment with a multiple pass recirculating filter system, analyze the contents of the previous storage container.

7.1.4.2 For equipment with a single pass filter system, analyze the contents of the current storage container.

7.1.5 Refrigerant loss due to the equipment's non-condensable gas purge shall be determined by appropriate means. (See Section 9.4.)

7.2 System Dependent Equipment. This procedure shall be used for vacuum rating of all system dependent equipment. Liquid refrigerant recovery rate, vapor refrigerant recovery rate, and recycle rate are not tested on system dependent systems.

7.2.1 The apparatus operation and testing shall be conducted at 75 F ± 2 F. [23.9 °C. ±/ 1.1. °C.].

7.2.2 The apparatus shall be charged with refrigerant per its system design specifications.

7.2.3 For measurement of final recovery vacuum as required in 9.5, first shut the balance line isolation valve and wait 1 minute for pressure to balance. Then connect and operate the recovery system per manufacturers recommendations. When the evacuation is completed, open the balance line isolation valve and measure the pressure in the balance line.

Section 8. Sampling and Chemical Analysis Methods

8.1 The referee test methods for the various contaminants are summarized in the following paragraphs. Detailed test procedures are included in Appendix A ''Test Procedures for ARI STD 700.'' If alternate test methods are employed, the user must be able to demonstrate that they produce results equivalent to the specified referee method.

8.2 *Refrigerant Sampling.*

8.2.1 *Sampling Precautions.* Special precautions should be taken to assure that representative samples are obtained for analysis. Sampling shall be done by trained laboratory personnel following accepted sampling and safety procedures.

8.2.2 *Gas Phase Sample.* A gas phase sample shall be obtained for determining the non-condensables. Since non-condensable gases, if present, will concentrate in the vapor phase of the refrigerant, care must be exercised to eliminate introduction of air during the sample transfer. Purging is not and acceptable procedure for a gas phase sample since it may introduce a foreign product. Since R11, R113 and R123 have normal boiling points at or above room temperature, non-condensable determination is not required for these refrigerants.

8.2.2.1 The sample cylinder shall be connected to an evacuated gas sampling bulb by means of a manifold. The manifold should have a valve arrangement that facilitates evacuation of all connecting tubing leading to the sampling bulb.

8.2.2.2 After the manifold has been evacuated, close the valve to the pump and open the valve on the system. Allow the pressure to equilibrate and close valves.

8.2.3 *Liquid Phase Sample.* A liquid phase sample is required for all tests listed in this standard, except the test for non-condensables.

8.2.3.1 Place an empty sample cylinder with the valve open in an oven at 230 F [110°C] for one hour. Remove it from the oven while hot, immediately connect to an evacuation system and evacuate to less than 1mm. mercury (1000 microns). Close the valve and allow it to cool.

8.2.3.2 The valve and lines from the unit to be sampled shall be clean and dry. Connect the line to the sample cylinder loosely. Purge through the loose connection. Make the connection tight at the end of the purge period. Take the sample as a liquid by chilling the sample cylinder slightly. Accurate analysis requires that the sample container be filled to at least 60% by volume; however under no circumstances should the cylinder be filled to more than 80% by volume. This can be accomplished by weighing the empty cylinder and then the cylinder with refrigerant. When the desired amount of refrigerant has been collected, close the valve(s) and disconnect the sample cylinder immediately.

8.2.3.3 Check the sample cylinder for leaks and record the gross weight.

8.3 *Water Content.*

8.3.1. The Coulometric Karl Fischer Titration shall be the primary test method for determining the water content of refrigerants. This method is described in Appendix A. This method can be used for refrigerants that are either a liquid or a gas at room temperature, including Refrigerants 11 and 13. For all refrigerants, the sample for water analysis shall be taken from the liquid phase of the container to be tested. Proper operation of the analytical method requires special equipment and an experienced operator. The precision of the results is excellent if proper sampling and handling procedures are followed. Refrigerants containing a colored dye can be successfully analyzed for water using this method.

8.3.2 The Karl Fischer Test Method is an acceptable alternative test method for determining the water content of refrigerants. This method is described in ASTM Standard for ''Water in gases Using Karl Fisher Reagent'' E700–79, reapproved 1984 (American Society for Testing and Materials, Philadelphia, PA).

8.3.3 Report the moisture level in parts per million by weight if a sample is required.

8.4 *Chloride.* The refrigerant shall be tested for chlorides as an indication of the presence of hydrochloric or similar acids. The recommended procedure is intended for use with new or reclaimed refrigerants. Significant amounts of oil may interfere with the results by indicating a failure in the absence of chlorides.

8.4.1 The test method shall be that described in Appendix A ''Test Procedures for ARI–700.'' The test will show noticeable turbidity at equivalent chloride levels of about 3 ppm by weight or higher.

8.4.2 The results of the test shall not exhibit any sign of turbity. Report results as ''pass'' or ''fail.''

8.5 *Acidity.*

8.5.1 The acidity test uses the titration principle to detect any compound that is highly soluble in water and ionizes as an acid. The test method shall be that described in Appendix A. ''Test Procedures for ARI–700.'' The test may not be suitable for determination of high molecular weight organic acids; however these acids will be found in the high boiling residue test outlined in Section 5.7. The test requires about a 100 to 120 gram sample and has a low detection limit of 0.1 ppm by weight as HC1.

8.6 High Boiling Residue.

8.6.1 High boiling residue will be determined by measuring the residue of a standard volume of refrigerant after evaporation. The refrigerant sample shall be evaporated at room temperature or a temperature 50 F [10°.0C], above the boiling point of the sample using a Goetz tube as specified in Appendix A ''Test Procedures for ARI–700.'' Oils and or organic acids will be captured by this method.

8.6.2 The value for high boiling residue shall be expressed as a percentage by volume.

8.7 Particulates/Solids.

8.7.1 A measured amount of sample is evaporated from a Goetz bulb under controlled temperature conditions. The particulates/solids shall be determined by visual examination of the empty Goetz bulb after the sample has evaporated completely. Presence of dirt, rust or other particulate contamination is reported a ''fail.'' For details of this test method, refer to Appendix B ''Test Procedures for ARI–700.''

8.8 Non-Condensables

8.8.1 A vapor phase sample shall be used for determination of non-condensables. Non-condensable gases consist primarily of air accumulated in the vapor phase of refrigerant containing tanks. The solubility of air in the refrigerants liquid phase is extremely low and air is not significant as a liquid phase contaminant. The presence of non-condensable gases may reflect poor quality control in transferring refrigerants to storage tanks and cylinders.

8.8.2 The test method shall be gas chromatography with a thermal conductivity detector as described in Appendix A ''Test Procedures for ARI–700.''

8.8.2.1 The Federal Specification for ''Fluorocarbon Refrigerants,'' BB–F–1421B, dated March 5, 1992, section 4.4.2 (perchloroethylene method) is an acceptable alternate test method.

8.8.3 Report the level of non-condensable as percent by volume.

Section 9. Performance Calculation and Rating

9.1 The liquid refrigerant recovery rate shall be expressed in pounds per minute [kg/min] and measured by weight change at the mixing chamber (See Figure 1) divided by elapsed time to an accuracy within .02 lbs/min. [.009 kg/min]. Ratings using the Push/Pull method shall be identified ''Push/Pull''. Equipment may be rated by both methods.

9.2 The vapor refrigerant recovery rate shall be expressed in pounds per minute [kg/min] and measured by weight change at the mixing chamber (See Figure 1) divided by elapsed time to an accuracy within .02 lbs/min. [.0.009 kg/min].

9.3 The recycle rate is defined in 3.7 and expressed in pounds per minute [kg/min] of flow and shall be per ASHRAE 41.7–84 ''Procedure For Fluid Measurement Of Gases'' or ASHRAE 41.8–89 ''Standard Method of Flow of Fluids—Liquids.''

9.3.1 For equipment using multipass recycling or a separate sequence, the recycle rate shall be determined by dividing the net weight W of the refrigerant to be recycled by the actual time T required to recycle the refrigerant. Any set-up or operator interruptions shall not be included in the time T. The accuracy of the recycle rate shall be within .02 lbs/min. [.009 kg/min].

9.3.2 If no separate recycling sequence is used, the recycle rate shall be the higher of the vapor refrigerant recovery rate or the liquid refrigerant recovery rate. The recycle rate shall match a process which leads to contaminant levels in 9.6. Specifically, a recovery rate determined from bypassing a contaminant removal device cannot be used as a recycle rate when the contaminant levels in 9.6 are determined by passing the refrigerant through the containment removal device.

9.4 Refrigerant loss due to non-condensable purging shall be less than 5%. This rating shall be expressed as ''passed'' if less than 5%.

This calculation will be based upon net loss of non-condensables and refrigerant due to the purge divided by the initial net content. The net loss shall be determined by weighing before and after the purge, by collecting purged gases, or an equivalent method.

9.5 The final recovery vacuum shall be the mixing chamber pressure called for in 7.1.2.5 expressed in inches of mercury vacuum, [mm Hg or kP]. The accuracy of the measurement shall be within ±.1 inch [±2.5mm] of Hg and rounding down to the nearest whole number.

9.6 The contaminant levels remaining after testing shall be published as follows:

Moisture content, PPM by weight
Chloride ions, Pass/Fail
Acidity, PPM by weight
High boiling residue, percentage by volume
Particulate/solid, Pass/Fail
Non-condensables, % by volume

9.7 Product Literature: Except as provided under product labelling in Section 11. performance ratings per 9.1, 9.2, 9.3, and 9.5 must be grouped together and shown for all listed refrigerants (11.2) subject to limitations of 9.8. Wherever any contaminant levels per 9.6 are rated, all ratings in 9.6 must be shown for all listed refrigerants subject to limitations of 9.8. The type of equipment in 11.1 must be included with either grouping. Optional ratings in 9.8 need not be shown.

9.8 Ratings shall include all of the parameters for each designed refrigerant in 11.2 as shown in Tables 2 and 3.

TABLE 2.—PERFORMANCE

Parameter/type of equipment	Recovery	Recovery/recycle	Recycle	System dependent equipment
Liquid refrigerant recovery rate	(2)	(2)	N/A	N/A
Vapor refrigerant recovery rate	(2)	(2)	N/A	N/A
Final recovery vacuum	(1)	(1)	N/A	(1)
Recycle rate	N/A	(1)	(1)	N/A
Refrigerant loss due to non-condensable purging	(3)	(1)	(1)	N/A

[1] Mandatory rating.
[2] For a recovery or recovery/recycle unit, one must rate for either liquid feed only or vapor feed only or can rate for both. If rating only the one, the other shall be indicated by ''N/A.''
[3] For Recovery Equipment, these parameters are optional. If not rated, use N/A.

TABLE 3.—CONTAMINANTS

Contaminant/type of equipment	Recovery	Recovery/recycle	Recycle	System dependent equipment
Moisture content	(*)	x	x	NA.
Chloride ions	(*)	x	x	NA.
Acidity	(*)	x	x	NA.
High boiling residue	(*)	x	x	NA.
Particulates	(*)	x	x	NA.
Non-condensables	(*)	x	x	NA.

* For Recovery Equipment, these parameters are optional. If not rated, use N/A.
x Mandatory rating.

Section 10. Tolerances

10.1 Any equipment tested shall produce contaminant levels not higher than the published ratings. The liquid refrigerant recovery rate, vapor refrigerant recovery rate, final recovery vacuum and recycle rate shall not be less than the published ratings.

Section 11. Product Labelling

11.1 *Type of equipment.* The type of equipment shall be as listed:

11.1.1 Recovery only
11.1.2 System Dependent Recovery
11.1.3 Recovery/Recycle
11.1.4 Recycle only

11.2 Designated refrigerants and the following as applicable for each:

11.2.1 Liquid Recovery Rate
11.2.2 Vapor Recovery Rate
11.2.3 Final Recovery Vacuum
11.2.4 Recycle Rate

Section 12. Voluntary Conformance

12.1 *Conformance.* While conformance with this standard is voluntary, conformance shall not be claimed or implied for products or equipment within its Purpose (Section 1) and Scope (Section 2) unless such claims meet all of the requirements of the standards.

ATTACHMENT TO APPENDIX B

Particulate Used in Standard Contaminated Refrigerant Sample.

1. Particulate Specification

1.1 The particulate material pm will be a blend of 50% coarse air cleaner dust as received, and 50% retained on a 200-mesh screen. The coarse air cleaner dust is available from: AC Spark Plug Division, General Motors Corporation, Flint, Michigan.

1.2 Preparation of Particulate Materials

To prepare the blend of contaminant, first wet screen a quantity of coarse air cleaner dust on a 200-mesh screen (particle retention 74 pm). This is done by placing a portion of the dust on a 200-mesh screen and running water through the screen while stirring the dust with the fingers. The fine contaminant particles passing through the screen are discarded. The +200 mesh particles collected on the screen are removed and dried for one hour at 230 F [110 °C]. The blend of standard contaminant is prepared by mixing 50% by weight of coarse air cleaner dust as received after drying for one hour at 230 F [110 °C] with 50% by weight of the +200 mesh screened dust.

1.3 The coarse air cleaner dust as received and the blend used as the standard contaminant have the following approximate particle size analysis: Wt. % in various size ranges, pm.

Size range	As received	Blend
0–5	12	6
5–10	12	6
10–20	14	7
20–40	23	11
40–80	30	32
80–200	9	38

[58 FR 28712, May 14, 1993, as amended at 59 FR 42960, Aug. 19, 1994]

APPENDIX C TO PART 82 SUBPART F—METHOD FOR TESTING RECOVERY DEVICES FOR USE WITH SMALL APPLIANCES

Recovery Efficiency Test Procedure for Refrigerant Recovery Equipment Used on Small Appliances

The following test procedure is utilized to evaluate the efficiency of equipment designed to recover ozone depleting refrigerants (or any substitute refrigerant subject to the recycling rules promulgated pursuant to section 608 of the Clean Air Act Amendments of 1990) from small appliances when service of those appliances requires entry into the sealed refrigeration system or when those appliances are destined for disposal. This procedure is designed to calculate on a weight or mass basis the percentage of a known charge of CFC–12 refrigerant removed and captured from a test stand refrigeration system. Captured refrigerant is that refrigerant delivered to a container suitable for shipment to a refrigerant reclaimer plus any refrigerant remaining in the recovery system in a manner that it will be transferred to a shipping container after additional recovery operations.

The test stand refrigeration system required for this procedure is constructed with standard equipment utilized in currently produced household refrigerator and freezer products. The procedure also accounts for compressor oils that might be added to or removed from the test stand compressor or any compressor used in the recovery system.

I. TEST STAND

Test stands are constructed in accordance with the following standards.

1. Evaporator—5/16 in. outside dia. with 30 cu. in. volume.
2. Condenser—¼ in. outside dia. with 20 cu. in volume.
3. Suction line capillary heat exchanger—appropriate for compressor used.
4. An 800–950 Btu/hr high side case (rotary) compressor; or (depending on the test senario);
5. An 800–9500 Btu/hr low side case (reciprocating) compressor.

