ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 82

[FRL–5939–4]

RIN 2060–AF35

Protection of Stratospheric Ozone

AGENCY: Environmental Protection Agency.

ACTION: Final rule.

SUMMARY: On July 14, 1992, EPA published a final rule in the **Federal Register**, pursuant to section 609 of the Clean Air Act, as amended (the Act), establishing standards and requirements regarding the servicing of motor vehicle air conditioners (MVACs) that use chlorofluorocarbon-12 (CFC–12), a class I refrigerant, and establishing restrictions on the sale of small containers of class I or class II refrigerants.

Pursuant to section 609(b)(1), today's final rule establishes standards and requirements for the servicing of MVACs that use any refrigerant other than CFC–12. Today's rule also provides that refrigerant (whether CFC–12 or a substitute) recovered from motor vehicles located at motor vehicle disposal facilities may be re-used in the MVAC service sector only if it has been properly recovered and reclaimed, or if it has been properly recovered by persons who are either employees, owners or operators of the facilities, or technicians certified under section 609 of the Act, using approved equipment, and subsequently recycled using approved refrigerant recycling equipment prior to use in recharging an MVAC or MVAC-like appliance. The rule also establishes conditions under which owners and operators of motor vehicle disposal facilities may sell refrigerant recovered from such vehicles to technicians certified under section 609 of the act. Finally, the rule establishes standards for mobile recovery and recycling service of MVACs. The rule also clarifies certain provisions in the existing regulatory text.

Today's rule increases industry flexibility in selecting and purchasing proper recovery and recycling equipment by establishing standards for equipment that recovers and/or recycles refrigerants other than CFC–12, and by approving independent testing organizations that certify such equipment.

This final action facilitates compliance with section 608(c)(2) of the Act, which prohibits venting refrigerants to the atmosphere. By promoting the recycling or reclamation of all refrigerants from MVACs and MVAC-like appliances, this rule will help to lower the risk of depletion of the stratospheric ozone layer and the possibility of global climate change, thus diminishing potentially harmful effects to human health and the environment, including increased incidences of certain skin cancers and cataracts.

DATES: This final rule is effective January 29, 1998.

ADDRESSES: Comments and materials supporting this rulemaking are contained in Public Docket No. A–95–34 in room M–1500, Waterside Mall (Ground Floor), U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460. The docket may be inspected from 8:30 a.m. until 5:30 p.m., Monday through Friday. A reasonable fee may be charged for copying docket materials.

FOR FURTHER INFORMATION CONTACT: Christine Dibble, Stratospheric Protection Division, Office of Atmospheric Programs, Office of Air and Radiation (6205–J), 401 M Street SW., Washington, DC 20460. (202) 564–9147 or electronically at dibble.christine@epamail.epa.gov. The Ozone Information Hotline at 1–800–296–1996 can also be contacted for further information.

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Entities potentially regulated by this action are those that service or dispose of motor vehicle air conditioners. Regulated categories and entities include:

Category	Examples of regulated entities
Industry	Independent repair shops. Service stations. Truck fleet shops. Collision repair shops. Franchised repair shops. New car and truck dealers. Car and truck rental shops. Radiator repair shops. Vocational technical schools. Farm equipment dealers. Automobile rental and leasing facilities.
Federal Government.	Military repair shops. Fleet repair shops.
State/Tribal/Local Government.	Fleet repair shops.

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. This table lists the types of entities that EPA is now aware could potentially be regulated by this action. Other types of entities not listed in the table could also be regulated. To determine whether your facility, company, business, organization, etc. is regulated by this action, you should carefully examine the applicability criteria in section 609 of the Clean Air Act and in the regulations promulgated thereunder at 40 CFR 82.30 *et seq.* If you have questions regarding the applicability of this action to a particular entity, consult the person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

I. Background

A. Statutory Authority; July 14, 1992 Final Rule and May 2, 1995 Supplemental Final Rule

Title VI of the Act is designed to protect the stratospheric ozone layer. Section 609 of the Act requires the Administrator to promulgate regulations establishing standards and requirements

regarding the servicing of motor vehicle air conditioners (MVACs). On July 14, 1992, the Agency published a final rule initially implementing section 609. In that rule, the Agency prohibited the repair or servicing of any MVAC for consideration if such repair or servicing involved the air conditioner refrigerant, unless performed by a trained and certified technician who properly uses approved refrigerant recycling equipment. The Agency also prohibited the sale or distribution of any class I or class II substance (i.e., CFC or HCFC) suitable for use in an MVAC that is in a container of less than 20 pounds, to anyone other than a properly trained and certified section 609 technician.

The July 14, 1992 final rule defined ''approved refrigerant recycling equipment'' as equipment that recovers and recycles CFC–12 refrigerant and purifies the refrigerant on-site, and that is certified by the Administrator or by an independent standards testing organization approved by the Agency as meeting the standards set forth in appendix A in the rule.

The regulatory equipment standards are based on those developed by the Society of Automotive Engineers (SAE) and cover service procedures for recovering CFC–12 (SAE J1989, issued in October 1989), test procedures to evaluate CFC–12 recover/recycle equipment (SAE J1990, issued in October 1989 and revised in 1991) and a purity standard for recycled CFC–12 refrigerant (SAE J1991, issued in October 1989). CFC–12 recycling equipment was also considered approved if it was purchased before September 4, 1991 (the date on which the July 14, 1992 rule was proposed), and is substantially identical to the certified equipment. Only equipment certified to meet the standards set forth in appendix A, or to meet the criteria for substantially identical equipment, was approved under section 609 of the Act for use in the servicing of motor vehicle air conditioners.

The July 14, 1992 rule also established standards by which (i) an independent standards testing organization may apply to the Agency for approval to test and approve refrigerant recycling equipment, and (ii) a training and certification program may apply to the Agency for approval to train and certify technicians in the proper use of refrigerant recycling equipment for MVACs. Underwriters Laboratories (UL) and ETL Testing Laboratories (ETL) are the approved independent standards testing organizations that currently certify equipment using the standards that appear in appendix A of the rule.

Finally, the rule established various recordkeeping and reporting requirements.

As stated above, section 609 prohibits the sale or distribution of any class I or class II substance suitable for use in an MVAC that is in a container of less than 20 pounds to anyone other than a properly trained and certified section 609 technician. It should be noted, however, that EPA expanded this prohibition in the regulations published on May 14, 1993 at 58 FR 28712 under section 608 of the Act (40 CFR 82.154(n)), which prohibits the sale as of November 14, 1994 of any size container of a class I or class II substance, including refrigerant blends that include class I or class II substances, to other than technicians certified under section 608 or section 609 of the Act.

The July 14, 1992 rule reserved standards for equipment that extracts but does not recycle CFC–12 refrigerant (recover-only equipment) in Appendix B to the rule. On May 2, 1995, EPA published a final rule establishing regulatory standards, again based on standards developed by SAE, which apply to certification of CFC–12 recover-only equipment. Specifically, for recover-only equipment, the Agency adopted (i) the recommended service procedure for the containment of CFC–12 (SAE J1989, issued in October 1989 and set forth in appendix A), and (ii) test procedures to evaluate recover-only equipment (SAE J2209, issued in June 1992). The definition of ''approved refrigerant recycling equipment'' was also expanded to include this recover-only equipment. UL and ETL were also approved to certify recover-only equipment. Finally, service technicians previously certified to handle recover/recycle equipment were grandfathered so that they would not have to be recertified to handle recover-only equipment.

B. Venting Prohibition; Application of Rules to Replacement Refrigerants

Many replacement refrigerants for CFC–12 in automotive applications are blends of chemicals that include HCFCs, which are class II substances. As class II blends, these refrigerants have been subject since the inception of the Title VI requirements to all of the same rules and restrictions that apply to CFC–12: they may not be vented into the atmosphere; they may only be purchased by certified technicians, and in small cans only by section 609 certified technicians; and they must be recovered by section 609 certified technicians and either recycled on-site or reclaimed off-site prior to reuse. Today's rule establishes a standard for equipment that extracts such blends but does not recycle them. EPA is currently working with the industry to determine what standard is appropriate for equipment that can safely recycle these blend refrigerants.

Because HFC–134a is a non-ozone-depleting chemical, and is therefore not classified as a class I or class II substance, the regulations set forth under Title VI of the Act governing its use are somewhat different. Section 609 of the Act defines ''refrigerant'' so that, beginning on November 15, 1995, the term includes any substance that substitutes for a class I or II substance used in an MVAC. Section 608 of the Act provides that, beginning on November 15, 1995, any substance substituting for a class I or class II substance may not be vented into the atmosphere. Therefore, on that date, it became illegal to vent HFC–134a, even though it does not contribute to ozone depletion. (Venting of CFC–12 substitutes that contain class II substances was already prohibited.) Because venting was prohibited, recovery of HFC–134a has been de facto required since November 15, 1995. Recycling HFC–134a in approved equipment, however, has not been required. The publication today of standards for equipment that recovers and recycles HFC–134a initiates a requirement to recycle HFC–134a, beginning on the effective date of this rule. A summary of today's rule is set forth in section IV below.

II. Summary of Public Participation

During the public comment period, the Agency received 27 sets of comments that are addressed in this action. In addition, EPA received and considered additional comments submitted to the Agency after the thirty-day comment period ended. All comments considered in this final action are contained in the Air Docket. No commenter requested a public hearing.

III. Summary of Major Public Comments

This rule was originally proposed for public comment in the March 6, 1996 **Federal Register** (61 FR 9014). Comments to this rule were submitted between March 6, 1996 and April 5, 1996. The vast majority of comments discussed the proposed clarification of required service practices for motor vehicle disposal facilities. The remainder of comments addressed the proposed service practices for mobile recovery and recycling; the standards for recovery and recycling equipment

designed for use with HFC–134a or other replacement refrigerants; training and certification of technicians; and potential future restrictions on the sale of HFC–134a.

Several commenters disagreed with certain minor technical provisions contained in the Society of Automotive Engineers (SAE) standards that are being adopted in this rule. Some of these comments will be addressed in more detail below. None of these comments is being incorporated by the Agency in today's rule, however, because in all instances, the Agency believes that the value of EPA legally mandating exactly the same standards previously adopted on a wide scale by the automotive service industry outweighs any benefit brought by incorporating the minor changes suggested. A legally mandated standard adopted by EPA that is different from a widely used voluntary industry standard would cause significant confusion within the affected industry.

For example, one commenter requested that labels for recovery/recycling equipment state ''Caution—Should Be Operated by Qualified Personnel'' rather than ''Caution—Should Be Operated by Certified Personnel.'' The commenter correctly pointed out that owners and operators of salvage yards and other automotive recycling facilities are qualified under Title VI to handle recovery/recycling equipment, but are not certified technicians. If EPA adopted this provision into its standard, however, then equipment labels would have to contain both statements, if the labels were to meet both the voluntary industry standard set forth by SAE, and the mandated standard promulgated by EPA. The resulting label would only serve to confuse anyone reading it. The Agency believes that the benefit of making the label slightly more accurate is outweighed by the advantages brought by consistency between industry and government standards.