A person seeking to have its recovery system certified shall specify the compressors by manufacturer and model that are to be used in test stands constructed for evaluation of its equipment, and the type and quantity of compressor to be used in those compressors. Only a compressor oil approved for use by the compressor's manufacturer may be specified, and the quantity of compressor oil specified shall be an appropriate quantity for the type of oil and compressor to be used. In order to reduce the cost of testing, the person seeking certification of its recovery system may supply an EPA approved third party testing laboratory with test stands meeting these standards for use in evaluating its recovery system.

II. TEST CONDITIONS

Tests are to be conducted at 75 degrees F, plus or minus 2 degrees F (23.9 C +/−1.1 C). Separate tests are conducted on both high side case compressor stands and low side case compressor stands. Separate tests are also conducted with the test stand compressor running during the recovery operation, and without the test stand compressor running during the recovery operation, to calculate the system's recovery efficiency under either condition.

These tests are to be performed using a representative model of all equipment used in the recovery system to deliver recovered

refrigerant to a container suitable for shipment to a refrigerant reclaimer. The test stands are to be equipped with access valves permanently installed as specific by the recovery system's vendor to represent the valves used with that system in actual field operations.

A series of five (5) recovery operations are to be performed for each compressor scenario and a recovery efficiency is calculated based on the total quantity of refrigerant captured during all five (5) recoveries. Alternatively, at the request of the recovery system's vendor, a recovery efficiency is to be calculated for each recovery event. In this case, a statistically significant number of recovery operations are to be performed. Determination of what is a statistically significant number of recoveries is to be calculated as set out below. These individual recovery efficiencies are then averaged.

There are four (4) compressor scenarios to be tested. These are a high side case compressor in working condition; a high side case compressor in nonworking condition; a low side case compressor in working condition; and a low side case compressor in nonworking condition. Recovery efficiencies calculated for the two working compressor scenarios are to be averaged to report a working compressor performance. The two nonworking compressor efficiencies are also to be averaged to report a nonworking compressor performance.

If large scale equipment is required in the system to deliver recovered refrigerant to a refrigerant reclaimer (eg. carbon desorption equipment) and it is not possible to have that equipment evaluated under the procedure, the system's vendor shall obtain engineering data on the performance of that large scale equipment that will reasonably demonstrate the percentage refrigerant lost when processed by that equipment. That data will be supplied to any person required to evaluate the performance of those systems. The following procedure will also be modified as needed to determine the weight of refrigerant recovered from a test stand and delivered to a container for shipment to the large process equipment for further processing. The percentage loss documented to occur during processing is then to be applied to the recovery efficiencies calculated in this modified procedure to determine the overall capture efficiency for the entire system.

The following are definitions of symbols used in the test procedure.

Test Stand:

''TSO'' means an original test stand weight.

''TSC'' means a charged test stand weight.

Shipping Containers:

''SCO'' means the original or empty weight of shipping container(s).

''SCF'' means the final or full weight of shipping container(s).

Recover/Transfer System:

''RSO'' means the original weight of a recovery/transfer system.

''RSF'' means the final weight of a recovery/transfer system.

''OL'' means the net amount of oil added/removed from the recovery device and/or transfer device between the beginning and end of the test for one compressor scenario.

Weighing steps are conducted with precision and accuracy of plus or minus 1.0 gram.

III. Test Procedure

1. Evacuate the test stand to 20 microns vacuum (pressure measured at a vacuum pump) for 12 hours.

2. Weigh the test stand (TSO).

3. If this is the first recovery operation being performed for a compressor scenario (or if a recovery efficiency is to be calculated for each recovery event), then weigh all devices used in the recovery system to deliver recovered refrigerant to a container suitable for shipment or delivery to a refrigerant reclaimer. Weigh only devices that can retain refrigerant in a manner that it will ultimately be transferred to a shipping container without significant release to the atmosphere (RSO).

4. Weigh final shipping containers (SCO).

5. Charge the test stand with an appropriate CFC–12 charge (either 6 oz. or 9 oz.).

6. Run the test stand for four (4) hours with 100% run time.

7. Turn off the test stand for twelve (12) hours. During this period evaporate all condensation that has collected on the test stand during step 6.

8. Weigh the test stand (TSC).

9. Recover CFC–12 from the test stand and perform all operations needed to transfer the recovered refrigerant to one of the shipping containers weighed in step 4. All recovery and transfer operations are to be performed in accordance with the operating instructions provided by the system's vendor. The compressor in the test stand is to remain ''off'' or be turned ''on'' during the recovery operation depending on whether the test is for a nonworking or working compressor performance evaluation. If a recovery efficiency is to be calculated for each recovery event, transfer the captured refrigerant to a shipping container and then skip to step 13. Otherwise continue. If the system allows for multiple recovery operations to be performed before transferring recovered refrigerant to a shipping container, the transfer operation can be delayed until either the maximum number of recovery operations allowed before a transfer is required have been performed, or the last of the five (5) recovery operations has been performed.

10. Perform any oil removal or oil addition operations needed to properly maintain the test stand and the devices used for recovery

or transfer operations. Determine the net weight of the oil added or removed from the recovery device and/or transfer device. (OP1 for oil added, OP2 for oil removed).

11. Evacuate the test stand to 20 microns vacuum for 4 hours.

12. Return to step 2 unless five (5) recovery operations have been performed.

13. Weigh all final shipping containers that received recovered refrigerant (SCF).

14. Weigh the equipment weighed in step three (3) above (RSF). If a recovery efficiency is to be calculated for each recovery event, perform calculations and return to step one (1) for additional recoveries.

IV. CALCULATIONS

A. *For Five (5) Consecutive Recoveries*

Refrigerant Recoverable equals the summation of charged test stand weights minus original test stand weights.

$$\text{Refrigerant Recoverable} = \sum_{i=1}^{5} \left(TSC_i - TSO_i\right)$$

Oil Loss equals the net weight of oil added to and removed from the recovery device and/or transfer device.

$$OL = \sum_{i=1}^{5} \left(OP1_i - OP2_i\right)$$

Refrigerant Recovered equals the final weight of shipping containers minus the initial weight of final shipping containers, plus final recovery system weight, minus original recovery system weight, plus the net value of all additions and removals of oil from the recovery and transfer devices.

$$\text{Refrigerant Recovered} = \left(\sum_{i=1}^{n} SCF_i - SCO_i\right) + RSF - RSO - OL$$

n=number of shipping containers used.

Recovery Efficiency equals Refrigerant Recovered divided by Refrigerant Recoverable times 100%.

$$\text{Recovery Efficiency} = \frac{\text{Refrigerant Recovered}}{\text{Refrigerant Recoverable}}\ 100\%$$

B. *For Individual Recoveries*

Refrigerant Recoverable equals the charged test stand weight minus the original test stand weight.

$$\text{Refrigerant Recoverable} = TSCO - TSO$$

Refrigerant Recovered equals the final weight of the shipping container minus the initial weight of the shipping container plus the final weight of the recovery system minus the original recovery system weight.

$$\text{Refrigerant Recovered} = SCF - SCO + RSF - RSO$$

Recovery Efficiency equals Refrigerant Recovered divided by Refrigerant Recoverable times 100 percent.

$$\text{Recovery Efficiency} = \frac{\text{Refrigerant Recovered}}{\text{Refrigerant Recoverable}}\ 100\%$$

C. *Calculation of a Statistically Significant Number of Recoveries*

$$N_{add} = \left((t*sd)/(.10*X)\right)^2 - N$$

Where:

N_{add}=the number of additional samples required to achieve 90% confidence.

sd=Standard deviation, or $(X/(N-1)^5)$

X=Sample average

N=Number of samples tested

Number of samples	t for 90% confidence
2	6.814
3	2.920
4	2.353
5	2.132
6	2.015
7	1.943
8	1.895
9	1.860
10	1.833

Procedure:

1. Compute N_{add} after completing two recoveries.
2. If $N_{add}>0$, then run an additional test.
3. Re-compute N_{add}. Continue to test additional samples until $N_{add}<0$.

V. Test Procedure Approval and Certification

Each vendor of capture equipment for small appliances desiring certification will provide a representative model of its capture system and its recommended recovery procedures to an EPA approved third party laboratory for testing in accordance with this procedure. The third party laboratory will certify recovery systems that when tested in accordance with this procedure demonstrate a sufficient recovery efficiency to meet EPA regulatory requirements.

APPENDIX D TO PART 82 SUBPART F—STANDARDS FOR BECOMING A CERTIFYING PROGRAM FOR TECHNICIANS

Standards for Certifying Programs

a. Test Preparation

Certification for Type II, Type III and Universal technicians will be dependent upon passage of a closed-book, proctored test, administered in a secure environment, by an EPA-approved certifying program.

Certification for Type I technicians will be dependent upon passage of an EPA-approved test, provided by an EPA-approved certifying program. Organizations providing Type I certification only, may chose either an on-site format, or a mail-in format, similar to what is permitted under the MVACs program.

Each certifying program must assemble tests by choosing a prescribed subset from the EPA test bank. EPA expects to have a test bank with a minimum of 500 questions, which will enable the certifying program to generate multiple tests in order to discourage cheating. Each test must include 25 questions drawn from Group 1 and 25 questions drawn from each relevant technical Group. Tests for Universal technicians will include 100 questions (25 from Group 1 and 25 from each relevant technical Group). Each 50-question test represents 10 percent of the total test bank. Questions should be divided in order to sufficiently cover each topic within the Group.

Each certifying program must show a method of randomly choosing which questions will be on the tests. Multiple versions of the test must be used during each testing event. Test answer sheets or (for those testing via the computer medium) computer files must include the name and address of the applicant, the name and address of the certifying program, and the date and location at which the test was administered.

Training material accompanying mail-in Type I tests must not include sample test questions mimicking the language of the certification test. All mail-in material will be subject to review by EPA.

Certifying programs may charge individuals reasonable fees for the administration of the tests. EPA will publish a list of all approved certifying programs periodically, including the fees charged by the programs. This information will be available from the Stratospheric Ozone Protection Hotline.

b. Proctoring

A certifying program for Type II, Type III and Universal technicians must designate or arrange for the designation of at least one proctor registered for each testing event. If more than 50 people are taking tests at the same time at a given site, the certifying organization must adhere to normal testing procedures, by designating at least one additional proctor or monitor for every 50 people taking tests at that site.

The certification test for Type II, Type III and Universal technicians is a closed-book exam. The proctors must ensure that the applicants for certification do not use any notes or training materials during testing. Desks or work space must be placed in a way that discourages cheating. The space and physical facilities are to be conducive to continuous surveillance by the proctors and monitors during testing.

The proctor may not receive any benefit from the outcome of the testing other than a fee for proctoring. Proctors cannot know in advance which questions are on the tests they are proctoring.

Proctors are required to verify the identity of individuals taking the test by examining photo identification. Acceptable forms of identification include but are not limited to drivers' licenses, government identification cards, passports, and military identification.

Certifying programs for Type I technicians using the mail-in format, must take sufficient measures at the test site to ensure that tests are completed honestly by each technician. Each test for Type I certification must provide a means of verifying the identification of the individual taking the test. Acceptable forms of identification include but are not limited to drivers' licenses numbers, social security numbers, and passport numbers.

c. Test Security

A certifying program must demonstrate the ability to ensure the confidentiality and security of the test questions and answer keys through strict accountability procedures. An organization interested in developing a technician certification program will be required to describe these test security procedures to EPA.

After the completion of a test, proctors must collect all test forms, answer sheets, scratch paper and notes. These items are to be placed in a sealed envelope.

d. Test Content

All technician certification tests will include 25 questions from Group I. Group I will ask questions in the following areas:

I. Environmental impact of CFCs and HCFCs
II. Laws and regulations
III. Changing industry outlook

Type I, Type II and Type III certification tests will include 25 questions from Group II. Group II will ask questions covering sector-specific issues in the following areas:

IV. Leak detection
V. Recovery Techniques
VI. Safety
VII. Shipping
VII. Disposal

Universal Certification will include 75 questions from Group II, with 25 from each of the three sector-specific areas.

e. Grading

Tests must be graded objectively. Certifying programs must inform the applicant of their test results no later than 30 days from the date of the test. Type I certifying programs using the mail-in format, must notify the applicants of their test results no later than 30 days from the date the certifying programs received the completed test and any required documentation. Certifying programs may mail or hand deliver the results.

The passing score for the closed-book Type I, Type II, Type III and Universal certification test is 70 percent. For Type I certification tests using the mail-in format, passing score is 84 percent.

f. Proof of Certification

Certifying programs must issue a standard wallet-sized identification card no later than 30 days from the date of the test. Type I certifying programs using mail-in formats must issue cards to certified technicians no later than 30 days from the date the certifying program receives the completed test and any required documentation.

Each wallet-sized identification card must include, at a minimum, the name of the certifying program including the date the certifying program received EPA approval, the name of the person certified, the type of certification, a unique number for the certified person and the following text:

[name of person] has been certified as [Type I, Type II, Type III and/or Universal—as appropriate] technician as required by 40 CFR part 82, subpart F.

g. Recordkeeping and Reporting Requirements

Certifying programs must maintain records for at least three years which include, but are not limited to, the names and addresses of all individuals taking the tests, the scores of all certification tests administered, and the dates and locations of all testing administered.

EPA must receive an activity report from all approved certifying programs by every January 30 and June 30, the first to be submitted following the first full six-month period for which the program has been approved by EPA. This report will include the pass/fail rate and testing schedules. This will allow the Agency to determine the relative progress and success of these programs. If the certifying program believes a test bank question needs to be modified, information about that question should also be included.

Approved certifying programs will receive a letter of approval from EPA. Each testing center must display a copy of that letter.

h. Additional Requirements

EPA will periodically inspect testing sites to ensure compliance with EPA regulations. If testing center discrepancies are found, they must be corrected within a specified time period. If discrepancies are not corrected, EPA may suspend or revoke the certifying programs's approval. The inspections will include but are not limited to a review of the certifying programs' provisions for test security, the availability of space and

facilities to conduct the administrative requirements and ensure the security of the tests, the availability of adequate testing facilities and spacing of the applicants during testing, a review of the proper procedures regarding accountability, and that there is no evidence of misconduct on the part of the certifying programs, their representatives and proctors, or the applicants for certification.

If the certifying programs offer training or provide review materials to the applicants, these endeavors are to be considered completely separate from the administration of the certification test.

i. Approval Process

EPA anticipates receiving a large number of applications from organizations seeking to become certifying programs. In order to certify as many technicians as possible in a reasonable amount of time, EPA will give priority to national programs. Below are the guidelines EPA will use:

First: Certifying programs providing at least 25 testing centers with a minimum of one site in at least 8 different states will be considered.

Second: Certifying programs forming regional networks with a minimum of 10 testing centers will be considered.

Third: Certifying programs providing testing centers in geographically isolated areas not sufficiently covered by the national or regional programs will be considered.

Fourth: All other programs applying for EPA approval will be considered.

Sample application forms may be obtained by contacting the Stratopheric Ozone Hotline at 1–800–296–1996.

j. Grandfathering

EPA will grandfather technicians who successfully completed voluntary programs whose operators seek and receive EPA approval to grandfather these technicians, in accordance with §82.161(g). As part of this process, these certifying programs may be required to send EPA-approved supplementary information to ensure the level of the technicians' knowledge. Technicians will be required to read this supplementary information as a condition of certification. The certifying programs will also issue new identification cards meeting the requirements specified above.

k. Sample Application

EPA has provided a sample application. The Agency designed the application to demonstrate the information certifying programs must provide to EPA. Programs are not required to use this form or this format.

[58 FR 28712, May 14, 1993, as amended at 59 FR 42960, 42962, Aug. 19, 1994; 59 FR 55927, Nov. 9, 1994]

Subpart G—Significant New Alternatives Policy Program

SOURCE: 59 FR 13147, Mar. 18, 1994, unless otherwise noted.

§82.170 Purpose and scope.

(a) The purpose of these regulations in this subpart is to implement section 612 of the Clean Air Act, as amended, regarding the safe alternatives policy on the acceptability of substitutes for ozone-depleting compounds. This program will henceforth be referred to as the ''Significant New Alternatives Policy'' (SNAP) program. The objectives of this program are to identify substitutes for ozone-depleting compounds, to evaluate the acceptability of those substitutes, to promote the use of those substitutes believed to present lower overall risks to human health and the environment, relative to the class I and class II compounds being replaced, as well as to other substitutes for the same end-use, and to prohibit the use of those substitutes found, based on the same comparisons, to increase overall risks.

(b) The regulations in this subpart describe persons and substitutes subject to reporting requirements under the SNAP program and explain preparation and submission of notices and petitions on substitutes. The regulations also establish Agency procedures for reviewing and processing EPA's determinations regarding notices and petitions on substitutes. Finally, the regulations prohibit the use of alternatives which EPA has determined may have adverse effects on human health or the environment where EPA has identified alternatives in particular industrial use sectors that on an overall basis, reduce risk to human health and the environment and are currently or potentially available. EPA will only prohibit substitutes where it has identified other substitutes for a specific application that are acceptable and are currently or potentially available.

(c) Notifications, petitions and other materials requested shall be sent to: SNAP Document Control Officer, U.S. Environmental Protection Agency (6205–J), 401 M Street, SW., Washington, DC 20460.

§ 82.172 Definitions.

Act means the Clean Air Act, as amended, 42 U.S.C. 7401 *et seq.*

Agency means the U.S. Environmental Protection Agency.

Application means a specific use within a major industrial sector end-use.

Class I or class II means the specific ozone-depleting compounds described in section 602 of the Act.

Decision means any final determination made by the Agency under section 612 of the Act on the acceptability or unacceptability of a substitute for a class I or II compound.

EPA means the U.S. Environmental Protection Agency.

End-use means processes or classes of specific applications within major industrial sectors where a substitute is used to replace an ozone-depleting substance.

Formulator means any person engaged in the preparation or formulation of a substitute, after chemical manufacture of the substitute or its components, for distribution or use in commerce.

Health and safety study or *study* means any study of any effect of a substitute or its components on health and safety, or the environment or both, including underlying data and epidemiological studies, studies of occupational, ambient, and consumer exposure to a substitute, toxicological, clinical, and ecological, or other studies of a substitute and its components, and any other pertinent test. Chemical identity is always part of a health and safety study. Information which arises as a result of a formal, disciplined study is included in the definition. Also included is information relating to the effects of a substitute or its components on health or the environment. Any available data that bear on the effects of a substitute or its components on health or the environment would be included. Examples include:

(1) Long- and short-term tests of mutagenicity, carcinogenicity, or teratogenicity; data on behavioral disorders; dermatoxicity; pharmacological effects; mammalian absorption, distribution, metabolism, and excretion; cumulative, additive, and synergistic effects; acute, subchronic, and chronic effects; and structure/activity analyses;

(2) Tests for ecological or other environmental effects on invertebrates, fish, or other animals, and plants, including: Acute toxicity tests, chronic toxicity tests, critical life stage tests, behavioral tests, algal growth tests, seed germination tests, microbial function tests, bioconcentration or bioaccumulation tests, and model ecosystem (microcosm) studies;

(3) Assessments of human and environmental exposure, including workplace exposure, and effects of a particular substitute on the environment, including surveys, tests, and studies of: Biological, photochemical, and chemical degradation; air, water and soil transport; biomagnification and bioconcentration; and chemical and physical properties, e.g., atmospheric lifetime, boiling point, vapor pressure, evaporation rates from soil and water, octanol/water partition coefficient, and water solubility;

(4) Monitoring data, when they have been aggregated and analyzed to measure the exposure of humans or the environment to a substitute; and

(5) Any assessments of risk to health or the environment resulting from the manufacture, processing, distribution in commerce, use, or disposal of the substitute or its components.

Importer means any person who imports a chemical substitute into the United States. *Importer* includes the person primarily liable for the payment of any duties on the merchandise or an authorized agent acting on his or her behalf. The term also includes, as appropriate:

(1) The consignee;

(2) The importer of record;

(3) The actual owner; and

(4) The transferee, if the right to draw merchandise in a bonded warehouse has been transferred.

Major Industrial Use Sector or Sector means an industrial category which EPA has reviewed under the SNAP program with historically high consumption patterns of ozone-depleting substances, including: Refrigeration and air conditioning; foam-blowing; fire suppression and explosion protection; solvents cleaning; aerosols; sterilants; tobacco expansion; pesticides; and adhesives, coatings and inks sectors.

Manufacturer means any person engaged in the direct manufacture of a substitute.

Mixture means any mixture or blend of two or more compounds.

Person includes an individual, corporation, partnership, association, state, municipality, political subdivision of a state, and any agency, department, or instrumentality of the United States and any officer, agent, or employee of such entities.

Pesticide has the meaning contained in the Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. 136 *et seq.* and the regulations issued under it.

Potentially available is defined as any alternative for which adequate health, safety, and environmental data, as required for the SNAP notification process, exist to make a determination of acceptability, and which the Agency reasonably believes to be technically feasible, even if not all testing has yet been completed and the alternative is not yet produced or sold.

Premanufacture Notice (PMN) Program has the meaning described in 40 CFR part 720, subpart A promulgated under the Toxic Substances Control Act, 15 U.S.C. 2601 *et seq.*

Producer means any person who manufactures, formulates or otherwise creates a substitute in its final form for distribution or use in interstate commerce.

Research and development means quantities of a substitute manufactured, imported, or processed or proposed to be manufactured, imported, or processed solely for research and development.

Residential use means use by a private individual of a chemical substance or any product containing the chemical substance in or around a permanent or temporary household, during recreation, or for any personal use or enjoyment. Use within a household for commercial or medical applications is not included in this definition, nor is use in automobiles, watercraft, or aircraft.

Significant new use means use of a new or existing substitute in a major industrial use sector as a result of the phaseout of ozone-depleting compounds.

Small uses means any use of a substitute in a sector other than a major industrial use sector, or production by any producer for use of a substitute in a major industrial sector of 10,000 lbs. or less per year.

Substitute or alternative means any chemical, product substitute, or alternative manufacturing process, whether existing or new, intended for use as a replacement for a class I or II compound.

Test marketing means the distribution in interstate commerce of a substitute to no more than a limited, defined number of potential customers to explore market viability in a competitive situation. Testing must be restricted to a defined testing period before the broader distribution of that substitute in interstate commerce.

Use means any use of a substitute for a Class I or Class II ozone-depleting compound, including but not limited to use in a manufacturing process or product, in consumption by the end-user, or in intermediate uses, such as formulation or packaging for other subsequent uses.

Use restrictions means restrictions on the use of a substitute imposing either conditions on how the substitute can be used across a sector end-use or limits on the end-uses or specific applications where it can be used within a sector.

§82.174 Prohibitions.

(a) No person may introduce a new substitute into interstate commerce before the expiration of 90 days after a notice is initially submitted to EPA under §82.176(a).

(b) No person may use a substitute which a person knows or has reason to know was manufactured, processed or imported in violation of the regulations in this subpart, or knows or has reason to know was manufactured, processed or imported in violation of any use restriction in the acceptability determination, after the effective date of any rulemaking imposing such restrictions.

(c) No person may use a substitute without adhering to any use restrictions set by the acceptability decision, after the effective date of any rulemaking imposing such restrictions.

(d) No person may use a substitute after the effective date of any rulemaking adding such substitute to the list of unacceptable substitutes.

(e) *Rules Stayed for Reconsideration.* Notwithstanding any other provision of this subpart, the effectiveness of subpart G is stayed from December 8, 1994, to March 8, 1995, only as applied to use of substitutes for export.

[59 FR 13147, Mar. 18, 1994, as amended at 59 FR 63256, Dec. 8, 1994; 60 FR 3303, Jan. 13, 1995]

§ 82.176 Applicability.

(a) Any producer of a new substitute must submit a notice of intent to introduce a substitute into interstate commerce 90 days prior to such introduction. Any producer of an existing substitute already in interstate commerce must submit a notice as of July 18, 1994, if such substitute has not already been reviewed and approved by the Agency.

(b) With respect to the following substitutes, producers are exempt from notification requirements:

(1) *Substitutes already listed as acceptable.* Producers need not submit notices on substitutes that are already listed as acceptable under SNAP.

(2) *Small sectors.* Persons using substitutes in sectors other than the nine principal sectors reviewed under this program are exempt from the notification requirements. This exemption shall not be construed to nullify an unacceptability determination or to allow use of an otherwise unacceptable substitute.

(3) *Small volume use within SNAP sectors.* Within the nine principal SNAP sectors, persons introducing a substitute whose expected volume of use amounts to less than 10,000 lbs. per year within a SNAP sector are exempt from notification requirements. This exemption shall not be construed to allow use of an otherwise unacceptable substitute in any quantity. Persons taking advantage of this exemption for small uses must maintain documentation for each substitute describing how the substitute meets this small use definition. This documentation must include annual production and sales information by sector.

(4) *Research and development.* Production of substitutes for the sole purpose of research and development is exempt from reporting requirements.

(5) *Test marketing.* Use of substitutes for the sole purpose of test marketing is exempt from SNAP notification requirements until 90 days prior to the introduction of such substitutes for full-scale commercial sale in interstate commerce. Persons taking advantage of this exemption are, however, required to notify the Agency in writing that they are conducting test marketing 30 days prior to the commencement of such marketing. Notification shall include the name of the substitute, the volume used in the test marketing, intended sector end-uses, and expected duration of the test marketing period.

(6) *Formulation changes.* In cases where replacement of class I or II compounds causes formulators to change other components in a product, formulators are exempt from reporting with respect to these auxiliary formulation changes. However, the SNAP submitter is required to notify the Agency if such changes are expected to significantly increase the environmental and human health risk associated with the use of any class I or class II substitute.

(7) *Substitutes used as feedstocks.* Producers of substitutes used as feedstocks which are largely or entirely consumed, transformed or destroyed in the manufacturing or use process are exempt from reporting requirements concerning such substitutes.

(c) Use of a substitute in the possession of an end-user as of March 18, 1994, listed as unacceptable or acceptable subject to narrowed use limits may continue until the individual end-users' existing supply, as of that date, of the substitute is exhausted. Use of substitutes purchased after March 18, 1994, is not permitted subsequent to April 18, 1994.

§ 82.178 Information required to be submitted.

(a) Persons whose substitutes are subject to reporting requirements pursuant to § 82.176 must provide the following information:

(1) *Name and description of the substitute.* The substitute should be identified by its: Chemical name; trade

name(s); identification numbers; chemical formula; and chemical structure.

(2) *Physical and chemical information.* The substitute should be characterized by its key properties including but not limited to: Molecular weight; physical state; melting point; boiling point; density; taste and/or odor threshold; solubility; partition coefficients (Log K_{ow}, Log K_{oc}); atmospheric lifetime and vapor pressure.

(3) *Substitute applications.* Identification of the applications within each sector end-use in which the substitutes are likely to be used.

(4) *Process description.* For each application identified, descriptive data on processing, including in-place pollution controls.

(5) *Ozone depletion potential.* The predicted 100-year ozone depletion potential (ODP) of substitute chemicals. The submitter must also provide supporting documentation or references.

(6) *Global warming impacts.* Data on the total global warming potential of the substitute, including information on the GWP index and the indirect contributions to global warming caused by the production or use of the substitute (e.g., changes in energy efficiency). GWP must be calculated over a 100, 500 and 1000-year integrated time horizon.

(7) *Toxicity data.* Health and safety studies on the effects of a substitute, its components, its impurities, and its degradation products on any organism (e.g., humans, mammals, fish, wildlife, and plants). For tests on mammals, the Agency requires a minimum submission of the following tests to characterize substitute risks: A range-finding study that considers the appropriate exposure pathway for the specific use (e.g., oral ingestion, inhalation, etc.), and a 90-day subchronic repeated dose study in an appropriate rodent species. For certain substitutes, a cardiotoxicity study is also required. Additional mammalian toxicity tests may be identified based on the substitute and application in question. To sufficiently characterize aquatic toxicity concerns, both acute and chronic toxicity data for a variety of species are required. For this purpose, the Agency requires a minimum data set as described in ''Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and their Uses,'' which is available through the National Technical Information Service (#PB 85–227049). Other relevant information and data summaries, such as the Material Safety Data Sheets (MSDS), should also be submitted. To assist in locating any studies previously submitted to EPA and referred to, but not included in a SNAP submission, the submitter must provide citations for the date, type of submission, and EPA Office to which they were submitted, to help EPA locate these quickly.

(8) *Environmental fate and transport.* Where available, information must be submitted on the environmental fate and transport of substitutes. Such data shall include information on bioaccumulation, biodegradation, adsorption, volatility, transformation, and other data necessary to characterize movement and reaction of substitutes in the environment.

(9) *Flammability.* Data on the flammability of a substitute chemical or mixture are required. Specifically, the flash point and flammability limits are needed, as well as information on the procedures used for determining the flammability limits. Testing of blends should identify the compositions for which the blend itself is flammable and include fractionation data on changes in the composition of the blend during various leak scenarios. For substitutes that will be used in consumer applications, documentation of testing results conducted by independent laboratories should be submitted, where available. If a substitute is flammable, the submitter must analyze the risk of fire resulting from the use of such a substitute and assess the effectiveness of measures to minimize such risk.

(10) *Exposure data.* Available modeling or monitoring data on exposures associated with the manufacture, formulation, transport, use and disposal of a substitute. Descriptive process information for each substitute application, as described above, will be used to develop exposure estimates where exposure data are not readily available. Depending on the application, exposure profiles may be needed for workers, consumers, and the general population.

(11) *Environmental release data.* Data on emissions from the substitute application and equipment, as well as on pollutant releases or discharge to all environmental media. Submitters should provide information on release locations, and data on the quantities, including volume, of anticipated waste associated with the use of the substitute. In addition, information on anticipated waste management practices associated with the use of the substitute. Any available information on any pollution controls used or that could be used in association with the substitute (e.g., emissions reduction technologies, wastewater treatment, treatment of hazardous waste) and the costs of such technology must also be submitted.

(12) *Replacement ratio for a chemical substitute.* Information on the replacement ratio for a chemical substitute versus the class I or II substances being replaced. The term ''replacement ratio'' means how much of a substitute must be used to replace a given quantity of the class I or II substance being replaced.