Commenters generally supported the proposed standards for recovery and recycling equipment, and for the training and certification of technicians, and very strongly supported EPA's proposal to explicitly permit the use of mobile recovery and recycling equipment to service MVACs.

Commenters extensively discussed the proposed clarification of EPA regulations governing who may recover refrigerant from motor vehicles bound for disposal, who may purchase such refrigerant, and under what conditions such refrigerant may be re-used. In general, the commenters either supported the proposed standards that would allow owners, operators, and employees of motor vehicle disposal facilities to recover and sell to section 609 technicians refrigerants recovered from motor vehicles destined for disposal, or claimed that the proposed standards, as written, would not serve to protect the national refrigerant supply or the environment because they would allow untrained technicians to service and sell refrigerants in the marketplace.

Those supporting the proposed changes/clarification claimed that both motor vehicle disposal facilities and service technicians who install refrigerants in MVAC systems have an economic stake in ensuring that refrigerants are properly identified, recovered, handled, recycled or reclaimed, and installed. The supporters also suggested that the rule would increase the value of the refrigerant to motor vehicle disposal facilities by decreasing shipping costs and increasing the number of buyers for recovered refrigerant. Those commenters who did not fully support the proposed rule asserted that training, certification, and refrigerant identification requirements, as well as specific sales prohibitions, should be incorporated into the rule to better protect the refrigerant supply and the environment. They felt that untrained operators would be more likely to vent refrigerants and cause contamination problems, and that the minimal training expense, in combination with the increasing need to become informed regarding recently commercialized substitute refrigerants, warrant a training requirement for individuals involved with refrigerant recovery and subsequent sales. As a consequence, a large number of commenters urged EPA to require owners, operators and employees of motor vehicle disposal facilities to become certified technicians under section 609 of the Act in order to recover refrigerant from MVAC systems. Several commenters also requested that the Agency require that any refrigerant recovered from MVACs at motor vehicle disposal facilities be sent directly to a reclaimer, as is currently required for refrigerant recovered from stationary equipment such as household refrigerators and air conditioners, when that equipment is to be dismantled and salvaged. The major comments to the proposal will be discussed in further detail below.

EPA's responses to specific comments are set forth in section IV, Today's Final Rule, below.

IV. Today's Final Rule

Today's rule further implements sections 608 and 609 of the Act. This section of the preamble reviews the elements of the rule and addresses the major comments to those elements. Specifically, the regulations:

(i) Explicitly permit, under specified conditions, technicians certified under section 609 of the Act who recover refrigerant (whether CFC–12 or a replacement) from motor vehicles located at disposal facilities and bound for disposal and who recycle that refrigerant to use the refrigerant to charge or recharge an MVAC or MVAC-like appliance. It also explicitly permits, under specified conditions, owners or operators of motor vehicle disposal and recycling facilities, salvage yards, scrap recyclers, landfills or other motor vehicle disposal facilities where such vehicles may be located, to sell refrigerant recovered from such vehicles (whether CFC–12 or a replacement) to section 609 certified technicians without recycling the recovered refrigerant. These conditions are as follows:

(a) Any refrigerant that is extracted from an MVAC or an MVAC-like appliance 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 (1) recovered and reclaimed in accordance with the regulations promulgated in subpart F (the section 608 regulations), or (2) recovered using approved refrigerant recycling equipment dedicated for use with MVACs and MVAC-like appliances, either by a technician certified under section 609, or by an employee, owner, or operator of the disposal facility, and subsequently recycled by the facility that charges or recharges the refrigerant into an MVAC or MVAC-like appliance, using approved refrigerant recycling equipment in accordance with any applicable recommended service procedures.

(b) Any class I or class II substance extracted from an MVAC or an MVAC-like appliance bound for disposal and located at a motor vehicle disposal facility, which is not recovered and reclaimed in accordance with the section 608 regulations, may be sold prior to its subsequent re-use only to a section 609 certified technician.

(c) Any section 609 certified technician who obtains such a class I or class II substance may subsequently re-use such refrigerant only in an MVAC or MVAC-like appliance, and only if it has been reclaimed or properly recycled.

(ii) Revise the definition of ''properly using'' to explicitly permit and establish

standards for mobile recovery and recycling service of MVACs;

(iii) Clarify that the definition of ''service involving refrigerant'' includes service performed by facilities that charge refrigerant into vehicles but do not perform any other kind of refrigerant servicing or repair (*i.e.*, facilities that ''top off'' only);

(iv) Further clarify that ''properly using'' recover/recycling equipment entails recycling refrigerant prior to recharging it into a vehicle, even if the vehicle is the same vehicle from which the refrigerant was extracted;

(v) Establish a standard for recover/recycle equipment that extracts and recycles HFC–134a from MVACs;

(vi) Establish a standard for recover-only equipment that extracts HFC–134a from MVACs;

(vii) Establish a standard for recover-only equipment designed to extract a single, specific refrigerant other than CFC–12 and HFC–134a;

(viii) Establish a standard for recover-recycle equipment that extracts and recycles both CFC–12 and HFC–134a using a common refrigerant circuit;

(ix) Revise the requirements for Agency approval of independent standards testing organizations to include certification of recover/recycle and recover-only equipment designed to service MVAC systems that use refrigerants other than CFC–12; and

(x) Revise the criteria for approval of technician training and certification programs to reflect the use of recover/recycle and recover-only equipment designed to service MVAC systems that use refrigerants other than CFC–12.

In addition, in this notice EPA describes its intention to grandfather technicians currently certified under section 609, so that they will not need to be recertified to operate recover/recycle and recover-only equipment designed to service MVAC systems that use refrigerants other than CFC–12.

A. Service Practices

Today's rule clarifies the Agency's position on four types of refrigerant service that have not previously been explicitly addressed in the section 609 regulations: (i) The recovery of refrigerant from motor vehicles located at a motor vehicle disposal facility and bound for disposal, and the subsequent purchase and re-use of such refrigerant; (ii) mobile recovery and recycling service, *i.e.*, service in which approved recover-only or recover/recycle equipment is transported to the location of an MVAC for servicing by a certified technician; (iii) service performed by facilities that charge refrigerant into vehicles but do not perform any other kind of refrigerant servicing or repair (*i.e.*, facilities that ''top off'' only); and (iv) service that involves recharging refrigerant into the same vehicle from which that refrigerant was extracted.

The service practice regulations being promulgated today for MVACs also apply to MVAC-like appliances (such as air-conditioning systems in off-road equipment such as tractors and other farm equipment, construction equipment, and mining and quarry equipment, that meet the definition of MVAC-like appliances set forth in 40 CFR 82.152). MVAC-like appliances have traditionally been governed under section 608 of the Act rather than under section 609. However, the section 608 regulations contained in subpart F that apply to MVAC-like appliances generally refer back to the section 609 standards contained in subpart B. For example, § 82.156(a)(5) states that persons opening MVAC-like appliances for maintenance, service or repair may do so only when properly using equipment pursuant to § 82.32(e), and § 82.158 (a) and (f) state that manufacturers of recycling equipment used to service or repair MVAC-like appliances must have the equipment certified pursuant to § 82.36(a).

Because MVAC-like appliances have been ostensibly governed under section 608, EPA stated in the proposal to this rule that service practice regulations governing MVAC-like appliances, similar to those in today's rule that govern MVACs, would be proposed and finalized in a separate rulemaking that amends section 608. Since the publication of the proposal to today's rule, however, EPA has determined that those service practice regulations that apply to MVAC-like appliances should be contained in today's final rule, rather than in the section 608 rule. The Agency is making this change for a number of reasons.

Practically speaking, EPA's changes to the regulations will have the same actual effect on the servicing of MVAC-like appliances, no matter whether the changes are made under the section 609 regulations or the section 608 regulations. At the time of the publication of the proposal to today's rule, EPA believed that the proposal and final rule in this separate section 608 rulemaking would be published at about the same time as this section 609 rule. The changes to the section 608 regulations that include the new service practice regulations governing MVAC-like appliances would therefore take effect on or about the effective date of the changes to the section 609 regulations that include new service practice regulations governing MVACs. The intended schedule for the section 608 rulemaking has been delayed, however, so that today's final rule under section 609 will most likely be published before the proposal for the section 608 rule is published. EPA's publication of the service practice regulations that govern MVAC-like appliances under subpart F would create a disparity when identical changes in the service practice regulations would affect MVACs and MVAC-like appliances; regulations that affect MVACs on the effective date of today's rule would most likely not affect MVAC-like appliances for a year or more.

EPA believes that such a delay would create confusion within the motor vehicle service industry, a large segment of which services both MVACs and MVAC-like appliances. Some automotive recyclers may also receive both MVACs and MVAC-like appliances on their lots and may therefore be recovering refrigerant from both MVACs and MVAC-like appliances before they are dismantled, crushed or otherwise disposed of. Having different rules in place for MVACs and MVAC-like appliances complicates efforts by these persons to comply with EPA regulations.

In addition, EPA believes that a delay in implementing these rules, as they apply to MVAC-like appliances, will be viewed with concern by servicers of MVAC-like appliances found in non-road motor vehicles, such as those appliances in farm and heavy-duty equipment. The farm equipment and heavy-duty equipment industries have long expressed to EPA their frustration at understanding how MVAC-like appliances are governed under Title VI of the Act. EPA believes that publishing the service practice regulations under subpart F, thereby incurring a delay of a year or more in their implementation, would not serve the interest of these industries, and that the service practice regulations promulgated today should clarify to these affected sectors how MVAC-like appliances are regulated under Title VI.

Finally, EPA believes that it makes more sense to state in the subpart B regulations than in the subpart F regulations how these service practice regulations apply to MVAC-like appliances, because in most practical respects, EPA regulations treat MVAC-like appliances more like MVACs than like refrigerators, freezers, chillers and other stationary/commercial appliances. EPA established the links between the provisions governing MVACs and those governing MVAC-like appliances because EPA believed that the

similarities in design and servicing patterns between MVACs and MVAC-like appliances argue for parallel requirements for both sets of appliances. The argument for parallel coverage of MVACs and MVAC-like appliances was discussed at length in the May 14, 1993 section 608 rule at 58 FR 28686. EPA continues to believe this, and specifically believes that the rationale for clarifying and changing the requirements under the section 609 regulations as they apply to MVACs also holds for MVAC-like appliances.