(13) *Required changes in use technology.* Detail on the changes in technology needed to use the alternative. Such information should include a description of whether the substitute can be used in existing equipment—with or without some retrofit—or only in new equipment. Data on the cost (capital and operating expenditures) and estimated life of any technology modifications should also be submitted.

(14) *Cost of substitute.* Data on the expected average cost of the alternative. In addition, information is needed on the expected equipment lifetime for an alternative technology. Other critical cost considerations should be identified, as appropriate.

(15) *Availability of substitute.* If the substitute is not currently available, the timing of availability of a substitute should be provided.

(16) *Anticipated market share.* Data on the anticipated near-term and long-term nationwide substitute sales.

(17) *Applicable regulations under other environmental statutes.* Information on whether the substitute is regulated under other statutory authorities, in particular the Clean Water Act, Safe Drinking Water Act, the Resource Conservation and Recovery Act, the Federal Insecticide, Fungicide, and Rodenticide Act, the Toxic Substances Control Act, the Comprehensive Environmental Response, Compensation and Liability Act, the Emergency Planning and Community Right-to-Know Act, or other titles under the Clean Air Act.

(18) *Information already submitted to the Agency.* Information requested in the SNAP program notice that has been previously submitted to the Agency as part of past regulatory and information-gathering activities may be referenced rather than resubmitted. Submitters who cannot provide accurate references to data sent previously to the Agency should include all requested information in the SNAP notice.

(19) *Information already available in the literature.* If any of the data needed to complete the SNAP program notice are available in the public literature, complete references for such information should be provided.

(b) The Significant New Alternatives Policy (SNAP) Information Notice is designed to provide the Agency with the information necessary to reach a decision on the acceptability of a substitute.

(1) Submitters requesting review under the SNAP program should send the completed SNAP notice to: SNAP Document Control Officer, U.S. Environmental Protection Agency (6205–J), 401 M Street, SW., Washington, DC 20460.

(2) Submitters filing jointly under SNAP and the Premanufacture Notice Program (PMN) should send the SNAP addendum along with the PMN form to: PMN Document Control Officer, U.S. Environmental Protection Agency (7407), 401 M Street, SW., Washington, DC 20460. Submitters must also send both documents to the SNAP program, with a reference to indicate the notice has been furnished to the Agency under the PMN program. Submitters providing information on new chemicals for joint review under the TSCA and SNAP programs may be required to supply additional toxicity data under TSCA section 5.

(3) Submitters filing jointly under SNAP and under the Federal Insecticide, Fungicide, and Rodenticide Act should send the SNAP form to the Office of Pesticide Programs, Registration Division, (7505C) 401 M Street, SW., Washington, DC 20460, as well as to the SNAP Document Control Officer.

§82.180 Agency review of SNAP submissions.

(a) *Processing of SNAP notices.* (1) *90–day review process.* The 90-day review process will begin once EPA receives a submission and determines that such submission includes data on the substitute that are complete and adequate, as described in §82.178. The Agency may suspend or extend the review period to allow for submission of additional data needed to complete the review of the notice.

(2) *Initial review of notice.* The SNAP Document Control Officer will review the notice to ensure that basic information necessary to process the submission is present (i.e., name of company, identification of substitute, etc.). The SNAP Document Control Officer will also review substantiation of any claim of confidentiality.

(3) *Determination of data adequacy.* Upon receipt of the SNAP submission, the Agency will review the completeness of the information supporting the application. If additional data are needed, the submitter will be contacted following completion of this review. The 90-day review period will not commence until EPA has received data it judges adequate to support analysis of the submission.

(4) *Letter of receipt.* The SNAP Document Control Officer will send a letter of receipt to the submitter to confirm the date of notification and the beginning of EPA's 90-day review period. The SNAP Document Control Officer will also assign the SNAP notice a tracking number, which will be identified in the letter of receipt.

(5) *Availability of new information during review period.* If critical new information becomes available during the review period that may influence the Agency's evaluation of a substitute, the submitter must notify the Agency about the existence of such information within 10 days of learning of such data. The submitter must also inform the Agency of new studies underway, even if the results will not be available within the 90-day review period. The Agency may contact the submitter to explore extending or suspending the review period depending on the type of information received and the stage of review.

(6) *Completion of detailed review.* Once the initial data review, described in paragraphs (a)(2) and (3) of this section, has been completed, the Agency will complete a detailed evaluation of the notice. If during any time the Agency perceives a lack of information necessary to reach a SNAP determination, it will contact the submitter and request the missing data.

(7) *Criteria for review.* To determine whether a substitute is acceptable or unacceptable as a replacement for class I or II compounds, the Agency will evaluate:

(i) Atmospheric effects and related health and environmental impacts;

(ii) General population risks from ambient exposure to compounds with direct toxicity and to increased ground-level ozone;

(iii) Ecosystem risks;

(iv) Occupational risks;

(v) Consumer risks;

(vi) Flammability; and

(vii) Cost and availability of the substitute.

(8) *Communication of decision.* (i) *Communication of decision to the submitter.* Once the SNAP program review has been completed, the Agency will notify the submitter in writing of the decision. Sale or manufacture of new substitutes may commence after the initial 90-day notification period expires even if the Agency fails to reach a decision within the 90-day review period or fails to communicate that decision or the need for additional data to the submitter. Sale or manufacture of existing substitutes may continue throughout the Agency's 90-day review.

(ii) *Communication of decision to the public.* The Agency will publish in the FEDERAL REGISTER periodic updates to the list of the acceptable and unacceptable alternatives that have been reviewed to date. In the case of substitutes proposed as acceptable with

use restrictions, proposed as unacceptable or proposed for removal from either list, a rulemaking process will ensue. Upon completion of such rulemaking, EPA will publish revised lists of substitutes acceptable subject to use conditions or narrowed use limits and unacceptable substitutes to be incorporated into the Code of Federal Regulations. (See Appendices to this subpart.)

(b) *Types of listing decisions.* When reviewing substitutes, the Agency will list substitutes in one of five categories:

(1) *Acceptable.* Where the Agency has reviewed a substitute and found no reason to prohibit its use, it will list the alternative as acceptable for the end-uses listed in the notice.

(2) *Acceptable subject to use conditions.* After reviewing a notice, the Agency may make a determination that a substitute is acceptable only if conditions of use are met to minimize risks to human health and the environment. Where users intending to adopt a substitute acceptable subject to use conditions must make reasonable efforts to ascertain that other alternatives are not feasible due to safety, performance or technical reasons, documentation of this assessment must be retained on file for the purpose of demonstrating compliance. This documentation shall include descriptions of substitutes examined and rejected, processes or products in which the substitute is needed, reason for rejection of other alternatives, e.g., performance, technical or safety standards. Use of such substitutes in ways that are inconsistent with such use conditions renders them unacceptable.

(3) *Acceptable subject to narrowed use limits.* Even though the Agency can restrict the use of a substitute based on the potential for adverse effects, it may be necessary to permit a narrowed range of use within a sector end-use because of the lack of alternatives for specialized applications. Users intending to adopt a substitute acceptable with narrowed use limits must ascertain that other alternatives are not technically feasible. Companies must document the results of their evaluation, and retain the results on file for the purpose of demonstrating compliance. This documentation shall include descriptions of substitutes examined and rejected, processes or products in which the substitute is needed, reason for rejection of other alternatives, e.g., performance, technical or safety standards, and the anticipated date other substitutes will be available and projected time for switching to other available substitutes. Use of such substitutes in applications and end-uses which are not specified as acceptable in the narrowed use limit renders them unacceptable.

(4) *Unacceptable.* This designation will apply to substitutes where the Agency's review indicates that the substitute poses risk of adverse effects to human health and the environment and that other alternatives exist that reduce overall risk.

(5) *Pending.* Submissions for which the Agency has not reached a determination will be described as pending. For all substitutes in this category, the Agency will work with the submitter to obtain any missing information and to determine a schedule for providing the missing information if the Agency wishes to extend the 90-day review period. EPA will use the authority under section 114 of the Clean Air Act to gather this information, if necessary. In some instances, the Agency may also explore using additional statutory provisions (e.g., section 5 of TSCA) to collect the needed data.

(c) *Joint processing under SNAP and TSCA.* The Agency will coordinate reviews of substitutes submitted for evaluation under both the TSCA PMN program and the CAA.

(d) *Joint processing under SNAP and FIFRA.* The Agency will coordinate reviews of substitutes submitted for evaluation under both FIFRA and the CAA.

[59 FR 13147, Mar. 18, 1994, as amended at 61 FR 25592, May 22, 1996; 61 FR 54039, Oct. 16, 1996]

§ 82.182 Confidentiality of data.

(a) *Clean Air Act provisions.* Anyone submitting information must assert a claim of confidentiality at the time of submission for any data they wish to have treated as confidential business information (CBI) under 40 CFR part 2, subpart B. Failure to assert a claim of

confidentiality at the time of submission may result in disclosure of the information by the Agency without further notice to the submitter. The submitter should also be aware that under section 114(c), emissions data may not be claimed as confidential.

(b) *Substantiation of confidentiality claims.* At the time of submission, EPA requires substantiation of any confidentiality claims made. Failure to provide any substantiation may result in disclosure of information without further notice by the Agency. All submissions must include adequate substantiation in order for an acceptability determination on a substitute to be published. Moreover, under 40 CFR part 2, subpart B, there are further instances in which confidentiality assertions may later be reviewed even when confidentiality claims are initially received. The submitter will also be contacted as part of such an evaluation process.

(c) *Confidentiality provisions for toxicity data.* In the event that toxicity or health and safety studies are listed as confidential, this information cannot be maintained as confidential where such data are also submitted under TSCA or FIFRA, to the extent that confidential treatment is prohibited under those statutes. However, information contained in a toxicity study that is not health and safety data and is not relevant to the effects of a substance on human health and the environment (e.g., discussion of process information, proprietary blends) can be maintained as confidential subject to 40 CFR part 2, subpart B.

(d) *Joint submissions under other statutes.* Information submitted as part of a joint submission to either SNAP/TSCA or SNAP/FIFRA must adhere to the security provisions of the program offices implementing these statutes. For such submissions, the SNAP handling of such notices will follow the security provisions under these statutes.

§82.184 Petitions.

(a) *Who may petition.* Any person may petition the Agency to amend existing listing decisions under the SNAP program, or to add a new substance to any of the SNAP lists.

(b) *Types of petitions.* Five types of petitions exist:

(1) Petitions to add a substitute not previously reviewed under the SNAP program to the acceptable list. This type of petition is comparable to the 90-day notifications, except that it would generally be initiated by entities other than the companies that manufacture, formulate, or otherwise use the substitute. Companies that manufacture, formulate, or use substitutes that want to have their substitutes added to the acceptable list should submit information on the substitute under the 90-day review program;

(2) Petitions to add a substitute not previously reviewed under the SNAP program to the unacceptable list;

(3) Petitions to delete a substitute from the acceptable list and add it to the unacceptable list or to delete a substitute from the unacceptable and add it to the acceptable list;

(4) Petitions to add or delete use restrictions on an acceptability listing.

(5) Petitions to grandfather use of a substitute listed as unacceptable or acceptable subject to use restrictions.

(c) *Content of the petition.* The Agency requires that the petitioner submit information on the type of action requested and the rationale for the petition. Petitions in paragraphs (b)(1) and (2) of this section must contain the information described in §82.178, which lists the items to be submitted in a 90-day notification. For petitions that request the re-examination of a substitute previously reviewed under the SNAP program, the submitter must also reference the prior submittal or existing listing. Petitions to grandfather use of an unacceptable substitute must describe the applicability of the test to judge the appropriateness of Agency grandfathering as established by the United States District Court for the District of Columbia Circuit (see *Sierra Club* v. *EPA*, 719 F.2d 436 (D.C. Cir. 1983)). This test includes whether the new rule represents an abrupt departure from previously established practice, the extent to which a party relied on the previous rule, the degree of burden which application of the new rule would impose on the party, and the statutory interest in applying the new rule immediately.

(d) *Petition process.* (1) Notification of affected companies. If the petition concerns a substitute previously either approved or restricted under the SNAP program, the Agency will contact the original submitter of that substitute.

(2) *Review for data adequacy.* The Agency will review the petition for adequacy of data. As with a 90-day notice, the Agency may suspend review until the petitioner submits the information necessary to evaluate the petition. To reach a timely decision on substitutes, EPA may use collection authorities such as those contained in section 114 of the Clean Air Act as amended, as well as information collection provisions of other environmental statutes.

(3) *Review procedures.* To evaluate the petition, the Agency may submit the petition for review to appropriate experts inside and outside the Agency.

(4) *Timing of determinations.* If data are adequate, as described in §82.180, the Agency will respond to the petition within 90 days of receiving a complete petition. If the petition is inadequately supported, the Agency will query the petitioner to fill any data gaps before the 90-day review period begins, or may deny the petition because data are inadequate.

(5) *Rulemaking procedures.* EPA will initiate rulemaking whenever EPA grants a petition to add a substance to the list of unacceptable substitutes, remove a substance from any list, or change or create an acceptable listing by imposing or deleting use conditions or use limits.

(6) *Communication of decision.* The Agency will inform petitioners within 90 days of receiving a complete petition whether their request has been granted or denied. If a petition is denied, the Agency will publish in the FEDERAL REGISTER an explanation of the determination. If a petition is granted, the Agency will publish the revised SNAP list incorporating the final petition decision within 6 months of reaching a determination or in the next scheduled update, if sooner, provided any required rulemaking has been completed within the shorter period.

APPENDIX A TO SUBPART G—SUBSTITUTES SUBJECT TO USE RESTRICTIONS AND UNACCEPTABLE SUBSTITUTES

REFRIGERANTS

Unacceptable Substitutes

End-use	Substitute	Decision	Comments
CFC–11 centrifugal chillers (retrofit).	HCFC–141b	Unacceptable	Has a high ODP relative to other alternatives.
CFC–12 centrifugal chillers (retrofit).	HCFC–22/HFC–142b/CFC–12.	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can used safely in this end-use.
CFC–11, CFC–12, CFC–113, CFC–114, R–500 centrifugal chillers (new equipment/NIKs).	HCFC–22/HFC–142b/CFC–12.	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocabon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
	HCFC–141b	Unacceptable	Has a high ODP relative to other alternatives.
CFC–12 reciprocating chillers (retrofit).	HCFC–22/HFC–142b/CFC–12.	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC–12 reciprocating chillers (new equipment/NIKs).	HCFC–22/HFC–142b/CFC–12.	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.

REFRIGERANTS—Continued

Unacceptable Substitutes

End-use	Substitute	Decision	Comments
CFC–11, CFC–12, R–502 industrial process refrigeration (retrofit).	HCFC–22/HFC–142b/CFC–12.	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
CFC–11, CFC–12, R–502 industrial process refrigeration (new equipment/NIKs).	HCFC–22/HFC–142b/CFC–12.	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
CFC–12, R–502 ice skating rinks (retrofit).	HCFC–22/HFC–142b/CFC–12.	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC–12, R–502 ice skating rinks (new equipment/NIKs).	HCFC–22/HFC–142b/CFC–12.	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC–12, R–502 cold storage warehouses (retrofit).	HCFC–22/HFC–142b/CFC–12.	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC–12, R–502 cold storage warehouses (new equipment/NIKs).	HCFC–22/HFC–142b/CFC–12.	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC–12, R–500, R–502 refrigerated transport (retrofit).	HCFC–22/HFC–142b/CFC–12.	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC–12, R–500, R–502 refrigerated transport (new equipment/NIKs).	HCFC–22/HFC–142b/CFC–12.	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC–12, R–502 retail food refrigeration (retrofit).	HCFC–22/HFC–142b/CFC–12.	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC–12, R–502 retail food refrigeration (new equipment/NIKs).	HCFC–22/HFC–142b/CFC–12.	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC–12, R–502 commercial ice machines (retrofit).	HCFC–22/HFC–142b/CFC–12.	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC–12, R–502 commercial ice machines (new equipment/NIKs).	HCFC–22/HFC–142b/CFC–12.	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC–12 vending machines (retrofit).	HCFC–22/HFC–142b/CFC–12.	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.

REFRIGERANTS—Continued

Unacceptable Substitutes

End-use	Substitute	Decision	Comments
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC–12 vending machines (new equipment/NIKs).	HCFC–22/HFC–142b/CFC–12.	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFR–12, water coolers (retrofit).	HCFC–22/HFC–142b/CFC–12.	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFR–12, water coolers (New equipment/NIKs).	HCFC–22/HFC–142b/CFC–12.	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFR–12, household refrigerators (retrofit).	HCFC–22/HFC–142b/CFC–12.	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFR–12, household refrigerators (new equipment/NIKs).	HCFC–22/HFC–142b/CFC–12.	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFR–12, R–502 household freezers (retrofit).	HCFC–22/HFC–142b/CFC–12.	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFR–12, 502 household freezers (new equipment/NIKs).	HCFC–22/HFC–142b/CFC–12.	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFR–12, R–500 residential dehumidifiers (retrofit).	HCFC–22/HFC–142b/CFC–12.	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFR–12, R–500 residential dehumidifiers (new equipment/NIKs).	HCFC–22/HFC–142b/CFC–12.	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFR–12, motor vehicle air conditioners (retrofit).	HCFC–22/HFC–142b/CFC–12.	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFR–12, motor vehicle air conditioners (new equipment/NIKs).	HCFC–22/HFC–142b/CFC–12.	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be sued safely in this end-use.

FOAMS

Unacceptable Substitutes

End-use	Substitute	Decision	Comments
CFC–11 Polyolefin	HCFC–141b (or blends thereof).	Unacceptable	HCFC–141b has an ODP of 0.11, almost equivalent to that of methyl chloroform, a Class I substance. The Agency believes that non-ODP alternatives are sufficiently available to render the use of HCFC–141b unnecessary in polyolefin foams.

SUBSTITUTES ACCEPTABLE SUBJECT TO NARROWED USE LIMITS

End-use	Substitute	Decision	Comments
Electronics cleaning w/ CFC–113, MCF.	Perfluoro-carbons (C5F12, C6F12, C6F14, C7F16, C8F18, C5F11NO, C6F13NO, C7F15NO, and C8F16).	Acceptable for high-performance, precision-engineered applications only where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements.	The principal environmental characteristic of concern for PFCs is that they have long atmospheric lifetimes and high global warming potentials. Although actual contributions to global warming depend upon the quantities of PFCs emitted, the effects are for practical purposes irreversible. Users must observe this limitation on PFC acceptability by conducting a reasonable evaluation of other substitutes to determine that PFC use is necessary to meet performance or safety requirements. Documentation of this evaluation must be kept on file. For additional guidance regarding applications in which PFCs may be appropriate, users should consult the Preamble for this rulemaking.
Precision cleaning w/ CFC–113, MCF.	Perfluoro-carbons (C5F12, C6F12, C6F14, C7F16, C8F18, C5F11NO, C6F13NO, C7F15NO, and C8F16).	Acceptable for high-performance, precision-engineered applications only where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements.	The principal environmental characteristic of concern for PFCs is that they have long atmospheric lifetimes and high global warming potentials. Although actual contributions to global warming depend upon the quantities of PFCs emitted, the effects are for practical purposes irreversible. Users must observe this limitation on PFC acceptability by conducting a reasonable evaluation of other substitutes to determine that PFC use is necessary to meet performance or safety requirements. Documentation of this evaluation must be kept on file. For additional guidance regarding applications in which PFCs may be appropriate, users should consult the Preamble for this rulemaking.

UNACCEPTABLE SUBSTITUTES

End-use	Substitute	Decision	Comments
Metals cleaning w/CFC–113.	HCFC 141b and its blends.	Unacceptable	High ODP; other alternatives exist. Effective date: As of 30 days after final rule for uses in new equipment (including retrofits made after the effective date); as of January 1, 1996, for uses in existing equipment. EPA will grant, if necessary, narrowed use acceptability listings for CFC–113 past the effective date of the prohibition.
Metals cleaning w/MCF	HCFC 141b and its blends.	Unacceptable	High ODP; other alternatives exist. Effective date: As of 30 days after final rule for uses in new equipment (including retrofits made after the effective date); as of January 1, 1996, for uses in existing equipment.

UNACCEPTABLE SUBSTITUTES—Continued

End-use	Substitute	Decision	Comments
Electronics cleaning w/ CFC–113.	HCFC 141b and its blends.	Unacceptable	High ODP; other alternatives exist. Effective date: As of 30 days after final rule for uses in new equipment (including retrofits made after the effective date); as of January 1, 1996, for uses in existing equipment. EPA will grant, if necessary, narrowed use acceptability listings for CFC–113 past the effective date of the prohibition.
Electronics cleaning w/ MCF.	HCFC 141b and its blends.	Unacceptable	High ODP; other alternatives exist. Effective date: As of 30 days after final rule for uses in new equipment (including retrofits made after the effective date); as of January 1, 1996, for uses in existing equipment.
Precision cleaning w/ CFC–113.	HCFC 141b and its blends.	Unacceptable	High ODP; other alternatives exist. Effective date: As of 30 days after final rule for uses in new equipment (including retrofits made after the effective date); as of January 1, 1996, for uses in existing equipment. EPA will grant, if necessary, narrowed use acceptability listings for CFC–113 past the effective date of the prohibition.
Precision cleaning w/ MCF.	HCFC 141b and its blends.	Unacceptable	High ODP; other alternatives exist. Effective date: As of 30 days after final rule for uses in new equipment (including retrofits made after the effective date); as of January 1, 1996, for uses in existing equipment.

FIRE SUPPRESSION AND EXPLOSION PROTECTION STREAMING AGENTS

Substitutes Acceptable Subject to Narrowed Use Limits

End-use	Substitute	Decision	Conditions	Comments
Halon 1211 Streaming Agents.	[CFC Blend]	Acceptable in non-residential uses only.	.....	Use of CFCs are controlled under CAA section 610 which bans use of CFCs in pressurized dispensers, and therefore are not permitted for use in portable fire extinguishers. EPA will list this agent as proposed unacceptable in the next SNAP proposed rulemaking. Because CFCs are a Class I substance, production will be phased out by January 1, 1996. See additional comments 1, 2.
	HBFC–22B1	.....	Acceptable in nonresidential uses only.	Proper procedures regarding the operation of the extinguisher and ventilation following dispensing the extinguishant is recommended. Worker exposure may be a concern in small office areas. HBFC–22B1 is considered an interim substitute for Halon 1211. Because the HBFC–22B1 has an ODP of .74, production will be phased out (except for essential uses) on January 1, 1996. This agent was submitted to the Agency as a Premanufacture Notice (PMN) and is presently subject to requirements contained in a Toxic Substance Control Act (TSCA) Consent Order. See additional comments 1, 2.

FIRE SUPPRESSION AND EXPLOSION PROTECTION STREAMING AGENTS—Continued

Substitutes Acceptable Subject to Narrowed Use Limits

End-use	Substitute	Decision	Conditions	Comments
	C_6F_{14}	Acceptable for non-residential uses where other alternatives are not technically feasible due to performance or safety requirements:.		Users must observe the limitations on PFC acceptability by making reasonable effort to undertake the following measures: (i) conduct an evaluation of foreseeable conditions of end use; (ii) determine that the physical or chemical properties or other technical constraints of the other available agents preclude their use; and
		a. due to the physical or chemical properties of the agent, or.		(iii) determine that human exposure to the other alternative extinguishing agents may approach or result in cardiosensitization or other unacceptable toxicity effects under normal operating conditions; Documentation of such measures must be available for review upon request.
		b. where human exposure to the extinguishing agent may approach cardiosensitization levels or result in other unacceptable health effects under normal operating conditions.		The principal environmental characteristic of concern for PFCs is that they have high GWPs and long atmospheric lifetimes. Actual contributions to global warming depend upon the quantities of PFCs emitted. For additional guidance regarding applications in which PFCs may be appropriate, users should consult the description of potential uses which is included in the preamble to this rulemaking. See additional comments 1, 2.

Additional Comments:

1—Discharge testing and training should be strictly limited only to that which is essential to meet safety or performance requirements.

2—The agent should be recovered from the fire protection system in conjunction with testing or servicing, and recycled for later use or destroyed.

FIRE SUPPRESSION AND EXPLOSION PROTECTION STREAMING AGENTS

Unacceptable Substitutes

End-use	Substitute	Decision	Comments
Halon 1211 Streaming Agents.	[CFC–11]	Unacceptable	This agent has been suggested for use on large outdoor fires for which non-ozone depleting alternatives are currently used.

FIRE SUPPRESSION AND EXPLOSION PROTECTION TOTAL FLOODING AGENTS

Substitutes Acceptable Subject To Use Conditions

End-use	Substitute	Decision	Conditions	Comments
Halon 1301 Total Flooding Agents.	HBFC–22B1	Acceptable	Until OSHA establishes applicable workplace requirements: Where egress from an area cannot be accomplished within one minute, the employer shall not use this agent in concentrations exceeding its cardiotoxic NOAEL of 0.3%. Where egress takes longer than 30 seconds but less than one minute, the employer shall not use the agent in a concentration greater than its cardiotoxic LOAEL of 1.0%. HBFC–22B1 concentrations greater than 1.0% are only permitted in areas not normally occupied by employees provided that any employee in the area can escape within 30 seconds. The employer shall assure that no unprotected employees enter the area during agent discharge.	The comparative design concentration based on cup burner values is approximately 5.3%, while its cardiotoxic LOAEL is 1%. Thus, it is unlikely that this agent will be used in normally occupied areas. HBFC–22B1 can be considered only an interim substitute for Halon 1301. HBFC–22B1 has an ODP of .74; thus, production will be phased out January 1, 1996. This agent was submitted to the Agency as a Premanufacture Notice (PMN) and is presently subject to requirements contained in a Toxic Substance Control Act (TSCA) Consent Order. See additional comments 1, 2, 3, 4.
	HCFC–22	Acceptable	Until OSHA establishes applicable workplace requirements: Where egress from an area cannot be accomplished within one minute, the employer shall not use this agent in concentrations exceeding its cardiotoxic NOAEL of 2.5%. Where egress takes longer than 30 seconds but less than one minute, the employer shall not use the agent in a concentration greater than its cardiotoxic LOAEL of 5.0%. HCFC–22 concentrations greater than 5.0% are only permitted in areas not normally occupied by employees provided that any employee in the area can escape within 30 seconds. The employer shall assure that no unprotected employees enter the area during agent discharge.	The comparative design concentration based on cup burner values is approximately 13.9% while its cardiotoxic LOAEL is 5.0%. Thus, it is unlikely that this agent will be used in normally occupied areas. See additional comments 1, 2, 3, 4.
	HCFC–124	Acceptable	Until OSHA establishes applicable workplace requirements: Where egress from an area cannot be accomplished within one minute, the employer shall not use this agent in concentrations exceeding its cardiotoxic NOAEL of 1.0%.	The comparative design concentration based on cup burner values is approximately 8.4% while its cardiotoxic LOAEL is 2.5%. Thus, it is unlikely that this agent will be used in normally occupied areas. See additional comments 1, 2, 3, 4.

		Where egress takes longer than 30 seconds but less than one minute, the employer shall not use the agent in a concentration greater than its cardiotoxic LOAEL OF 2.5%. HCFC–123 concentrations greater than 2.5% are only permitted in areas not normally occupied by employees provided that any employee in the area can escape within 30 seconds. The employer shall assure that no unprotected employees enter the area during agent discharge.	
[HCFC BLEND] A	Acceptable	Until OSHA establishes applicable workplace requirements: Where egress from an area cannot be accomplished within one minute, the employer shall not use [HCFC Blend] A in concentrations exceeding its cardiotoxic NOAEL of 10.0%. Where egress takes greater than 30 seconds but less than one minute, the employer shall not use [HCFC Blend] A in a concentration greater than its cardiotoxic LOAEL of 10.0%. [HCFC Blend] A concentrations greater than 10 percent are only permitted in areas not normally occupied by employees provided that any employee in the area can escape within 30 seconds. The employer shall assure that no unprotected employees enter the area during agent discharge.	The comparative design concentration based on full-scale testing is approximately 8.6%. The agent should be recovered from the fire protection system in conjunction with testing or servicing, and should be recycled for later use or destroyed. See additional comments 1, 2, 3, 4.
HFC–23	Acceptable	Until OSHA establishes applicable workplace requirements: Where egress from an area cannot be accomplished within one minute, the employer shall not use HFC–23 in concentrations exceeding 30%. Where egress takes greater than 30 seconds but less than one minute, the employer shall not use HFC–23 in a concentration greater than 50.0%. HFC–23 concentrations greater than 50 percent are only permitted in areas not normally occupied by employees provided that any employee in the area can escape within 30 seconds. The employer shall assure that no unprotected employees enter the area during agent discharge. The design concentration must result in an oxygen level of at least 16%.	The comparative design concentration based on cup burner values is approximately 14.4% while data indicates that its cardiotoxicity NOAEL is 30% without added oxygen and 50% with added oxygen. Its LOAEL is likely to exceed 50%. See additional comments 1, 2, 3, 4.
HFC–125	Acceptable	Until OSHA establishes applicable workplace requirements: Where egress from an area cannot be accomplished within one minute, the employer shall not use this agent in concentrations exceeding its cardiotoxic NOAEL of 7.5%.	The comparative design concentration based on cup burner values is approximately 11.3% while its cardiotoxic LOAEL is 10.0%. Thus, it is unlikely that this agent will be used in normally occupied areas. See additional comments 1, 2, 3, 4.