Interested parties should note that the section 608 regulations currently define ''appliances,'' including ''MVAC-like appliances,'' to include only devices that contain and use class I or class II substances, so that as of today, MVAC-like appliances by definition do not include any air-conditioning systems in off-road equipment if those systems use HFC–134a or other non-ozone-depleting substances. Off-road vehicles that contain MVAC-like appliances that use non-ozone-depleting refrigerants are today subject only to the section 608 venting prohibition; other Title VI regulations will only apply to these vehicles when the definition of ''appliance'' is expanded to include devices that use non-ozone-depleting substances as refrigerants. EPA is currently undertaking a rulemaking to expand the scope of the 608 regulation to include substitutes for class I and class II substances, but this rulemaking has not yet been proposed. This rulemaking would amend the definition of ''appliance,'' so that the term includes non-ozone-depleting refrigerants. If and when that expanded definition becomes effective, MVAC-like appliances that contain non-ozone-depleting refrigerants would be subject to the service practice regulations promulgated today.

1. Handling Refrigerant Recovered From Vehicles Bound for Disposal and Located at Motor Vehicle Disposal Facilities

Since the publication of the July 14, 1992 section 609 final rule, EPA has received an increasing number of questions concerning the handling of refrigerants from MVACs and MVAC-like appliances bound for disposal and located at motor vehicle disposal facilities. Many owners of motor vehicle disposal facilities have assumed that recovered refrigerant must be sent off-site for reclamation, while others have assumed that they may sell the refrigerant to any interested purchaser. In response to the increasing cost of CFC–12, some automotive service technicians have begun to recover refrigerant from motor vehicle disposal facilities for use in their own service facilities. In addition, owners and operators of motor vehicle disposal facilities have been recovering refrigerant from automobiles and selling it to automotive service technicians. The rule promulgated today clarifies that the Agency permits the return of refrigerant to the MVAC service sector without prior reclamation, as long as certain requirements are met during their performance.

Sections 608 and 609 of the Clean Air Act and the regulations adopted by EPA prior to today at 40 CFR part 82, Subparts B and F (*i.e.*, the section 609 and 608 regulations) have addressed to some degree activities involving recovery and sale of refrigerant from MVACs and MVAC-like appliances at motor vehicle disposal facilities. Regulations promulgated under Section 608 of the Clean Air Act, which has as one of its goals ensuring the purity of refrigerant that flows back into the stationary/commercial sector, require the recovery of all refrigerant located in appliances destined for disposal. Section 608 regulations also require that unless refrigerant is recovered from an MVAC and reused in the MVAC service sector, it must be reclaimed. However, if refrigerant has been recovered from an MVAC destined for disposal, and if the refrigerant is then reused in the MVAC service sector, the regulations promulgated under section 608 are silent with respect to how that refrigerant must be handled prior to such reuse.

Section 82.154(f) of the regulations requires that persons who take the final step in the disposal process must recover any remaining refrigerant in accordance with applicable requirements and requires that persons who recover refrigerant from MVACs and MVAC-like appliances for purposes of disposal must certify to the Administrator that they have acquired equipment that meets such standards. Section 82.156(g) requires that all persons recovering refrigerant from MVACs and MVAC-like appliances for purposes of disposal must reduce the pressure of the system to or below 102 mm (four inches) of mercury vacuum, using equipment that meets the requirements of § 82.158(l). In addition, § 82.154 (g) and (h) require that persons cannot sell used class I or class II refrigerant unless it has first been reclaimed by a certified reclaimer, or unless the refrigerant was used only in an MVAC or MVAC-like appliance and will be used only in an MVAC or MVAC-like appliance.[1] Section 82.154(m) prohibits persons from selling or distributing any class I or class II substance for use as a refrigerant unless the purchaser is a technician certified under section 608 or 609. (Although there are exceptions to this sales restriction, the exceptions do not apply to sales of refrigerant from motor vehicle disposal facilities.) These provisions were adopted pursuant to section 608 of the Act. Any servicing of an MVAC or MVAC-like appliance with refrigerant recovered from a motor vehicle disposal facility would also be subject to the various equipment standards and use restrictions set forth in 40 CFR part 82, subparts B and F.

Neither the subpart F regulations nor the subpart B regulations, however, explicitly and specifically address, in a single, central location, who may recover refrigerant from motor vehicles bound for disposal, who may purchase such refrigerant, and under what conditions such refrigerant may be re-used. Today's rule is intended to supplement the existing piecemeal requirements so that automotive recyclers and dismantlers, and automotive service technicians, will be able to follow a clear and complete set of EPA regulations concerning the recovery and re-use of refrigerants from MVACs and MVAC-like appliances located at motor vehicle disposal facilities. At the same time, the provisions contained in today's rule should minimize the discharge of ozone-depleting refrigerants into the atmosphere and provide for the proper recycling or reclamation of the refrigerants prior to their use in servicing MVACs or MVAC-like appliances. EPA intends to propose similar regulations under section 608 of the Act to provide an incentive for the recovery and re-use of non-ozone-depleting refrigerants from MVAC-like appliances located at motor vehicle disposal facilities, so that these refrigerants are properly recycled or reclaimed prior to their use in servicing MVACs or MVAC-like appliances.

The Agency believes that recovery and recycling of refrigerant from MVACs bound for disposal and located at disposal facilities will be more economically attractive to the automotive service technician and the motor vehicle disposal facility operator

[1] Sections 82.154 (g) and (h) also permit a third option for used class I and class II refrigerants: They may be sold in an appliance without prior reclamation. Interested parties should note that although § 82.154 (g) and (h) were formerly effective only until December 31, 1996, a final rule published in the **Federal Register** on December 27, 1996 at 61 FR 68506 extends these provisions indefinitely.

if the sale or re-use of unreclaimed refrigerant is explicitly permitted. The service technician may be able to purchase refrigerant for a lower price from a motor vehicle disposal facility than from other suppliers of reclaimed refrigerant. Because of this economic incentive, technicians will seek salvaged MVACs. In addition, motor vehicle disposal facility owners and operators may profit by selling refrigerant directly to technicians, or by charging technicians fees for the opportunity to recover refrigerant at the facility, creating other economic incentives in the refrigerant recycling chain. The Agency believes that encouraging these activities will increase the value of refrigerant to the person recovering it, thereby reducing the amount of refrigerant that either leaks out of MVACs while they await disposal or is purposely vented during the process of disposal.

Today's rule adds a definition of ''motor vehicle disposal facility'' at § 82.32(i) and adds a new § 82.34(d). The effect of these changes is that if refrigerant from MVACs bound for disposal and located at disposal facilities is destined for re-use in the MVAC service sector without prior reclamation, it must be recovered by a certified technician or by a motor vehicle disposal facility owner, operator, or employee. Such persons will be able to transfer the refrigerant off-site for recycling and charging into an MVAC or MVAC-like appliance, in accordance with the conditions described in this rule. Section (a) discusses the definition of motor vehicle disposal facility, section (b) discusses who may recover refrigerant from such a facility, and section (c) discusses what kind of equipment must be used to recover refrigerant at such a facility. Section (d) discusses who may purchase refrigerant recovered from a motor vehicle disposal facility, section (e) discusses subsequent use of refrigerant after it has left the facility, and section (f) discusses recordkeeping and reporting requirements.

After publishing the proposal to today's rule, and reviewing the comments on that proposal, the Agency considered at length where the proposed regulations most sensibly belong: Under subpart F (the regulations previously promulgated under section 608 of the Act), which governs the safe disposal of refrigerants and includes regulations that mandate what type of equipment must be used to recover refrigerant at motor vehicle disposal facilities, or under subpart B (the regulations previously promulgated under section 609 of the Act), which governs the servicing of motor vehicle air conditioning and includes regulations that mandate what type of equipment must be used to recycle refrigerant prior to re-use in a motor vehicle.

EPA believes that if the refrigerant recovered at a motor vehicle disposal facility is destined for re-use in the MVAC service sector without prior reclamation, then the regulations governing the recovery and re-use of that refrigerant should be located in subpart B. With the regulations adopted today, the regulations in subpart B are based in large part on section 609, but contain a few provisions based on section 608. If, on the other hand, the refrigerant recovered at a motor vehicle disposal facility is sold or otherwise transferred to a reclaimer and subsequently re-used in any refrigeration and air-conditioning sector, then the regulations governing the recovery and re-use of that refrigerant are found in subpart F. This regulatory framework will effectively preclude storing refrigerant bound for re-use in the MVAC service sector without prior reclamation together in the same container with refrigerant destined for a reclaimer prior to re-use.

With some exceptions described below (notably recordkeeping requirements), the recovery of refrigerant destined for re-use in the MVAC service sector without prior reclamation is governed by the regulations described in today's rule. All of the regulations that govern the recovery of class I and class II refrigerants bound directly for a reclaimer are already in place, in the current subpart F regulations, and the subpart F regulations will in the future incorporate rules that govern the recovery of non-ozone-depleting refrigerants bound for reclamation. Within each section below, the discussion will be framed around whether the refrigerant is bound for direct re-use in the MVAC service sector, or whether it is bound for reclamation. Each section below will explain which regulatory text under subpart F and/or subpart B applies in each situation.

a. Definition of motor vehicle disposal facility: The proposed rule added a new term, ''motor vehicle disposal facility,'' defined in § 82.32(i). The proposed definition stated that motor vehicle disposal facility means ''any commercial facility that engages in motor vehicle disposal, dismantling or recycling, including but not limited to scrap yards, landfills, and salvage yards engaged in such operations. Motor vehicle repair facilities, including collision repair facilities, are not considered motor vehicle disposal facilities.'' Few commenters suggested changes to the definition. One commenter requested that EPA include in the definition mobile car crushers, vehicle dismantlers, certified scrap processors, and itinerant vehicle collectors, which are businesses separately categorized and registered in New York State. EPA believes that the existing definition is sufficiently broad to encompass these kinds of businesses, and that the types of businesses explicitly listed in the definition need not be exhaustive. A second commenter suggested replacing the term ''salvage yards'' with ''automotive recycling facilities,'' since the commenter believed that ''salvage yard'' does not properly identify the automotive recycling industry. EPA in response has added the term ''automotive recycling facilities,'' but has not deleted the term ''salvage yards,'' since facilities that characterize themselves as salvage yards but not necessarily as automotive recycling facilities may engage in refrigerant recovery.

EPA has also changed the definition to make more clear that facilities that dismantle or dispose of both MVACs and MVAC-like appliances are covered under the definition. It should be noted, however, that the regulations set forth in today's rule concerning handling refrigerant recovered from vehicles bound for disposal do not apply to recovery of refrigerant from an MVAC or MVAC-like appliance that is performed outside of a motor vehicle disposal facility. So, for example, if a piece of heavy-duty equipment such as mining equipment that is at the end of its useful life is dismantled at the mine site, then the mine site is not considered a motor vehicle disposal facility.

b. Persons who may recover refrigerant from MVACs at motor vehicle disposal facilities: Neither the subpart F regulations nor the current subpart B regulations restrict who may recover refrigerant from an MVAC or MVAC-like appliance before it is disposed of or dismantled. This continues to be the case for refrigerant recovered from an MVAC or MVAC-like appliance if the refrigerant is then sold or otherwise transferred to a reclaimer.