FIRE SUPPRESSION AND EXPLOSION PROTECTION TOTAL FLOODING AGENTS—Continued

Substitutes Acceptable Subject To Use Conditions

End-use	Substitute	Decision	Conditions	Comments
			Where egress takes longer than 30 seconds but less than one minute, the employer shall not use the agent in a concentration greater than its cadiotoxic LOAEL of 10.0%. HFC–125 concentrations greater than 10.0% are only permitted in areas not normally occupied by employees provided that any employee in the area can escape within 30 seconds. The employer shall assure that no unprotected employees enter the area during agent discharge.	
	HFC–134a	Acceptable	Until OSHA establishes applicable workplace requirements: Where egress from an area cannot be accomplished within one minute, the employer shall not use this agent in concentrations exceeding its cardiotoxic NOAEL of 4.0%. Where egress takes longer than 30 seconds but less than one minute, the employer shall not use the agent in a concentration greater than its cardiotoxic LOAEL of 8.0%. HFC–134a concentrations greater than 8.0% are only permitted in areas not normally occupied by employees provided that any employee in the area can escape within 30 seconds. The employer shall assure that no unprotected employees enter the area during agent discharge.	The comparative design concentration based on cup burner values is approximately 12.6% while its cardiotoxic LOAEL is 8.0%. Thus, it is unlikely that this agent will be used in normally occupied areas. See additional comments 1, 2, 3, 4.
	HFC–227ea	Acceptable	Until OSHA establishes applicable workplace requirements:. Where egress from an area cannot be accomplished within one minute, the employer shall not use HFC–227ea in concentrations exceeding its cardiotoxic NOAEL of 9.0%. Where egress takes longer than 30 seconds but less than one minute, the employer shall not use the agent in a concentration greater than its cardiotoxic LOAEL of 10.5%. HFC–227ea concentrations greater than 10.5% are only permitted in areas not normally occupied by employees provided that any employee in the area can escape within 30 seconds. The employer shall assure that no unprotected employees enter the area during agent discharge.	The comparative design concentration based on cup burner values is approximately 7.0% while data indicate that its cardiotoxicity LOAEL is probably greater than 10.5%. EPA is accepting 10.5% as its LOAEL. This agent was submitted to the Agency as a Premanufacture Notice (PMN) agent and is presently subject to requirements contained in a Toxic Substances Control Act (TSCA) Significant New Use Rule (SNUR). See additional comments 1, 2, 3, 4.
	C_4F_{10}	Acceptable	Until OSHA establishes applicable workplace requirements:	The comparative design concentration based on cup burner values is approximately 6.6%.

		where other alternatives are not technically feasible due to performance or safety requirements: a. due to their physical or chemical properties, or	For occupied areas from which personnel cannot be evacuated in one minute, use is permitted only up to concentrations not exceeding the cardiotoxicity NOAEL of 40%. Although no LOAEL has been established for this product, standard OSHA requirements apply, i.e., for occupied areas from which personnel can be evacuated or egress can occur between 30 and 60 seconds, use is permitted up to a concentration not exceeding the LOAEL.	Users must observe the limitations on PFC acceptability by making reasonable efforts to undertake the following measures: (i) conduct an evaluation of foreseeable conditions of end use; (ii) determine that human exposure to the other alternative extinguishing agents may approach or result in cardiosensitization or other unacceptable toxicity effects under normal operating conditions; and (iii) determine that the physical or chemical properties or other technical constraints of the other available agents preclude their use.
		b. where human exposure to the extinguishing agents may approach cardiosensitization levels or result in other unacceptable health effects under normal operating conditions.	All personnel must be evacuated before concentration of C_4F_{10} exceeds 40%. Design concentration must result in oxygen levels of at least 16%. Documentation of such measures must be available for review upon request.	The principal environmental characteristic of concern for PFCs is that they have high GWPs and long atmospheric lifetimes. Actual contributions to global warming depend upon the quantities of PFCs emitted. For additional guidance regarding applications in which PFCs may be appropriate, users should consult the description of potential uses which is included in this rulemaking. See additional comments 1, 2, 3, 4.
	[IG–541]	Acceptable	Until OSHA establishes applicable workplace requirements: The design concentration must result in at least 10% oxygen and no more than 5% CO_2. If the oxygen concentration of the atmosphere falls below 10%, personnel must be evacuated and egress must occur within 30 seconds.	Studies have shown that healthy, young individuals can remain in a 10% to 12% oxygen atmosphere for 30 to 40 minutes without impairment. However, in a fire emergency, the oxygen level may be reduced below safe levels, and the combustion products formed by the fire are likely to cause harm. Thus, the Agency does not contemplate personnel remaining in the space after system discharge during a fire without Self Contained Breathing Apparatus (SCBA) as required by OSHA. See additional comments 1, 2.

Additional Comments:
1—Must conform with OSHA 29 CFR 1910 Subpart L Section 1910.160 of the U.S. Code.

2—Per OSHA requirements, protective gear (SCBA) must be available in the event personnel must reenter the area.
3—Discharge testing should be strictly limited only to that which is essential to meet safety or performance requirements.
4—The agent should be recovered from the fire protection system in conjunction with testing or servicing, and recycled for later use or destroyed.

FIRE SUPPRESSION AND EXPLOSION PROTECTION TOTAL FLOODING AGENTS

Substitutes Acceptable Subject to Narrowed Use Limits

End-use	Substitute	Decision	Conditions	Comments
Halon 1301 Total Flooding Agents.	$C_4 F_{10}$	Acceptable where other alternatives are not technically feasible due to performance or safety requirements:.	Until OSHA establishes applicable workplace requirements: For occupied areas from which personnel cannot be evacuated in one minute, use is permitted only up to concentrations not exceeding the cardiotoxicity NOAEL of 40%.	The comparative design concentration based on cup burner values is approximately 6.6%. Users must observe the limitations on PFC approval by undertaking the following measures: (i) Conduct an evaluation of foreseeable conditions of end use; (ii) Determine that human exposure to the other alternative extinguishing agents may approach or result in cardiosensitization or other unacceptable toxicity effects under normal operating conditions; and
		a. Due to their physical or chemical properties, or b. Where human exposure to the extinguishing agents may approach cardiosensitization levels or result in other unacceptable health effects under normal operating conditions..	Although no LOAEL has been established for this product, standard OSHA requirements apply, i.e. for occupied areas from which personnel can be evacuated or egress can occur between 30 and 60 seconds, use is permitted up to a concentration not exceeding the LOAEL. All personnel must be evacuated before concentration of $C_4 F_{10}$ exceeds 40%. Design concentration must result in oxygen levels of at least 16%	(iii) Determine that the physical or chemical properties or other technical constraints of the other available agents preclude their use; Documentation of such measures must be available for review upon request. The principal environmental characteristic of concern for PFCs is that they have high GWPs and long atmospheric lifetimes. Actual contributions to global warming depend upon the quantities of PFCs emitted. For additional guidance regarding applications in which PFCs may be appropriate, users should consult the description of potential uses which is included in the preamble to this rulemaking. See additional comments 1, 2, 3, 4.

Additional Comments
1—Must conform with OSHA 29 CFR 1910 Subpart L Section 1910.160 of the U.S. Code.
2—Per OSHA requirements, protective gear (SCBA) must be available in the event personnel must reenter the area.
3—Discharge testing should be strictly limited only to that which is essential to meet safety or performance requirements.
4—The agent should be recovered from the fire protection system in conjunction with testing or servicing, and recycled for later use or destroyed.

APPENDIX B TO SUBPART G—SUBSTITUTES SUBJECT TO USE RESTRICTIONS AND UNACCEPTABLE SUBSTITUTES

REFRIGERANTS—ACCEPTABLE SUBJECT TO USE CONDITIONS

Application	Substitute	Decision	Conditions	Comments
CFC–12 Automobile Motor Vehicle Air Conditioning (Retrofit and New Equipment/NIKS).	HFC–134a, R–401C, HCFC Blend Beta.	Acceptable	—must be used with unique fittings. —must be used with detailed labels. —all CFC–12 must be removed from the system prior to retrofitting. Refer to the text for a full description.	EPA is concerned that the existence of several substitutes in this end-use may increase the likelihood of significant refrigerant cross-contamination and potential failure of both air conditioning systems and recovery/recycling equipment. For the purposes of this rule, no distinction is made between ''retrofit'' and ''drop-in'' refrigerants; retrofitting a car to use a new refrigerant includes all procedures that result in the air conditioning system using a new refrigerant.

REFRIGERANTS—ACCEPTABLE SUBJECT TO NARROWED USE LIMITS

End-use	Substitute	Decision	Comments
CFC–11, CFC–12, CFC–113, CFC–114, CFC–115 Non-Mechanical Heat Transfer, New.	C_3F_8, C_4F_{10}, C_5F_{12}, $C_5F_{11}NO$, C_6F_{14}, $C_6F_{13}NO$, C_7F_{16}, $C_7F_{15}NO$, C_8F_{18}, $C_8F_{16}O$, and $C_9F_{21}N$.	Acceptable only where no other alternatives are technically feasible due to safety or performance requirements.	Users must observe the limitations on PFC acceptability by determining that the physical or chemical properties or other technical constraints of the other available agents preclude their use. Documentation of such measures must be available for review upon request. The principal environmental characteristic of concern for PFCs is that they have high GWPs and long atmospheric lifetimes. EPA strongly recommends recovery and recycling of these substitutes.

REFRIGERANTS—UNACCEPTABLE SUBSTITUTES

End-use	Substitute	Decision	Comments
CFC–11, CFC–12, CFC–113, CFC–114, R–500 Centrifugal Chillers (Retrofit and New Equipment/NIKs).	R–405A	Unacceptable	R–405A contains R–c318, a PFC, which has an extremely high GWP and lifetime. Other substitutes exist which do not contain PFCs.
	Hydrocarbon Blend B	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC–12 Reciprocating Chillers (Retrofit and New Equipment/NIKs).	R–405A	Unacceptable	R–405A contains R–c318, a PFC, which has an extremely high GWP and lifetime. Other substitutes exist which do not contain PFCs.
	Hydrocarbon Blend B	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC–11, CFC–12, R–502 Industrial Process Refrigeration (Retrofit and New Equipment/NIKs).	R–403B	Unacceptable	R–403B contains R–218, a PFC, which has an extremely high GWP and lifetime. Other substitutes exist which do not contain PFCs.
	R–405A	Unacceptable	R–405A contains R–c318, a PFC, which has an extremely high GWP and lifetime. Other substitutes exist which do not contain PFCs.
CFC–12, R–502 Ice Skating Rinks (Retrofit and New Equipment/NIKs).	R–405A	Unacceptable	R–405A contains R–c318, a PFC, which has an extremely high GWP and lifetime. Other substitutes exist which do not contain PFCs.
	Hydrocarbon Blend B	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.

REFRIGERANTS—UNACCEPTABLE SUBSTITUTES—Continued

End-use	Substitute	Decision	Comments
CFC–12, R–502 Cold Storage Warehouses (Retrofit and New Equipment/NIKs).	R–403B	Unacceptable	R–403B contains R–218, a PFC, which has an extremely high GWP and lifetime. Other substitutes exist which do not contain PFCs.
	R–405A	Unacceptable	R–405A contains R–c318, a PFC, which has an extremely high GWP and lifetime. Other substitutes exist which do not contain PFCs.
	Hydrocarbon Blend B	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC–12, R–500, R–502 Refrigerated Transport (Retrofit and New Equipment/NIKs).	R–403B	Unacceptable	R–403B contains R–218, a PFC, which has an extremely high GWP and lifetime. Other substitutes exist which do not contain PFCs.
	R–405A	Unacceptable	R–405A contains R–c318, a PFC, which has an extremely high GWP and lifetime. Other substitutes exist which do not contain PFCs.
	Hydrocarbon Blend B	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC–12, R–502 Retail Food Refrigeration (Retrofit and New Equipment/NIKs).	R–403B	Unacceptable	R–403B contains R–218, a PFC, which has an extremely high GWP and lifetime. Other substitutes exist which do not contain PFCs.
	R–405A	Unacceptable	R–405A contains R–c318, a PFC, which has an extremely high GWP and lifetime. Other substitutes exist which do not contain PFCs.
	Hydrocarbon Blend B	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC–12, R–502 Commercial Ice Machines (Retrofit and New Equipment/NIKs).	R–403B	Unacceptable	R–403B contains R–218, a PFC, which has an extremely high GWP and lifetime. Other substitutes exist which do not contain PFCs.
	R–405A	Unacceptable	R–405A contains R–c318, a PFC, which has an extremely high GWP and lifetime. Other substitutes exist which do not contain PFCs.
	Hydrocarbon Blend B	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC–12 Vending Machines (Retrofit and New Equipment/NIKs).	R–405A	Unacceptable	R–405A contains R–c318, a PFC, which has an extremely high GWP and lifetime. Other substitutes exist which do not contain PFCs.
	Hydrocarbon Blend B	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC–12 Water Coolers (Retrofit and New Equipment/NIKs).	R–405A	Unacceptable	R–405A contains R–c318, a PFC, which has an extremely high GWP and lifetime. Other substitutes exist which do not contain PFCs.
	Hydrocarbon Blend B	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC–12 Household Refrigerators (Retrofit and New Equipment/NIKs).	R–405A	Unacceptable	R–405A contains R–c318, a PFC, which has an extremely high GWP and lifetime. Other substitutes exist which do not contain PFCs.
	Hydrocarbon Blend B	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC–12, R–502 Household Freezers (Retrofit and New Equipment/NIKs).	R–403B	Unacceptable	R–403B contains R–218, a PFC, which has an extremely high GWP and lifetime. Other substitutes exist which do not contain PFCs.

REFRIGERANTS—UNACCEPTABLE SUBSTITUTES—Continued

End-use	Substitute	Decision	Comments
	R–405A	Unacceptable	R–405A contains R–c318, a PFC, which has an extremely high GWP and lifetime. Other substitutes exist which do not contain PFCs.
	Hydrocarbon Blend B	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC–12, R–500 Residential Dehumidifiers (Retrofit and New Equipment/NIKs).	R–405A	Unacceptable	R–405A contains R–c318, a PFC, which has an extremely high GWP and lifetime. Other substitutes exist which do not contain PFCs.
	Hydrocarbon Blend B	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC–12 Motor Vehicle Air Conditioners (Retrofit and New Equipment/NIKs).	R–405A	Unacceptable	R–405A contains R–c318, a PFC, which has an extremely high GWP and lifetime. Other substitutes exist which do not contain PFCs.
	Hydrocarbon Blend B	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
	Flammable Substitutes.	Unacceptable	The risks associated with using flammable substitutes in this end-use have not been addressed by a risk assessment.

SOLVENT CLEANING SECTOR—ACCEPTABLE SUBJECT TO USE CONDITIONS SUBSTITUTES

Application	Substitute	Decision	Conditions	Comments
Electronics Cleaning w/ CFC–113, MCF.	HCFC–225 ca/cb	Acceptable	Subject to the company set exposure limit of 25 ppm of the -ca isomer.	HCFC–225 ca/cb blend is offered as a 45%-ca/55%-cb blend. The company set exposure limit of the -ca isomer is 25 ppm. The company set exposure limit of the -cb isomer is 250 ppm. It is the Agency's opinion that with the low emission cold cleaning and vapor degreasing equipment designed for this use, the 25 ppm limit of the HCFC–225 ca isomer can be met. The company is submitting further exposure monitoring data.
Precision Cleaning w/CFC–113, MCF.	HCFC–225 ca/cb	Acceptable	Subject to the company set exposure limit of 25 ppm of the -ca isomer.	HCFC–225 ca/cb blend is offered as a 45%-ca/55%-cb blend. The company set exposure limit of the -ca isomer is 25 ppm. The company set exposure limit of the -cb isomer is 250 ppm. It is the Agency's opinion that with the low emission cold cleaning and vapor degreasing equipment designed for this use, the 25 ppm limit of the HCFC–225 ca isomer can be met. The company is submitting further exposure monitoring data.

SOLVENT CLEANING SECTOR—UNACCEPTABLE SUBSTITUTES

End use	Substitute	Decision	Comments
Metals cleaning w/CFC–113	Dibromomethane	Unacceptable	High ODP; other alternatives exist.
Metals cleaning w/MCF	Dibromomethane	Unacceptable	High ODP; other alternatives exist.
Electronics cleaning w/CFC–113.	Dibromomethane	Unacceptable	High ODP; other alternatives exist.
Electronics cleaning w/MCF	Dibromomethane	Unacceptable	High ODP; other alternatives exist.
Precision cleaning w/CFC–113.	Dibromomethane	Unacceptable	High ODP; other alternatives exist.
Precision cleaning w/MCF	Dibromomethane	Unacceptable	High ODP; other alternatives exist.

FIRE SUPPRESSION AND EXPLOSION PROTECTION—ACCEPTABLE SUBJECT TO USE CONDITIONS: TOTAL FLOODING AGENTS

Application	Substitute	Decision	Conditions	Comments
Halon 1301 Total Flooding Agents.	C_3F_8	Acceptable where other alternatives are not technically feasible due to performance or safety requirements:. a. due to their physical or chemical properties, or. b. where human exposure to the extinguishing agents may approach cardiosensitization levels or result in other unacceptable health effects under normal operating conditions.	Until OSHA establishes applicable workplace requirements:. For occupied areas from which personnel cannot be evacuated in one minute, use is permitted only up to concentrations not exceeding the cardiotoxicity NOAEL of 30%. Although no LOAEL has been established for this product, standard OSHA requirements apply, i.e. for occupied areas from which personnel can be evacuated or egress can occur between 30 and 60 seconds, use is permitted up to a concentration not exceeding the LOAEL. All personnel must be evacuated before concentration of C_3F_8 exceeds 30%. Design concentration must result in oxygen levels of at least 16%.	The comparative design concentration based on cup burner values is approximately 8.8%. Users must observe the limitations on PFC acceptability by making reasonable efforts to undertake the following measures: (i) conduct an evaluation of foreseeable conditions of end use; (ii) determine that human exposure to the other alternative extinguishing agents may approach or result in cardiosensitization or other unacceptable toxicity effects under normal operating conditions; and (iii) determine that the physical or chemical properties or other technical constraints of the other available agents preclude their use; Documentation of such measures must be available for review upon request. The principal environmental characteristic of concern for PFCs is that they have high GWPs and long atmospheric lifetimes. Actual contributions to global warming depend upon the quantities of PFCs emitted. For additional guidance regarding applications in which PFCs may be appropriate, users should consult the description of potential uses which is included in the March 18, 1994 Rulemaking (59 FR 13043). See additional comments 1, 2, 3, 4.
	CF_3I	Acceptable in normally unoccupied areas.	EPA requires that any employee who could possibly be in the area must be able to escape within 30 seconds. The employer shall assure that no unprotected employees enter the area during agent discharge.	Manufacturer has not applied for listing for use in normally occupied areas. Preliminary cardiosensitization data indicates that this agent would not be suitable for use in normally occupied areas. EPA is awaiting results of ODP calculations. See additional comments 1, 2, 3, 4.
	Gelled Halocarbon/ Dry Chemical Suspension.	Acceptable in normally unoccupied areas.	EPA requires that any employee who could possibly be in the area must be able to escape within 30 seconds. The employer shall assure that no unprotected employees enter the area during agent discharge.	The manufacturer's SNAP application requested listing for use in unoccupied areas only. See additional comment 2.

FIRE SUPPRESSION AND EXPLOSION PROTECTION—ACCEPTABLE SUBJECT TO USE CONDITIONS: TOTAL FLOODING AGENTS—Continued

Application	Substitute	Decision	Conditions	Comments
	Inert Gas/Powdered Aerosol Blend.	Acceptable as a Halon 1301 substitute in normally unoccupied areas.	In areas where personnel could possibly be present, as in a cargo area, EPA requires that the employer shall provide a pre-discharge employee alarm capable of being perceived above ambient light or noise levels for alerting employees before system discharge. The pre-discharge alarm shall provide employees time to safely exit the discharge area prior to system discharge.	The manufacturer's SNAP application requested listing for use in unoccupied areas only. See additional comment 2.

Additional Comments

1—Must conform with OSHA 29 CFR 1910 Subpart L Section 1910.160 of the U.S. Code.

2—Per OSHA requirements, protective gear (SCBA) must be available in the event personnel must enter/reenter the area.

3—Discharge testing should be strictly limited only to that which is essential to meet safety or performance requirements.

4—The agent should be recovered from the fire protection system in conjunction with testing or servicing, and recycled for later use or destroyed.

FIRE SUPPRESSION AND EXPLOSION PROTECTION—ACCEPTABLE SUBJECT TO NARROWED USE LIMITS: TOTAL FLOODING AGENTS

Application	Substitute	Decision	Conditions	Comments
Halon 1301, Total Flooding Agents.	C_3F_8	Acceptable where other alternatives are not technically feasible due to performance or safety requirements:. a. due to their physical or chemical properties, or. b. where human exposure to the extinguishing agents may approach cardiosensitization levels or result in other unacceptable health effects under normal operating conditions.	Until OSHA establishes applicable workplace requirements:. For occupied areas from which personnel cannot be evacuated in one minute, use is permitted only up to concentrations not exceeding the cardiotoxicity NOAEL of 30%. Although no LOAEL has been established for this product, standard OSHA requirements apply, i.e. for occupied areas from which personnel can be evacuated or egress can occur between 30 and 60 seconds, use is permitted up to a concentration not exceeding the LOAEL. All personnel must be evacuated before concentration of C_3F_8 exceeds 30%. Design concentration must result in oxygen levels of at least 16%.	The comparative design concentration based on cup burner values is approximately 8.8%. Users must observe the limitations on PFC acceptability by making reasonable efforts to undertake the following measures: (i) conduct an evaluation of foreseeable conditions of end use; (ii) determine that human exposure to the other alternative extinguishing agents may approach or result in cardiosensitization or other unacceptable toxicity effects under normal operating conditions; and (iii) determine that the physical or chemical properties or other technical constraints of the other available agents preclude their use; Documentation of such measures must be available for review upon request. The principal environmental characteristic of concern for PFCs is that they have high GWPs and long atmospheric lifetimes. Actual contributions to global warming depend upon the quantities of PFCs emitted. For additional guidance regarding applications in which PFCs may be appropriate, users should consult the description of potential uses which is included in the March 18, 1994 Final Rulemaking (58 FR 13043).

FIRE SUPPRESSION AND EXPLOSION PROTECTION—ACCEPTABLE SUBJECT TO NARROWED USE LIMITS: TOTAL FLOODING AGENTS—Continued

Application	Substitute	Decision	Conditions	Comments
	Sulfurhexa-fluoride (SF_6).	Acceptable as a discharge test agent in military uses and in civilian aircraft uses only.	.....	This agent has an atmospheric lifetime greater than 1,000 years, with an estimated 100-year, 500-year, and 1,000-year GWP of 16,100, 26,110 and 32,803 respectively. Users should limit testing only to that which is essential to meet safety or performance requirements. This agent is only used to test new Halon 1301 systems.

FIRE SUPPRESSION AND EXPLOSION PROTECTION—UNACCEPTABLE SUBSTITUTES

Application	Substitute	Decision	Comments
Halon 1301 Total Flooding Agents.	HFC–32	Unacceptable	Data indicate that HFC–32 is flammable and therefore is not suitable as a halon substitute.

[60 FR 31103, June 13, 1995]

APPENDIX C TO SUBPART G—SUBSTITUTES SUBJECT TO USE RESTRICTIONS AND UNACCEPTABLE SUBSTITUTES LISTED IN THE MAY 22, 1996 FINAL RULE, EFFECTIVE JUNE 21, 1996

REFRIGERATION AND AIR CONDITIONING SECTOR—ACCEPTABLE SUBJECT TO USE CONDITIONS

HCFC Blend Delta and Blend Zeta are acceptable subject to the following conditions when used to retrofit a CFC–12 motor vehicle air conditioning system:

1. Each refrigerant may only be used with a set of fittings that is unique to that refrigerant. These fittings (male or female, as appropriate) must be used with all containers of the refrigerant, on can taps, on recovery, recycling, and charging equipment, and on all air conditioning system service ports. These fittings must be designed to mechanically prevent cross-charging with another refrigerant. A refrigerant may only be used with the fittings and can taps specifically intended for that refrigerant. Using an adapter or deliberately modifying a fitting to use a different refrigerant will be a violation of this use condition. In addition, fittings shall meet the following criteria, derived from Society of Automotive Engineers (SAE) standards and recommended practices:

a. When existing CFC–12 service ports are to be retrofitted, conversion assemblies shall attach to the CFC–12 fitting with a thread lock adhesive and/or a separate mechanical latching mechanism in a manner that permanently prevents the assembly from being removed.

b. All conversion assemblies and new service ports must satisfy the vibration testing requirements of sections 3.2.1 or 3.2.2 of SAE J1660, as applicable, excluding references to SAE J639 and SAE J2064, which are specific to HFC–134a.

c. In order to prevent discharge of refrigerant to the atmosphere, systems shall have a device to limit compressor operation before the pressure relief device will vent refrigerant. This requirement is waived for systems that do not feature such a pressure relief device.

d. All CFC–12 service ports not retrofitted with conversion assemblies shall be rendered permanently incompatible for use with CFC–12 related service equipment by fitting with a device attached with a thread lock adhesive and/or a separate mechanical latching mechanism in a manner that prevents the device from being removed.

2. When a retrofit is performed, a label must be used as follows:

a. The person conducting the retrofit must apply a label to the air conditioning system in the engine compartment that contains the following information:

i. The name and address of the technician and the company performing the retrofit.

ii. The date of the retrofit.

iii. The trade name, charge amount, and, when applicable, the ASHRAE refrigerant numerical designation of the refrigerant.

iv. The type, manufacturer, and amount of lubricant used.

v. If the refrigerant is or contains an ozone-depleting substance, the phrase ''ozone depleter.''

vi. If the refrigerant displays flammability limits as measured according to ASTM E681,

the statement ''This refrigerant is FLAMMABLE. Take appropriate precautions.''

b. This label must be large enough to be easily read and must be permanent.

c. The background color must be unique to the refrigerant.

d. The label must be affixed to the system over information related to the previous refrigerant, in a location not normally replaced during vehicle repair.

e. Information on the previous refrigerant that cannot be covered by the new label must be permanently rendered unreadable.

3. No substitute refrigerant may be used to ''top-off'' a system that uses another refrigerant. The original refrigerant must be recovered in accordance with regulations issued under section 609 of the CAA prior to charging with a substitute.

SOLVENT CLEANING SECTOR—PROPOSED ACCEPTABLE SUBJECT TO USE CONDITIONS SUBSTITUTES

Application	Substitute	Decision	Conditions	Comments
Metals Cleaning with CFC–113, MCF and HCFC–141b.	Monochlorotoluenes and benzotrifluorides.	Acceptable	Subject to a 50 ppm workplace standard for monochlorotoluenes and a 25 ppm standard for benzotrifluorides.	The workplace standard for monochlorotoluenes is based on an OSHA PEL of 50 ppm for orthochlorotoluene. The workplace standard for benzotrifluorides is based on a recent toxicology study.
Electronics Cleaning w/ CFC–113, MCF and HCFC–141b.	Monochlorotoluenes and benzotrifluorides.	Acceptable	Subject to a 50 ppm workplace standard for monochlorotoluenes and a 25 ppm standard for benzotrifluorides.	The workplace standard for monochlorotoluenes is based on an OSHA PEL of 50 ppm for orthochlorotoluene. The workplace standard for benzotrifluorides is based on a recent toxicology study.
Precision Cleaning w/ CFC–113, MCF and HCFC–141b.	Monochlorotoluenes and benzotrifluorides.	Acceptable	Subject to a 50 ppm workplace standard for monochlorotoluenes and a 25 ppm standard for benzotrifluorides.	The workplace standard for monochlorotoluenes is based on an OSHA PEL of 50 ppm for orthochlorotoluene. The workplace standard for benzotrifluorides is based on a recent toxicology study.

FIRE SUPPRESSION AND EXPLOSION PROTECTION—ACCEPTABLE SUBJECT TO USE CONDITIONS: TOTAL FLOODING AGENTS

Application	Substitute	Decision	Conditions	Comments
Halon 1301	IG–55 (formerly [Inert Gas Blend] B).	Acceptable	Until OSHA establishes applicable workplace requirements:	The Agency does not contemplate personnel remaining in the space after system discharge during a fire without Self Contained Breathing Apparatus (SCBA) as required by OSHA.
Total Flooding Agents.	.....	.....	IG–55 systems may be designed to an oxygen level of 10% if employees can egress the area within one minute, but may be designed only to the 12% oxygen level if it takes longer than one minute to egress the area.	
			If the possibility exists for the oxygen to drop below 10%, employees must be evacuated prior to such oxygen depletion.	EPA does not encourage any employee to intentionally remain in the area after system discharge, even in the event of accidental discharge. In addition, the system must include alarms and warning mechanisms as specified by OSHA.
			A design concentration of less than 10% may only be used in normally unoccupied areas, as long as any employee who could possibly be exposed can egress within 30 seconds.	See additional comments 1, 2.

FIRE SUPPRESSION AND EXPLOSION PROTECTION—ACCEPTABLE SUBJECT TO USE CONDITIONS: TOTAL FLOODING AGENTS—Continued

Application	Substitute	Decision	Conditions	Comments
	IG–01 (formerly [Inert Gas Blend] C).	Acceptable	Until OSHA establishes applicable workplace requirements:	The Agency does not contemplate personnel remaining in the space after system discharge during a fire without Self Contained Breathing Apparatus (SCBA) as required by OSHA.
			IG–01 systems may be designed to an oxygen level of 10% if employees can egress the area within one minute, but may be designed only to the 12% oxygen level if it takes longer than one minute to egress the area.	
			If the possibility exists for the oxygen to drop below 10%, employees must be evacuated prior to such oxygen depletion.	EPA does not encourage any employee to intentionally remain in the area after system discharge, even in the event of accidental discharge. In addition, the system must include alarms and warning mechanisms as specified by OSHA.
			A design concentration of less than 10% may only be used in normally unoccupied areas, as long as any employee who could possibly be exposed can egress within 30 seconds.	See additional comments 1, 2.

1—Must conform with OSHA 29 CFR 1910 Subpart L Section 1910.160 of the U.S. Code.
2—Per OSHA requirements, protective gear (SCBA) must be available in the event personnel must reenter the area.

ACCEPTABLE SUBJECT TO NARROWED USE LIMITS: STREAMING AGENTS

Application	Substitute	Decision	Comments
Halon 1211 ..... Streaming Agents	CF_3I	Acceptable in non-residential uses only.	