If, on the other hand, the refrigerant is bound for re-use in the MVAC (or MVAC-like appliance) service sector without being reclaimed first, then today's rule applies. Specifically, the rule adds a new requirement, set forth in § 82.34(d), that if any refrigerant recovered from an MVAC or MVAC-like appliance at a motor vehicle disposal facility is to be returned to the MVAC

service sector for re-use without prior reclamation, then the person recovering it must be either an owner, operator or employee of the facility (or a contractor to the facility), or a section 609 certified technician.

With respect to class I and class II substances bound for direct re-use in the MVAC or MVAC-like appliance service sector, sections 608 (a) and (b) authorize the restriction on who may recover refrigerant. Under section 608, the Administrator may prescribe standards and equipment regarding the use and disposal of MVACs and MVAC-like appliances containing class I or II substances, in order to reduce the use and emissions of these substances to the lowest achievable level, and to maximize the recapture and recycling of these substances. The Administrator also may establish standards and requirements regarding the safe disposal of these substances.

Although sections 608 (a) and (b) authorize the restriction on who may recover refrigerant from a motor vehicle disposal facility with respect to class I or II substances, these sections do not directly require regulation of the use of non-ozone-depleting substitute refrigerants. Section 608(c)(2), however, does prohibit intentional venting or release of such substitutes during the maintenance, repair, service or disposal of an appliance where the refrigerant may enter the environment, unless the Administrator has determined that such venting, release, or disposal does not pose a threat to the environment. This venting prohibition is self-effectuating, and went into effect on November 15, 1995 with respect to substitutes for class I or class II substances. *De minimis* releases associated with any good faith efforts to recapture and recycle or safely dispose of the refrigerant are not subject to this prohibition as long as those efforts are performed by persons who are authorized under the regulations to recover refrigerant. Releases associated with recovery that does not comply with the regulations, such as releases by persons who are not authorized under the regulations to perform refrigerant recovery, are not considered *de minimis* or accidental but rather intentional and knowing.

In today's rulemaking, EPA is defining the kind of recovery and recycling practices that must be followed in order to avoid violating the section 608 prohibition on knowingly venting substitutes for class I or class II refrigerants. The requirement that only a section 609 certified technician or an owner, operator, or employee of a motor vehicle disposal facility may extract the substitute refrigerant from an MVAC or an MVAC-like appliance at a motor vehicle disposal facility, if the refrigerant is not reclaimed prior to re-use, is a reasonable exercise of this authority. By permitting only these persons to recover non-ozone-depleting refrigerants, EPA is reducing the possibility that these refrigerants will be knowingly vented. Persons who have not been trained in the proper methods of recovering refrigerant from an MVAC or MVAC-like appliance system are more likely to vent refrigerant in the process of extracting it, and are less likely to know how to protect the purity of the refrigerant. Allowing these persons to recover class I and class II refrigerants at motor vehicle disposal facilities would not be consistent with the Agency's mandate to establish requirements that maximize the recapture and recycling of class I and class II refrigerants. Allowing them to recover substitute refrigerants would not be consistent with the section 608(c) venting prohibition.

The Act currently permits owners, operators and employees of motor vehicle disposal facilities to recover refrigerants from MVACs and MVAC-like appliances, even though they may not be certified and therefore trained in the proper handling of the refrigerants. The Agency intends to continue to permit this activity. In reaching this decision, the Agency considered reasons to require these individuals to become certified at this time. EPA believes that requiring owners, operators and employees of motor vehicle disposal facilities to become certified would result in a certain percentage of these persons better understanding the proper means of recovering refrigerant, and that consequently, accidental venting of refrigerant by these persons during the recovery process might decrease. In addition, if EPA required owners, operators and employees of motor vehicle disposal facilities who wish to sell refrigerant directly back into the MVAC service sector without prior reclamation to become certified, individuals who do not wish to become certified would still be able to recover refrigerant as long as it was then sold to a reclaimer.

EPA balanced these arguments against reasons not to require motor vehicle disposal facility owners, operators or employees to become certified at this time. In the past, the Agency has not required these persons to be certified. As stated in the preamble to the May 14, 1993 final rule implementing section 608, ''[b]y not requiring technician certification, the Agency did not intend to imply that anyone could perform these activities without training. Instead, the proposal reflected the fact that recovery of refrigerant is a simpler task than the combination of recovering refrigerant and returning refrigerant (at the appropriate purity level) to equipment. The disposal sector is distinct from the servicing sectors of both section 608 and section 609 in that refrigerant is not returned to equipment. . . . Purchasing refrigerant is also not necessary in the disposal sector, but technician certification is linked to the ability to continue to purchase new refrigerant needed for servicing equipment'' (58 FR 28705).

In addition, EPA does not believe that requiring certification of these individuals at this time will result in a reduction in accidental or intentional venting of refrigerant, or in a reduction in refrigerant contamination rates, significant enough to warrant this new restriction. Motor vehicle disposal facility owners, operators and employees have been required for several years either to verify that refrigerant has been previously recovered from a vehicle entering the facility, or to recover any refrigerant that remains in the vehicle. Many of these individuals have acquired substantial experience recovering refrigerant from vehicles, and some percentage of them have long been using their recovery equipment properly. For these individuals, becoming certified may not affect their refrigerant handling procedure.

Motor vehicle disposal facility owners, operators and employees also have an economic motivation in the absence of a certification requirement to recover CFC–12 refrigerant properly. No matter whether they sell recovered CFC–12 to an MVAC service facility or to a reclaimer, CFC–12 has become increasingly more valuable, and purchasers should be paying increasingly higher prices for uncontaminated CFC–12. EPA believes that this motivation should drive motor vehicle disposal facility owners, operators and employees to use care when recovering refrigerant.

In addition, some owners, operators and employees of motor vehicle disposal facilities have already invested in equipment that they use to recover refrigerant, and may currently have in place contracts to sell the refrigerant extracted from MVACs and/or MVAC-like appliances at the facilities. If the Agency had decided instead to begin to prohibit owners, operators and employees of motor vehicle disposal facilities from recovering refrigerant (so that only certified technicians could recover refrigerant), these persons might be unable to use any equipment they

had already purchased, and might therefore be violating contracts previously entered into.

One commenter stated that requiring owners, operators and employees of motor vehicle disposal facilities to become certified under section 609 would reduce the likelihood of frost forming in equipment in outdoor cold weather recovery operations, freezing the equipment refrigerant lines and inhibiting the recovery of all refrigerant remaining in a vehicle. EPA disagrees. Training specified under section 609 does not require instruction in how to recover refrigerant in cold weather conditions, and requiring motor vehicle disposal facility owners, operators and employees to become certified is no guarantee that better refrigerant recovery in these conditions will ensue.

Many commenters felt that EPA should require owners, operators and employees of motor vehicle disposal facilities to become certified under section 609 to handle refrigerant in order to ''level the playing field'' between the regulatory requirements applicable to them and those applicable to automotive service technicians. As noted before, EPA has never required owners, operators and employees of motor vehicle disposal facilities to be certified. They are not in a position to re-use recovered refrigerant, as are technicians. EPA believes that requiring owners, operators and employees of motor vehicle disposal facilities to become certified would be appropriate where needed, to avoid contamination of the nation's refrigerant supply by refrigerant recovered from motor vehicle disposal facilities. In order to assure that motor vehicle disposal facility owners and operators maximize the recapture of class I and class II refrigerants as required by section 608(a) of the Act, and refrain from venting substitute refrigerants as required by section 608(c) of the Act, the Agency has traditionally relied on a combination of providing the motor vehicle disposal industry with informational guidance and requiring the industry to meet regulatory mandates. Rather than requiring at this time that owners and operators of motor vehicle disposal facilities become certified technicians, the Agency proposes to continue to rely on guidance alerting the industry of the environmental consequences of releasing refrigerant, refrigerant salvage techniques, the importance of not mixing different refrigerants, and the business opportunities related to selling refrigerants to certified reclaimers or section 609 technicians. This, in combination with the other factors described above, is a reasonable approach to controlling such contamination.

It is inevitable that as the proliferation of replacement refrigerants for CFC–12 continues to expand in the marketplace, the refrigerant in some vehicles will be contaminated. Indeed, contamination has always been endemic to MVACs; even when all motor vehicle a/c systems ran on CFC–12, contamination of that refrigerant by air, hydrocarbons, or HCFC–22 occurred. Within the next few years, as the number of refrigerants on the market grows, contamination rates may stay the same, or, as is more likely the case, they may increase. In the future, should increasing contamination rates in MVACs or MVAC-like appliances be traced to refrigerant that has been recovered from motor vehicle disposal facilities and re-used in vehicles without prior reclamation, then EPA will reconsider its reliance on providing informational guidance to motor vehicle disposal facilities, and will consider requiring the industry to meet certification and/or other regulatory requirements. One of the regulatory solutions EPA would consider in that event is to require owners, operators and employees of motor vehicle disposal facilities who wish to continue recovering refrigerant for sale to the MVAC service sector to become certified under section 609 of the Act. The Agency would also consider requiring motor vehicle disposal facilities to send all recovered refrigerant to reclaimers, thereby disallowing any sales directly back into the MVAC/MVAC-like appliance service sector.

One commenter suggested that as drafted, the proposed new language of section 82.34(d) might not permit persons who contract with state- or county-owned landfills to recover refrigerant from MVACs at those facilities and subsequently sell them to section 609 technicians. Excluding contractors from this activity was not the intention of the proposal and the Agency has consequently modified the regulatory text to include contractors. EPA considers contractors who generally manage the operations of a government-owned landfill to be operators of that facility; persons who enter the landfill solely to recover refrigerant are not considered operators or other agents of the facility owner and must therefore be certified under section 609 of the Act if they then choose to return the refrigerant to the MVAC/MVAC-like appliance service sector without prior reclamation.

The proposed rule would have permitted technicians certified under section 608 of the Act to recover refrigerant at a motor vehicle disposal facility and resell it into the MVAC/MVAC-like appliance service sector for re-use without prior reclamation. This final rule prohibits this activity by section 608 technicians, so that only section 609 technicians, and owners, operators, and employees of these facilities may recover refrigerant from MVACs or from MVAC-like appliances at disposal facilities, if that refrigerant is re-used without being reclaimed. Generally, technicians certified only under section 608 are prohibited from servicing MVAC systems because MVAC systems are designed differently than stationary and commercial a/c systems. As stated earlier, persons who have not been trained in the proper methods of recovering refrigerant from an MVAC system, even if they are section 608 technicians, are more likely to vent refrigerant in the process of extracting it, and are less likely to know how to protect the purity of the refrigerant. Allowing these persons to recover class I and class II refrigerants at motor vehicle disposal facilities would therefore not be consistent with the Agency's mandate to establish requirements that maximize the recapture and recycling of class I and class II refrigerants, and allowing them to recover substitute refrigerants would not be consistent with the section 608(c) venting prohibition.

Although EPA recognizes that persons certified under section 608 as Type II technicians may handle MVAC-like appliances, today's rule does not permit Type II technicians to recover refrigerant from MVAC-like appliances at motor vehicle disposal facilities. Type II technicians service many types of high pressure and very high pressure appliances used in the stationary/commercial sector. The Agency believes that allowing Type II technicians to recover refrigerant from MVAC-like appliances will increase the possibility that high- and very high-pressure appliances in this sector may be recharged with used, unreclaimed refrigerant recovered from motor vehicle disposal facilities. These appliances, like all appliances in the stationary/commercial sector, are specifically designed to handle only virgin or reclaimed refrigerant. Use of unreclaimed refrigerant from motor vehicle disposal facilities that may contain high levels of oil, air and moisture may result in system deficiencies or failures.

c. Equipment that may be used to recover refrigerant from MVACs at motor vehicle disposal facilities: Section 82.158(l) of the subpart F regulations states that equipment used to evacuate

refrigerant from an MVAC or MVAC-like appliance prior to its disposal must be capable of reducing the system pressure to 102 mm (4 inches) of mercury vacuum. If the refrigerant is transferred to a reclaimer after recovery, this remains the only restriction on what kind of equipment may be used to recover refrigerant from an MVAC or MVAC-like appliance.

If, on the other hand, the recovered refrigerant is bound for re-use in the MVAC or MVAC-like appliance service sector without being reclaimed first, then the provisions set forth in today's rule apply. Specifically, the rule adds a new requirement, set forth in section 82.34(d), that any refrigerant extracted from an MVAC or an MVAC-like appliance located at a motor vehicle disposal facility and that is bound for re-use in the MVAC/MVAC-like appliance service sector without first undergoing reclamation must be recovered using approved refrigerant recycling equipment (*i.e.*, section 609 equipment) dedicated for use with MVACs and MVAC-like appliances.

This requirement departs from the proposed regulatory text, which would have permitted persons recovering refrigerant at motor vehicle disposal facilities for re-use in the MVAC/MVAC-like appliance service sector to continue to use not only equipment approved under section 609, but also any other equipment capable of reducing system pressure to or below 102 mm of mercury vacuum. EPA is promulgating this change to the proposed regulation because it will serve to reduce the risk of disposal facilities serving as the source of contaminated refrigerant supplies, because of the high level of support among the commenters for this change in the regulations, and because this new requirement will not create economic hardships for motor vehicle disposal facilities.

The Agency believes that without this more stringent equipment standard, persons recovering refrigerant at facilities who dismantle both refrigerators, residential air conditioners and other section 608 appliances, and motor vehicles, may engage in the practice of using the same equipment to recover refrigerant from a motor vehicle bound for disposal and to recover from section 608 appliances refrigerant that is high in acid levels due to compressor burn-out (and perhaps mixing that refrigerant with refrigerant recovered from MVACs and MVAC-like appliances). Sources such as residential air conditioners and refrigerators are much more likely to have ceased operation because of compressor burn-out. The refrigerant might then be sold to a section 609 certified technician for use in an MVAC or MVAC-like appliance. Any efforts by the technician to identify the refrigerant would not show that the refrigerant was contaminated by these acids. Recycling equipment available to motor vehicle service establishments removes only moisture, oil and noncondensable gas (air) from the refrigerant, and is not capable of removing acids.

EPA believes that allowing motor vehicle disposal facilities to use equipment approved under section 608 will not provide adequate safeguards against the risk of contaminated refrigerant. Section 608 equipment is specifically designed for use with refrigerant that later gets reclaimed, rather than merely recycled and then re-used. Some section 608 equipment is designed to be used to recover multiple refrigerants using common circuitry. Residues from recovering one refrigerant may contaminate a second recovered refrigerant; but again, such contamination is of little consequence because the refrigerant mixture is then reclaimed. However, if section 608 equipment were to be used to recover refrigerant that is then sold to an automotive facility for use in the MVAC/MVAC-like appliance service sector without prior reclamation, it is likely that automotive air-conditioning systems would become contaminated with refrigerant that, although it has been recycled by the facility using approved section 609 equipment, contains residues of acids and/or other refrigerants. In EPA's view, this possibility poses an unacceptable risk of contamination, both to the automotive facility's recycling equipment and to the MVAC systems in its customers' vehicles.

In the proposed rule, EPA requested comment as to whether the existing requirement of allowing refrigerant recovery using any equipment that can achieve a 102 mm mercury vacuum should be modified. EPA specifically requested comment on whether EPA should require that persons recovering refrigerant must instead use only equipment that meets the definition of ''approved refrigerant recycling equipment'' set forth in § 82.32(b) (*i.e.*, equipment approved under section 609). Many commenters to the rule supported this change. No commenters opposed this specific change, although one commenter stated that ''EPA should protect the investment [that] companies made in equipment that met appropriate standards when purchased, or that cannot be deemed ''substantially identical'' under current standards.'' The Agency believes that this change does not affect that investment, because owners of equipment that is not approved under section 609 but can achieve a 102 mm mercury vacuum may still use their equipment to recover refrigerant, which is then sent to a reclaimer.

One commenter noted that given that the purpose of section 609 of the Act is to prevent refrigerant venting, encourage the proper recovery and recycling of refrigerants, and maintain the purity of the existing refrigerant supply, the Agency is obligated to establish a level playing field between motor vehicle disposal facilities and automotive service facilities by requiring that refrigerant handlers in disposal facilities meet similar standards to refrigerant handlers in service facilities. EPA does not believe that motor vehicle disposal facilities handling refrigerant and automotive service facilities handling refrigerant should necessarily be subject to the same regulatory requirements because the circumstances are not the same. However, EPA believes that the requirement to use section 609 equipment to recover any refrigerant that has been extracted from an MVAC or an MVAC-like appliance located at a motor vehicle disposal facility, and is bound for re-use in the MVAC/MVAC-like appliance service sector without prior reclamation, properly reflects similar treatment for similar circumstances, without creating economic hardships for motor vehicle disposal facilities.

Under this regulatory framework, motor vehicle disposal facilities do not necessarily have to purchase section 609 approved refrigerant recycling equipment. If they choose to use equipment that does not meet the requirements of section 609 (but is still capable of achieving a 102 mm vacuum, as the section 608 regulations require) to recover refrigerant, they may then transport the refrigerant to a reclaimer. Alternatively, they may bring a technician certified under section 609, who operates approved refrigerant recycling equipment, on-site to recover the refrigerant before it gets recycled and re-used in the MVAC/MVAC-like appliance service sector.

Within the next few years, more and more vehicles will enter disposal facilities with some HFC–134a left in the system. In addition, as the nation's supplies of CFC–12 diminish, increasing numbers of owners of older vehicles will replace the CFC–12 in their vehicles with HFC–134a or with blend refrigerants that enter the marketplace. If disposal facilities wish to sell the refrigerant to an MVAC service facility

without prior reclamation, then refrigerant must be recovered into section 609-approved equipment designed for use with that particular refrigerant. Facilities daunted at the thought of purchasing multiple pieces of equipment may of course contract with a technician certified under section 609 to bring his pieces of equipment to the facility, or they may recover multiple refrigerants into one piece of equipment designed under the section 608 program for such use (taking care to recover the refrigerants into separate containers), and send the refrigerant to a reclaimer.

d. Persons who may purchase refrigerant recovered from a motor vehicle disposal facility:. Today's rule places certain restrictions on who may purchase refrigerant recovered from a motor vehicle disposal facility if that refrigerant is bound for re-use in the MVAC/MVAC-like appliance service sector without prior reclamation. Specifically, section 82.34(d) states that any sale of a class I or class II substance extracted from an MVAC or an MVAC-like appliance at a motor vehicle disposal facility that is not reclaimed, must be to a technician certified under section 609.

For class I and II substances recovered from MVACs and MVAC-like appliances, sections 608 and 609 authorize the sales restriction. While section 609 is limited to restricting the sale of class I or II substances in small containers for use in MVACs, section 608 authorizes a broader sales restriction. The sales restriction provision promulgated today for inclusion in 82.34(d) basically repeats the sales restrictions previously promulgated at 82.34(b) and 82.154(m). Today's rule makes clear that the restriction applies with respect to class I or II substances recovered from MVACs or from MVAC-like appliances during the disposal process.

The current sales restriction in section 609(e) does not extend to non-ozone-depleting substitute refrigerants at this time. EPA is currently developing a proposal addressing the use of substitutes under section 608, and is considering extending the sales restriction to such substitutes. EPA will address the sale of such substitutes recovered from MVACs and MVAC-like appliances during the disposal process in that proposed rulemaking.

Several commenters urged EPA to require that all refrigerant recovered at motor vehicle disposal facilities be sent directly to a reclaimer. These commenters believe that the current use and future proliferation of refrigerants already has and will inevitably result in much contamination. EPA recognizes that although motor vehicle air conditioning has long been dominated by CFC–12, automotive manufacturers now install HFC–134a in new car systems, while some refrigerant manufacturers are attempting to establish large markets for other CFC–12 substitutes in vehicles. This proliferation of refrigerants in the section 609 sector increases the chances of contamination in individual systems. Contaminated refrigerant supplies may create MVAC system failures as well as failures of refrigerant recover/recycle equipment, leading to emissions of refrigerants and to increased costs for both service facilities and motor vehicle owners. In addition, contaminated refrigerant may be extremely difficult to recycle, reclaim, or dispose of, so that it is likely to be vented into the atmosphere. As noted above, in the future, should increased contamination rates in MVACs or MVAC-like appliances be traced to refrigerant recovered from motor vehicle disposal facilities and re-used in vehicles without prior reclamation, EPA may revise its regulations pertaining to motor vehicle disposal facilities and require that all refrigerant recovered from such facilities be sent to reclaimers. For now, however, instituting such a requirement would defeat a major purpose of today's rule: To increase the value of refrigerant recovered from motor vehicle disposal facilities, thereby reducing the amount of refrigerant that either leaks out of MVACs while they await disposal or is purposely vented during the process of disposal.

Commenters cited several other related reasons to require that all refrigerant recovered at motor vehicle disposal facilities be sent directly to a reclaimer. One commenter suggested that any sales of refrigerant should be allowed only when the seller can demonstrate that the refrigerant meets new product standards. This requirement would limit refrigerant sales to wholesalers and retailers who own stocks of virgin refrigerant, and to reclaimers, who have reclaimed the refrigerant to ARI 700 standards (*i.e.*, new product standards). Again, this requirement would defeat the intent of today's rule to encourage new markets for valuable refrigerants.