AEROSOLS—PROPOSED ACCEPTABLE SUBJECT TO USE CONDITIONS SUBSTITUTES

Application	Substitute	Decision	Conditions	Comments
CFC–113, MCF and HCFC–141b as solvent.	Monochlorotoluenes and benzotrifluo-rides.	Acceptable	Subject to a 50 ppm workplace standard for monochlorotoluenes and a 25 ppm standard for benzotrifluorides.	The workplace standard for monochlorotoluenes is based on an OSHA PEL of 50 ppm for orthochlorotoluene. The workplace standard for benzotrifluorides is based on a recent toxicology study.

ADHESIVES, COATINGS AND INKS—PROPOSED ACCEPTABLE SUBJECT TO USE CONDITIONS SUBSTITUTES

Application	Substitute	Decision	Conditions	Comments
CFC–113, MCF and HCFC–141b.	Monochlorotoluenes and benzotrifluo-rides.	Acceptable	Subject to a 50 ppm workplace standard for monochlorotoluenes and a 25 ppm standard for benzotrifluorides.	The workplace standard for monochlorotoluenes is based on an OSHA PEL of 50 ppm for orthochlorotoluene. The workplace standard for benzotrifluorides is based on a recent toxicology study.

[61 FR 25592, May 22, 1996]

EFFECTIVE DATE NOTE: At 61 FR 25592, May 22, 1996, Appendix C to Part 82 Subpart G was added. This appendix contains information collection and recordkeeping requirements which will not become effective until approval has been given by the Office of Management and Budget.

APPENDIX D TO SUBPART G—SUBSTITUTES SUBJECT TO USE RESTRICTIONS AND UNACCEPTABLE SUBSTITUTES

Summary of Decisions

Refrigeration and Air Conditioning Sector
Acceptable Subject to Use Conditions

R–406A/''GHG''/''McCool'', ''GHG–HP'', ''GHG–X4''/''Autofrost''/''Chill-It'', and ''Hot Shot''/''Kar Kool'' are acceptable substitutes for CFC–12 in retrofitted motor vehicle air conditioning systems (MVACs) subject to the use condition that a retrofit to these refrigerants must include replacing non-barrier hoses with barrier hoses.

For all refrigerants submitted for use in motor vehicle air conditioning systems, subsequent to the effective date of this FRM, in addition to the information previously required in the March 18, 1994 final SNAP rule (58 FR 13044), SNAP submissions must include specifications for the fittings similar to those found in SAE J639, samples of all fittings, and the detailed label described below at the same time as the initial SNAP submission, or the submission will be considered incomplete. Under section 612 of the Clean Air Act, substitutes for which submissions are incomplete may not be sold or used, regardless of other acceptability determinations, and the prohibition against sale of a new refrigerant will not end until 90 days after EPA determines the submission is complete.

In addition, the use of a) R–406A/''GHG''/''McCool'', ''GHG–HP'', ''GHG–X4/''Autofrost''/''Chill-It'', ''Hot Shot''/''Kar Kool'', and ''FREEZE 12'' as CFC–12 substitutes in MVACs, and b) all refrigerants submitted for, and listed in, subsequent Notices of Acceptability as substitutes for CFC–12 in MVACs, must meet the following conditions:

1. Each refrigerant may only be used w- with a set of fittings that is unique to that refrigerant. These fittings (male or female, as appropriate) must be designed by the manufacturer of the refrigerant. The manufacturer is responsible to ensure that the fittings meet all of the requirements listed below, including testing according to SAE standards. These fittings must be designed to mechanically prevent cross-charging with another refrigerant, including CFC–12.

The fittings must be used on all containers of the refrigerant, on can taps, on recovery, recycling, and charging equipment, and on all air conditioning system service ports. A refrigerant may only be used with the fittings and can taps specifically intended for that refrigerant and designed by the manufacturer of the refrigerant. Using a refrigerant with a fitting designed by anyone else, even if it is different from fittings used with other refrigerants, is a violation of this use condition. Using an adapter or deliberately modifying a fitting to use a different refrigerant is a violation of this use condition.

Fittings shall meet the following criteria, derived from Society of Automotive Engineers (SAE) standards and recommended practices:

a. When existing CFC–12 service ports are retrofitted, conversion assemblies shall attach to the CFC–12 fitting with a thread lock adhesive and/or a separate mechanical latching mechanism in a manner that permanently prevents the assembly from being removed.

b. All conversion assemblies and new service ports must satisfy the vibration testing requirements of section 3.2.1 or 3.2.2 of SAE J1660, as applicable, excluding references to SAE J639 and SAE J2064, which are specific to HFC–134a.

c. In order to prevent discharge of refrigerant to the atmosphere, systems shall have a device to limit compressor operation before the pressure relief device will vent refrigerant.

d. All CFC–12 service ports not retrofitted with conversion assemblies shall be rendered permanently incompatible for use with CFC–12 related service equipment by fitting with a device attached with a thread lock adhesive and/or a separate mechanical latching mechanism in a manner that prevents the device from being removed.

2. When a retrofit is performed, a label must be used as follows:

a. The person conducting the retrofit must apply a label to the air conditioning system in the engine compartment that contains the following information:

i. The name and address of the technician and the company performing the retrofit.

ii. The date of the retrofit.

iii. The trade name, charge amount, and, when applicable, the ASHRAE refrigerant numerical designation of the refrigerant.

iv. The type, manufacturer, and amount of lubricant used.

v. If the refrigerant is or contains an ozone-depleting substance, the phrase ''ozone depleter''.

vi. If the refrigerant displays flammability limits as measured according to ASTM E681, the statement ''This refrigerant is FLAMMABLE. Take appropriate precautions.''

b. The label must be large enough to be easily read and must be permanent.

c. The background color must be unique to the refrigerant.

d. The label must be affixed to the system over information related to the previous refrigerant, in a location not normally replaced during vehicle repair.

e. In accordance with SAE J639, testing of labels must meet ANSI/UL 969–1991.

f. Information on the previous refrigerant that cannot be covered by the new label must be rendered permanently unreadable.

3. No substitute refrigerant may be used to ''top-off'' a system that uses another refrigerant. The original refrigerant must be recovered in accordance with regulations issued under section 609 of the CAA prior to charging with a substitute.

SOLVENT CLEANING SECTOR

[Acceptable Subject to Use Conditions Substitutes]

Application	Substitute	Decision	Conditions	Comments
Electronics Cleaning w/CFC–113 and MCF.	HFC–4310mee	Acceptable	Subject to a 200 ppm time-weighted average workplace exposure standard and a 400 ppm workplace exposure ceiling.	
Precision Cleaning w/CFC–113 and MCF.	HFC–4310mee	Acceptable	Subject to a 200 ppm time-weighted average workplace exposure standard and a 400 ppm workplace exposure ceiling.	

SOLVENT SECTOR

[Acceptable Subject to Narrowed Use Limits]

Application	Substitute	Decision	Comments
Electronics Cleaning w/CFC–113 and MCF.	Perfluoropolyethers	Perfluoropolyethers are acceptable substitutes for CFC–113 and MCF in the precision cleaning sector for high performance, precision-engineered applications only where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements.	PFPEs have similar global warming profile to the PFCs, and the SNAP decision on PFPEs parallels that for PFCs.
Precision Cleaning w/CFC–113 and MCF	Perfluoropolyethers	Perfluoropolyethers are acceptable substitutes for CFC–113 and MCF in the precision cleaning sector for high performance, precision-engineered applications only where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements.	PFPEs have similar global warming profile to the PFCs, and the SNAP decision on PFPEs parallels that for PFCs.

Unacceptable Substitutes

End-use	Substitute	Decision	Comments
Electronics Cleaning w/CFC–113 and MCF	HCFC–141b	Extension of existing unacceptability determination to grant existing uses in high-performance electronics permission to continue until January 1, 1997.	This determination extends the use date for HCFC–141b in solvent cleaning, but only for existing users in high-performance electronics and only for one year.
Precision Cleaning w/CFC–113 and MCF	HCFC–141b	Extension of existing unacceptability determination to grant existing uses in precision cleaning permission to continue until January 1, 1997.	This determination extends the use date for HCFC–141b in solvent cleaning, but only for existing users in precision cleaning and only for one year.

AEROSOLS SECTOR

Acceptable Subject to Narrowed Use Limits

Application	Substitute	Decision	Comments
CFC–113, MCF, and HCFC–141b as aerosol solvents.	Perfluorocarbons	Perfluorocarbons are acceptable substitutes for aerosol applications only where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements.	PFCs have extremely long atmospheric lifetimes and high Global Warming Potentials. This decision reflects these concerns and is patterned after the SNAP decision on PFCs in the solvent cleaning sector.
	Perfluoropolyethers	Perfluorocarbons are acceptable substitutes for aerosol applications only where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements.	PFPEs have similar global warming profile to the PFCs, and the SNAP decision on PFPEs parallels that for PFCs in the solvent cleaning sector.

Unacceptable Substitutes

End-use	Substitute	Decision	Comments
CFC–11, CFC–12, HCFC–22, and HCFC–142b as aerosol propellants.	SF6	Unacceptable	SF6 has the highest GWP of all industrial gases, and other compressed gases meet user needs in this application equally well.

[61 FR 54040, Oct. 16, 1996]

Subpart H—Halon Emissions Reduction

SOURCE: 63 FR 11096, Mar. 5, 1998, unless otherwise noted.

§ 82.250. Purpose and scope.

(a) The purpose of this subpart is to reduce the emissions of halon in accordance with section 608 of the Clean Air Act by banning the manufacture of halon blends; banning the intentional release of halons during repair, testing, and disposal of equipment containing halons and during technician training; requiring organizations that employ technicians to provide emissions reduction training; and requiring proper disposal of halons and equipment containing halons.

(b) This subpart applies to any person testing, servicing, maintaining, repairing or disposing of equipment that contains halons or using such equipment during technician training. This subpart also applies to any person disposing of halons; to manufacturers of halon blends; and to organizations that employ technicians who service halon-containing equipment.

§ 82.260 Definitions.

Halon-containing equipment means equipment used to store, transfer, and/or disperse halon.

Disposal of halon means the process leading to and including discarding of halon from halon-containing equipment.

Disposal of halon-containing equipment means the process leading to and including:

(1) The discharge, deposit, dumping or placing of any discarded halon-containing equipment into or on any land or water;

(2) The disassembly of any halon-containing equipment for discharge, deposit, or dumping or placing of its discarded component parts into or on any land or water; or

(3) The disassembly of any halon-containing equipment for reuse of its component parts.

Halon means any of the Class I, Group II substances listed in subpart A, Appendix A of 40 CFR Part 82. This group consists of the three halogenated hydrocarbons known as Halon 1211, Halon 1301, and Halon 2402, and all isomers of these chemicals.

Halon product means any mixture or combination of substances that contains only one halon (e.g., Halon 1301 plus dinitrogen gas (N_2))

Halon blend means any mixture or combination of substances that contains two or more halons.

Manufacturer means any person engaged in the direct manufacture of halon, halon blends or halon-containing equipment.

Person means any individual or legal entity, including an individual, corporation, partnership, association, state, municipality, political subdivision of a state, Indian tribe, and any agency, department, or instrumentality of the United States, and any officer, agent, or employee thereof.

Technician means any person who performs testing, maintenance, service, or repair that could reasonably be expected to release halons from equipment into the atmosphere. Technician also means any person who performs disposal of equipment that could reasonably be expected to release halons from the equipment into the atmosphere. Technician includes but is not limited to installers, contractor employees, in-house service personnel, and in some cases, owners.

§ 82.270 Prohibitions.

(a) Effective April 6, 1998 no person may newly manufacture any halon blend. Halon blends manufactured solely for the purpose of aviation fire protection are not subject to this prohibition, provided that:

(1) The manufacturer or its designee is capable of recycling the blend to the relevant industry standards for the chemical purity of each individual halon;

(2) The manufacturer includes in all sales contracts for blends produced by it on or after April 6, 1998 the provision that the blend must be returned to it or its designee for recycling; and

(3) The manufacturer or its designee in fact recycles blends produced by the manufacturer on or after April 6, 1998 and returned to it for recycling to the relevant industry standards for the

chemical purity of each individual halon.

(b) Effective April 6, 1998, no person testing, maintaining, servicing, repairing, or disposing of halon-containing equipment or using such equipment for technician training may knowingly vent or otherwise release into the environment any halons used in such equipment.

(1) De minimis releases associated with good faith attempts to recycle or recover halon are not subject to this prohibition.

(2) Release of residual halon contained in fully discharged total flooding fire extinguishing systems would be considered a *de minimis* release associated with good faith attempts to recycle or recover halon.

(3) Release of halons during testing of fire extinguishing systems is not subject to this prohibition if the following four conditions are met:

(i) Systems or equipment employing suitable alternative fire extinguishing agents are not available;

(ii) System or equipment testing requiring release of extinguishing agent is essential to demonstrate system or equipment functionality;

(iii) Failure of the system or equipment would pose great risk to human safety or the environment; and

(iv) A simulant agent cannot be used in place of the halon during system or equipment testing for technical reasons.

(4) Releases of halons associated with research and development of halon alternatives, and releases of halons necessary during analytical determination of halon purity using established laboratory practices are exempt from this prohibition.

(5) This prohibition does not apply to qualification and development testing during the design and development process of halon-containing systems or equipment when such tests are essential to demonstrate system or equipment functionality and when a suitable simulant agent can not be used in place of the halon for technical reasons.

(6) This prohibition does not apply to the emergency release of halons for the legitimate purpose of fire extinguishing, explosion inertion, or other emergency applications for which the equipment or systems were designed.

(c) Effective April 6, 1998, organizations that employ technicians who test, maintain, service, repair or dispose of halon-containing equipment shall take appropriate steps to ensure that technicians hired on or before April 6, 1998 will be trained regarding halon emissions reduction by September 1, 1998. Technicians hired after April 6, 1998 shall be trained regarding halon emissions reduction within 30 days of hiring, or by September 1, 1998, whichever is later.

(d) Effective April 6, 1998, no person shall dispose of halon-containing equipment except by sending it for halon recovery to a manufacturer operating in accordance with NFPA 10 and NFPA 12A standards, a fire equipment dealer operating in accordance with NFPA 10 and NFPA 12A standards or a recycler operating in accordance with NFPA 10 and NFPA 12A standards. This provision does not apply to ancillary system devices such as electrical detection control components which are not necessary to the safe and secure containment of the halon within the equipment, to fully discharged total flooding systems, or to equipment containing only de minimis quantities of halons.

(e) Effective April 6, 1998, no person shall dispose of halon except by sending it for recycling to a recycler operating in accordance with NFPA 10 and NFPA 12A standards, or by arranging for its destruction using one of the following controlled processes:

(1) Liquid injection incineration;

(2) Reactor cracking;

(3) Faseous/fume oxidation;

(4) Rotary kiln incineration;

(5) Cement kiln;

(6) Radiofrequency plasma destruction; or

(7) An EPA-approved destruction technology that achieves a destruction efficiency of 98% or greater.

(f) Effective April 6, 1998, no owner of halon-containing equipment shall allow halon release to occur as a result of failure to maintain such equipment.