Another commenter noted (and EPA agrees) that any refrigerant that is not reclaimed must be recycled in accordance with EPA standards, which are in turn based on SAE standards. The commenter went on to state that the SAE standards govern refrigerant that has been directly removed from, and will be directly re-used in, MVACs only, and that equipment that meets the SAE standards was not designed for use with refrigerants contaminated with each other. EPA agrees with the commenter that recovery/recycling equipment was generally designed for use with single, specific refrigerants, and that running highly contaminated refrigerant through such equipment not only may damage the equipment but will certainly not clean the refrigerant of any impurities other than oil, air and moisture.

EPA recognizes that even the use of proper recovery procedures at a motor vehicle disposal facility does not guarantee refrigerant purity. Certain vehicles will enter the disposal facility with ''mystery'' refrigerants in their a/c systems, or with identifiable, but highly contaminated, refrigerants. These incidences are most likely to increase in the future. As one commenter stated: ''Soon, owners of older vehicles with CFC–12 systems requiring major repair will elect to retrofit their systems to other refrigerants. When CFC–12 is no longer available, the consumer with a CFC–12 system will be forced to retrofit to an alternative refrigerant, buy a new car or give up the comfort of an air conditioned car. As more alternate refrigerants come to market and time passes, the grave-yards for older vehicles will be littered with vehicles having a wide variety of refrigerants in their A/C systems. Some of these systems will contain contaminated refrigerant.''

Regulations promulgated under section 612 of the Act require that MVACs and MVAC-like appliances using any replacement refrigerants for CFC–12 are required by EPA to have unique fittings and a label stating the type of refrigerant used in the air-conditioning system. This regulatory requirement should serve to deter increases in the rate at which systems become contaminated, before they reach motor vehicle disposal facilities. At this time, EPA does not possess significant data that describe rates of contamination in vehicles, sources of contamination, and kinds of contaminants. If the Agency obtains this type of data in the future, it may consider taking additional steps to minimize contamination.

Recovering the refrigerant himself is one way a section 609 certified technician can guarantee that the refrigerant at the disposal facility has been properly recovered. He may purchase the refrigerant from a motor vehicle disposal facility that he knows uses proper refrigerant recovery procedures. Neither of these actions, however, protects him against purchasing or using refrigerant that becomes contaminated before it arrives at the motor vehicle disposal facility. In

order to guard against that event, he may also enter into a written contract with the disposal facility in which the facility agrees to sell him only refrigerant that meets certain purity requirements.

Similarly, neither requiring motor vehicle disposal facilities to use equipment approved under section 609 of the Act, nor requiring purchasers of refrigerant recovered from those facilities to recycle the refrigerant prior to charging it into another vehicle, will absolutely protect the vehicle owner from having contaminated refrigerant charged into his car. To ensure the purity of the refrigerant, the technician may run it through a refrigerant identifier prior to purchasing the refrigerant (as was strongly recommended in the preamble to the proposed rule). In addition, motor vehicle disposal facilities may wish to purchase these identifiers as a way to check the purity of the refrigerant sold to automotive service technicians, in order to better ensure their customers' satisfaction. However, not all portable refrigerant identifier equipment is currently sophisticated enough to identify all of the refrigerants in commerce today, including blend refrigerants, and all potential contaminants. A requirement to purchase any identifier on the market will therefore not ensure the ultimate protection of the vehicle owner from having contaminated refrigerant charged into his car.

In the July 14, 1992 final rule, EPA stated in the preamble language that ''it is unlikely that persons in the business to service motor vehicle air conditioners would knowingly use contaminated refrigerant since they have an interest in satisfying customers and not injuring the customer's air conditioner'' (57 FR 31248). While the Agency is fully aware that some automotive service technicians may knowingly charge their customers' vehicles with refrigerant that they know to be contaminated, EPA is not convinced, as it was not in 1992, that a majority, or even a large number, of service technicians will choose to engage in such unscrupulous behavior. Knowingly charging vehicles with contaminated refrigerant jeopardizes the performance of both a technician's charging equipment and his customer's vehicle's a/c system. Should the system fail due to the contamination (knowing or unknowing), the customer may return, unhappy, perceiving that the technician has failed to fix the initial system problem, or that the technician has worsened the initial problem.

EPA believes that if automotive service technicians have any doubt or question about the purity of refrigerant they have purchased from a motor vehicle disposal facility, they will test the refrigerant using refrigerant identifier equipment prior to recycling it in their refrigerant recycling equipment or prior to installing it in a customer's vehicle. If a section 609 technician is unsure about the purity of the refrigerant he may obtain from a local disposal facility, and is fearful about damaging both his recover/recycle equipment and his reputation with his customers, he always has another solution: he may forego purchasing from the facility, and instead purchase virgin refrigerant from his parts supplier, or reclaimed refrigerant from a reclaimer. As one commenter, a trade association representing automotive service facilities, stated, ''it is precisely the mixing of different refrigerants and the possibility of contamination which would preclude many of our members from considering disposal facilities as a source for recovered refrigerant.''

e. Subsequent use of recovered refrigerant. Today's rule also places certain restrictions on the use and handling of refrigerant recovered from a motor vehicle disposal facility if that refrigerant is not transferred to a reclaimer after recovery, but instead is bound for re-use in the MVAC/MVAC-like appliance service sector without prior reclamation. Specifically, section 82.34(d) requires that certified technicians process refrigerant recovered from a motor vehicle disposal facility through section 609 approved refrigerant recycling equipment before it may be used to charge or recharge another MVAC or MVAC-like appliance. Section 609 authorizes this restriction with respect to MVACs, both for class I and class II substances as well as substitutes. Refrigerant recovery at motor vehicle disposal facilities occurs in an environment where moisture and air easily get into hoses and cylinders. Requiring recycling of the refrigerant prior to charging it into another vehicle will ensure than any excess moisture or air in the refrigerant is reduced to acceptably low levels. Section 608(a) authorizes this restriction with respect to MVAC-like appliances.

A certified technician purchasing or accepting refrigerant from MVACs or MVAC-like appliances bound for disposal and located at a motor vehicle disposal facility is responsible to assure that the refrigerant is recycled properly prior to being charged into another MVAC or MVAC-like appliance and assurances from the disposal facility regarding recycling do not remove this responsibility.

Today's rule also provides that if refrigerant recovered from a motor vehicle disposal facility is to be recycled in section 609 approved refrigerant recycling equipment rather than reclaimed prior to re-use, the refrigerant may subsequently be charged only into an MVAC or an MVAC-like appliance. Several commenters expressed concern that once a technician certified under section 609 had purchased refrigerant from a motor vehicle disposal facility, he could then sell it to a technician certified under section 608 for use in the stationary/commercial sector, or, if the section 609 technician were also certified under section 608, he himself could use the refrigerant in the stationary/commercial sector. Sections 82.154 (g) and (h) prohibit the re-use of refrigerant recovered from an MVAC or MVAC-like appliance without prior reclamation unless it is returned to an MVAC or MVAC-like appliance. However, some commenters believe that this prohibition, contained as it is in subpart F, the section 608 regulations, will not give automotive service technicians sufficient notice that the sale of refrigerant by a section 609 technician to a section 608 technician is prohibited. EPA is therefore amending the proposed language under § 82.34(d) to add a sentence that states that technicians certified under section 609 who purchase a class I or class II substance recovered at such facilities must subsequently re-use the refrigerant in an MVAC or MVAC-like appliance. This new provision, essentially a reiteration of the current requirements set forth in § 82.154 (g) and (h), implements EPA's mandate under section 608 to prescribe standards and equipment regarding the use and disposal of class I or II substances, in order to reduce the use and emissions of these substances to the lowest achievable level, and to maximize the recapture and recycling of these substances. Specifically, section 608(a) requires EPA to promulgate regulations regarding use and disposal of class I and II substances that ''reduce the use and emission of such substances to the lowest achievable level'' and ''maximize the recapture and recycling of such substances.'' Section 608(a) further provides that ''[s]uch regulations may include requirements to use alternative substances (including substances which are not class I or class II substances) * * * or to promote the use of safe alternatives pursuant to section 612 or any combination of the foregoing.'' Improper handling of substitute substances is likely to produce contamination (and therefore reduction

in recycling) and release of class I and class II substances.

f. Recordkeeping and reporting: Today's rule does not require any additional recordkeeping relating to refrigerant recovered from MVACs or MVAC-like appliances prior to disposal. Requiring disposal facilities to track refrigerant, and to demonstrate how the refrigerant in each MVAC or MVAC-like appliance was handled prior to the disposal of the vehicle, would inhibit the activity EPA is encouraging in today's rule. Further, a recordkeeping requirement would add an undue administrative burden to industry because of the large number of vehicles disposed of annually, and would provide little measurable benefit to the environment.

Persons who recover refrigerant at motor vehicle disposal facilities for re-use in the MVAC/MVAC-like appliance service sector without prior reclamation are not exempted from any applicable recordkeeping and reporting requirements set forth under the section 608 regulations. Section 82.166(a) requires all persons who sell or distribute any class I or class II substance for use as a refrigerant to retain invoices that indicate the name of the purchaser, the date of sale, and the quantity of refrigerant purchased. Section 82.166(i) requires all persons disposing of MVACs and MVAC-like appliances to maintain copies of signed statements obtained under § 82.156(f)(2), which in turn requires persons who take the final step in the disposal process of MVACs or MVAC-like appliances, if they have not recovered any remaining refrigerant themselves, to verify that the refrigerant has been evacuated previously. This verification must include a signed statement from the person from whom the MVAC or MVAC-like appliance is obtained that all refrigerant that had not leaked previously has been recovered in accordance with EPA regulations. The statement must include either the name of the person who recovered the refrigerant and the date that the refrigerant was recovered, or a copy of an ongoing contract that requires that the refrigerant deliverer ensure that the refrigerant is removed prior to delivery.

Comments on the recordkeeping/reporting requirements generally urged enforcement of the existing requirements, or suggested that EPA require the type of recordkeeping already required under § 82.166(a) (evidently some commenters were not aware of this requirement).

2. Mobile Recovery and Recycling

Today's rulemaking explicitly permits the mobile servicing of MVACs and MVAC-like appliances. Allowing mobile service performed by certified technicians using approved equipment encourages proper use of the equipment and discourages venting of refrigerant. This policy also increases the flexibility of industry to choose the mode of compliance by allowing businesses that do not specialize in MVAC/MVAC-like appliance service to contract their MVAC/MVAC-like appliance services that involve refrigerant to a section 609 certified technician. The definition of ''properly using'' set forth in 40 CFR 82.32(e) is consequently amended to explicitly permit this activity. An MVAC service facility engaging or contracting with a technician providing the mobile service (or with the facility employing him) is responsible to ensure that the technician actually performing the service is properly certified. This provision applies to servicing both CFC–12 systems and systems that use any substitutes for CFC–12, in both MVACs and MVAC-like appliances.

Comments to the proposal to explicitly permit mobile recovery and recycling were strongly supportive. One typical commenter remarked that ''we are in favor of this proposed change, as many of our customers * * * are unable to transport their equipment to a servicing location due to the size and D.O.T. transport weight limitations. Also, very few of these companies perform their own air-conditioning service due to economic cost involved in this service.'' The commenter concluded that this change in the regulations would enhance its relationships with its customers, since the commenter could service air-conditioning systems at its customers' job sites.

The Agency requested, but did not receive, comments with respect to whether an MVAC service facility, engaging or contracting with a technician who offers mobile service (or with the facility employing him), should be responsible to ensure that the technician is using section 609 approved refrigerant recycling equipment. EPA believes that using the proper equipment should be the responsibility of the technician offering the mobile service (and the facility employing him), rather than of the facility engaging his services.

The amendatory language does not permit the mobile recovery of refrigerant from appliances governed under section 608 of the Act, such as home refrigerators and air conditioners. Contaminants such as acid that are not found in MVACs or MVAC-like appliances are commonly found in these appliances, and any recover/recycle equipment designed for automotive use exposed to refrigerant contaminated with acid could be severely damaged. Regulations promulgated under section 608 of the Act address required practices for recovering refrigerant from stationary equipment.

These changes to the subpart B regulations implementing section 609 will also affect MVAC-like appliances. Section 82.156(a)(5) requires that persons opening MVAC-like appliances for service or repair may do so only while properly using, as defined in § 82.32(e), recovery or recycling equipment. Since the Agency is today amending section 82.32(e), those changes will automatically apply to MVAC-like appliances.

One commenter stated that EPA should consider adding a recordkeeping requirement to document the relationship between the facility that owns the equipment used in the mobile recovery and recycling service and the facility receiving the service. The commenter suggested that this requirement would help inspectors verify the recycling of refrigerant. The Agency is not requiring that such recordkeeping be performed, due to the additional burden it would place on small entities. However, EPA expects that any facilities that receive mobile recovery/recycling service should be able to inform the Agency, when requested, who they have engaged or contracted to perform the mobile service. If they cannot so inform the Agency, and if they do not possess any recovery or recycling equipment, the Agency will presume that those facilities have vented refrigerant from any air-conditioning systems they have serviced.

3. Topping Off

The subpart B regulations implementing section 609 state that any facility performing service involving refrigerant must purchase approved refrigerant recycling equipment. ''Service involving refrigerant'' is defined as ''any service during which discharge or release of refrigerant from the motor vehicle air conditioner to the atmosphere can reasonably be expected to occur'' (40 CFR 82.32(h)). The preamble to the final 1992 section 609 rule stated that MVAC servicing includes ''repairs, leak testing, and ''topping off'' of air-conditioning systems low on refrigerant, as well as any other repair which requires some dismantling of the air conditioner. Each

of these operations involves a reasonable risk of releasing refrigerant to the atmosphere'' (57 FR 31246). Despite the clarity of this statement, some affected stakeholders remain unsure whether quick-lubes and other facilities which may perform top-offs but no other service involving refrigerant are required to purchase recovery/recycling equipment approved under section 609. One commenter to the proposal for today's rule asked that the regulations governing these facilities be made more clear. Consequently, the definitions of ''properly using'' and ''service involving refrigerant'' are being expanded today to further clarify that ''service involving refrigerant'' includes topping off, and that facilities that perform top-offs but no other refrigerant servicing or repair are still considered to be engaged in ''service involving refrigerant'' and must purchase approved recovery/recycling equipment.

These changes to the section 609 rule will not affect MVAC-like appliances. Although § 82.156(a)(5) requires that persons opening MVAC-like appliances for service or repair may do so only while properly using, as defined in section 82.32(e), recovery or recycling equipment, under the subpart F regulations, connecting and disconnecting hoses to an appliance to add refrigerant is not considered ''opening'' the appliance.

4. Recharging Refrigerant Into the Same Vehicle From Which the Refrigerant Was Extracted

The subpart B regulations implementing section 609 state that any facility performing service involving refrigerant must properly use approved refrigerant recycling equipment. The current definition of ''properly using'' states in part that ''[f]or equipment that extracts and recycles refrigerant, properly using also means to recycle refrigerant before it is returned to a motor vehicle air conditioner'' (40 CFR 82.32(e)(1)).[2] Despite the clarity of this statement, some affected stakeholders remain unsure whether refrigerant must be recycled prior to being returned to the same vehicle from which it has been extracted. One commenter to the proposal for today's rule asked that the regulations governing service practices involving refrigerant that is returned to the same vehicle it came from be made more clear. Consequently, this sentence in the definition of ''properly using'' is being expanded today to further clarify that when any automotive refrigerant—whether CFC–12, HFC–134a, or a blend listed as acceptable under EPA's SNAP program—is recovered from an MVAC, it must be recycled in accordance with EPA standards prior to being returned to that MVAC. This change to the section 609 rule will also affect MVAC-like appliances. Section 82.156(a)(5) requires that persons opening MVAC-like appliances for service or repair may do so only while properly using, as defined in § 82.32(e), recovery or recycling equipment. Since the Agency is today amending § 82.32(e), this change will automatically apply to MVAC-like appliances.

B. Equipment Standards.

Section 609(b)(1) of the Act states that effective November 15, 1995, the term ''refrigerant,'' as defined in section 609, shall also include any substance that substitutes for a class I or class II refrigerant used in an MVAC. Section 609(b)(2)(A) specifies that the Administrator shall establish standards for approved refrigerant recycling equipment. Section 82.36(a) of the regulations specifies that equipment that recovers and recycles CFC–12 refrigerant must meet the standards set forth in appendix A to the section 609 regulations, and that equipment that recovers but does not recycle CFC–12 refrigerant must meet the standards set forth in appendix B to the regulations. Today's rulemaking provides that equipment that recovers and recycles HFC–134a must meet the standards set forth in appendix C, that equipment that recovers but does not recycle HFC–134a must meet the standards set forth in appendix D, that equipment that recycles both CFC–12 and HFC–134a using common circuitry must meet the standards set forth in appendix E, and that equipment that recovers but does not recycle a single, specific replacement refrigerant other than HFC–134a must meet the standards set forth in appendix F.

These new equipment standards also apply to the servicing of MVAC-like appliances. Section 82.156(a)(5) requires that persons opening MVAC-like appliances for service or repair may do so only while properly using, as defined in § 82.32(e), recovery or recycling equipment. Since the Agency is today amending § 82.32(e), the definition of ''properly using,'' to reference the equipment standards set forth in today's rule, the equipment standards will apply to MVAC-like appliances.

All of the standards are appropriate for recovery and recycling because they achieve environmental protection through efficient recovery and recycling

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[2] Interested parties should note that the May 2, 1995 **Federal Register** (60 FR 21682) inadvertently omitted this sentence, as well as certain other language contained in § 82.32(e). This mistake was carried over into the Code of Federal Regulations (CFR) revised as of July 1, 1995, as well as into the July 1, 1996 revision of the CFR. A correction notice was not issued until January 16, 1997 at 62 FR 2310. These omissions have created significant confusion among affected stakeholders as to the exact text of § 82.32(e), the definition of properly using. The July 1, 1997 version of the CFR should include the corrections, but will not include the revisions promulgated today. With these revisions, the full text of § 82.32(e) should appear in the July 1, 1998 version of the CFR as follows (new text is marked in italics):

(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 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.

of refrigerant, and protect automobile equipment through minimum refrigerant purity standards and service procedure standards. The appendix C standards are based on SAE J2099 (Standard of Purity for Recycled HFC–134a), SAE J2211 (Recommended Service Procedure for the Containment of HFC–134a), and SAE J2210 (Standard for HFC–134a Recycling Equipment); the appendix D standards are based on SAE J2211 (set forth in appendix C) and SAE J1732 (HFC–134a Extraction Equipment for Mobile Air Conditioning Systems); and the appendix E standards are based on SAE J2211 (set forth in appendix C), SAE J1989 (set forth in appendix A), and SAE J1770 (Standard for Recycling Equipment Intended for Use with Both CFC–12 and HFC–134a). The standards adopted today as appendices C, D and E represent a consensus of the Interior Climate Control Committee of SAE. This committee is made up of automotive industry experts, equipment and supply manufacturers, and chemical producers. SAE prepared the standards for the recycling of CFC–12 (SAE J1989, 1990, and J1991) later adopted by EPA in appendix A, and for the recovery of CFC–12 (SAE J1989 and J2209) later adopted by the Agency in appendix B, and the Agency believes that the standards set forth for the recovery and recycling of HFC–134a in today's rulemaking as appendices C, D and E are consistent with the specifications required in those standards for CFC–12.

Appendix F, Standard for Recover-Only Equipment that Extracts a Single, Specific Refrigerant other than CFC–12 or HFC–134a, is based on SAE J1732 (HFC–134a Extraction Equipment for Mobile Air Conditioning Systems, contained in appendix D). Since SAE has not developed formal standards for the recovery of most refrigerants listed as acceptable under EPA's Significant New Alternative Policy (SNAP) program other than HFC–134a and is not likely to do so in the future, the Agency developed in cooperation with SAE and other industry representatives a standard for recover-only equipment designed to extract these new refrigerants. The Agency also believes that the standard adopted today as appendix F for the recovery of replacement refrigerants other than HFC–134a, is consistent with the specifications required in those standards for CFC–12.

The standards adopted today contain specifications for labeling equipment once it is certified; safety requirements; requirements that the equipment manufacturer must provide operating instructions; and functional descriptions of the equipment, including hose and fitting specifications, overfill protection requirements and additional storage tank requirements. The standards require that the container for used refrigerant be gray with a yellow top and be marked in black print ''DIRTY REFRIGERANT—DO NOT USE, MUST BE REPROCESSED.'' The standards state that the equipment must be able to separate lubricant from recovered refrigerant and to indicate accurately the amount removed from the air-conditioning system in order to assure that the proper amount of lubricant can be returned to the system.

The Act states that standards developed by the Administrator shall, at a minimum, be as stringent as SAE J1989 in effect as of the date of November 15, 1990. The standards proposed today are equally as stringent as SAE J1989 regarding the procedure for extracting refrigerant and separating lubricant from refrigerant. They offer further specifications on extraction efficiency (referring to 102 mm of mercury versus the more general statement regarding removal ''to a vacuum''). Procedures and requirements regarding unintentional releases of refrigerant during the extraction process are equivalent to SAE J1989.

Comments to the adoption of the standards set forth in appendices C, D, E and F were generally minimal and supported the establishment of the standards. One commenter noted that the proposed standard in appendix F for equipment designed to recover, but not recycle, replacement refrigerants other than HFC–134a does not provide for sufficient identification of the refrigerant in the test sample to be processed. In order to ensure that the ''dirty cocktail'' of contaminated refrigerant provides an accurate test of the equipment's ability to recover used refrigerant, the standard set forth in appendix F now specifies in 6.2.1 that ''refrigerant shall be identified prior to the recovery process to within ±2% of the original manufacturer's formulation which was submitted to, and accepted by, EPA under its Significant New Alternatives Policy program.''

One other change was made in order to ensure that the ''dirty cocktail'' provides an accurate test of the equipment's ability. The proposed appendix F provided that the sample should contain a combination of mineral oil and POE oil in the ''dirty cocktail.'' Because replacement refrigerants other than HFC–134a are likely to be contaminated with a combination of mineral, PAG and POE oils, however, the ''dirty cocktail'' sample set forth in appendix F has been revised so that the oil in the sample shall be one-third mineral oil 525 suspension nominal, one-third PAG with 100 cSt viscosity at 40° C or equivalent, and one-third POE with 100 cSt viscosity at 40° C or equivalent. This specification should approximate more realistically the type of contaminants in used refrigerant that such equipment is likely to handle.

With respect to the new standard set forth in appendix F for recover-only equipment designed to service replacement refrigerants other than HFC–134a, one commenter asked whether service facilities must purchase a recover-only or recover/recycle unit for every new replacement refrigerant on the market. In order to respond to the commenter's question, and to provide information to the public that addresses several related questions that the Agency has recently received about replacement refrigerants other than HFC–134a, it is worth repeating here the contents of a letter sent to manufacturers of replacement refrigerants by EPA on October 16, 1996. The letter stated in part that ''under section 608 of the CAA, it is illegal to vent *any* MVAC refrigerant. Therefore, even in the absence of EPA regulations, technicians must, at a minimum, recover refrigerant and not release it to the atmosphere. In accordance with the use conditions required under the Significant New Alternatives Policy (SNAP) program, the recovery equipment must be dedicated to a specific refrigerant by permanently applying the fittings unique to that refrigerant. Thus, by applying the fittings, it is legal to convert a recovery machine to be used with an MVAC refrigerant other than the refrigerant the machine was originally intended to recover.

''Even though recovering a given refrigerant using permanently converted equipment is legal, it may not be technically desirable. Recovery machines are designed to be compatible with specific refrigerants, and incompatible materials may cause short circuits, damage to seals, and compressor failure. Technicians should check with the recovery equipment manufacturer for recommendations about the recovery of refrigerants other than the refrigerant the equipment was originally intended to recover. Conversion of recovery equipment for use with other refrigerants may invalidate any warranties offered by the equipment manufacturer.''

The October 16, 1996 letter continues: ''[s]ervice shops may either recover HFC–134a or recycle it using special

recycling equipment in the shop. Currently, however, it is *not* legal to recycle any other alternative MVAC refrigerant. EPA's policy is that until a standard for equipment designed to recycle a particular refrigerant is published and available (by EPA or an industry organization like SAE or UL), then it is illegal to recycle that refrigerant. * * * No EPA or established industry recycling standard exists today for any alternative refrigerant other than HFC–134a. Therefore, using a recycling machine to recycle these alternatives is not allowed.

''For cars that use HFC–134a, the service technician will usually recycle the refrigerant using equipment that meets the SAE standard, although recovery followed by off-site reclamation is also an option. For cars that use a blend, however, recovery using dedicated equipment and reclamation is currently the only option. No standard exists today to provide for the recycling of blends. * * * Unless EPA issues recycling standards for refrigerants other than CFC–12 and HFC–134a, it will remain illegal to recycle them.''

All of the replacement refrigerants on the market today other than HFC–134a are class II blend refrigerants rather than single chemical refrigerants. Within the upcoming months, EPA intends to develop regulations setting forth, to the extent applicable, standards for the following types of recovery and recycling equipment designed to service MVAC refrigerants other than CFC–12 and HFC–134a:

1. Recover-only Equipment

a. New equipment designed to service multiple blend refrigerants.

b. Existing equipment retrofitted for permanent servicing of a single blend refrigerant.

c. Existing equipment retrofitted for permanent servicing of multiple blend refrigerants.

2. Recover/Recycling Equipment

a. New equipment designed to service a single blend refrigerant.

b. New equipment designed to service multiple blend refrigerants.

c. Existing equipment retrofitted for permanent servicing of a single blend refrigerant.

d. Existing equipment retrofitted for permanent servicing of multiple blend refrigerants.

The standards that EPA intends to propose will provide that existing recover-only and recover/recycle equipment, once permanently converted for use with another refrigerant, will have to meet the same standards that apply to new equipment that recovers, or recovers and recycles, that refrigerant. For example, R–12 or R–134a recover-only equipment converted for permanent use with a single, specific blend replacement refrigerant would have to meet standards set forth in appendix F. R–12 recover-only equipment converted for permanent use with R–134a would have to meet the standards in appendix D, and R–12 recover/recycle equipment converted for permanent use with R–134a would have to meet the standards in appendix C. Similarly, R–12 recover/recycle equipment converted for permanent use with a single, specific blend refrigerant would have to meet the standard that governs new recover/recycling equipment designed to service a single blend refrigerant (if such a standard is ever developed; if not, EPA will continue to prohibit the conversion of CFC–12 or HFC–134a recycling equipment for use with other refrigerants). The standards for converted equipment would not only cross-reference the appropriate standard that must be met, but are likely also to specify that the conversion must be performed by the equipment manufacturer's service representative rather than the automotive service technician, that a unit may only be converted if retrofit procedures for that model have been certified by an independent testing laboratory, and that an appropriate label, indicating conformance to the appropriate standards, is affixed to the unit.

EPA is at this time uncertain as to whether equipment converted for use to one or more refrigerants other than the original refrigerant for which it was intended will be considered substantially identical to certified equipment. Section 609 provides that equipment purchased after the proposal of regulations shall be certified by an independent standards testing organization as meeting the applicable standard set forth in the regulations, while equipment purchased prior to the proposal of regulations shall be considered certified if it is substantially identical to equipment certified under the section 609 regulations. The standards that EPA intends to propose within the next year may specify that if equipment converted for use to one or more refrigerants other than the original refrigerant for which it was intended is converted prior to the date of the proposed rule, the Agency would consider the converted equipment to be substantially identical to new certified equipment, where the individual unit has been converted substantially according to the provisions set forth in the conversion standard, and if the equipment is converted after the date of the proposal, the equipment would have to be converted according to the specific provisions set forth in the conversion standard in order to be considered approved.

The Agency intends to work with industry groups, including refrigerant manufacturers and recovery/recycling equipment manufacturers, and with independent standards testing organizations, to develop proposed standards for the equipment listed above. These proposed standards will be published in the **Federal Register** and subject to public review and comment prior to promulgation of a final rule.

1. Standards for HFC–134a Recover/Recycle Equipment

Today's rule adopts a standard, set forth in appendix C, for HFC–134a recycling equipment for mobile air-conditioning. This standard establishes specific minimum equipment requirements for the recycling of HFC–134a that has been directly removed from, and is intended for reuse in, mobile air-conditioning systems. The standard contains specifications for labeling the equipment once it is certified, safety requirements, operating instructions and a functional description of the equipment, including hose and fitting specification, overfill protection requirements and storage tank requirements. The standard provides a procedure to test the equipment to verify that it meets the specifications of the standard.

Today's rule adds a standard of purity for recycled HFC–134a that establishes the minimum level of purity required for recycled HFC–134a removed from, and intended for reuse in, mobile air-conditioning systems. The standard, set forth in appendix C to this rule, sets purity specifications for levels of moisture, lubricants and noncondensable gases. Today's rule also establishes a standard recommended service procedure for containment of HFC–134a, set forth in appendix C, that provides guidelines for the technicians that service MVACs and MVAC-like appliances and operate refrigerant recycling equipment designed for HFC–134a. The standard provides specific procedures to recover the refrigerant by reducing system pressure to at least 102 mm of mercury vacuum. The standard contains requirements for stored refrigerant containers and disposal of empty containers.

The standards set forth in appendix C, which apply to HFC–134a, are nearly identical to SAE J2099, J2211 and J2210, standards previously adopted by the

Agency for similar equipment designed to service CFC–12. The differences between the SAE J standards and those set forth in appendix C are incidental, such as grammatical corrections and spelling, and do not affect the requirements of the standards.

2. Standards for HFC–134a Recover-Only Equipment

Today's rule adds standards for equipment that recovers but does not recycle HFC–134a refrigerant. Refrigerant recovered by this type of equipment must be properly recycled on-site or reclaimed off-site before it can be reused in an MVAC or MVAC-like appliance. The rule requires that equipment meets the standards set forth in appendix D. The standard requires that the container for used refrigerant be marked in black print ''Dirty Refrigerant—Do Not Use Without Recycling.'' The standard states that the recovery equipment be able to separate the refrigerant from the recovered refrigerant and indicate the amount of lubricant removed so that the technician can return the proper amount of lubricant to the system. Today's rule also establishes a standard recommended service procedure for containment of HFC–134a, set forth in appendix C, and referenced in appendix D, that provides guidelines for the technicians that service MVACs and operate refrigerant recycling equipment designed for HFC–134a. The standard provides specific procedures to recover the refrigerant by reducing system pressure to at least 102 mm of mercury vacuum. The standard contains requirements for stored refrigerant containers and disposal of empty containers.

The standards set forth in appendix D, which apply to HFC–134a, are nearly identical to SAE J1989 and J1732, standards previously adopted by the Agency for similar equipment designed to service CFC–12. The differences between the SAE J standards and those set forth in appendix D are incidental, such as grammatical and spelling corrections, and do not affect the requirements of the standard.

3. The Standard for Automotive Refrigerant Recycling Equipment Intended for Use With Both CFC–12 and HFC–134a

Today's rule adopts a standard that establishes specific minimum equipment requirements for automotive refrigerant recycling equipment intended for use with both CFC–12 and HFC–134a using a common refrigerant recycling circuit. The rule requires that equipment meet the standards set forth in appendix E. These standards require labeling of the equipment after certification, and include requirements to prevent cross contamination before operations involving a different refrigerant can begin, such as a seat leakage test, the installation of electrical interlocks, and visual indications to prevent cross contamination. The standards contain requirements to purify the refrigerant, safety requirements and functional description of the equipment, requirements for labeling of the storage tanks to identify CFC–12 and HFC–134a, and hose and connection requirements. Appendix E also provides guidelines for testing the equipment to verify that particular models meet the requirements of the standards. Appendix E cross-references SAE J1989, which is set forth in appendix A, and SAE J2211, which is set forth in appendix C.

The standards set forth in appendix E are nearly identical to SAE J1770. The differences between the SAE J standards and those set forth in appendix E are incidental, such as grammatical and spelling corrections, and do not affect the requirements of the standards.

4. Standard for Recover-only Equipment That Extracts a Single, Specific Refrigerant Other Than CFC–12 or HFC–134a

Today's rule adds a standard for equipment that recovers but does not recycle any single, specific refrigerant other than CFC–12 and HFC–134a, including but not limited to specific marketed blend refrigerants. Refrigerant that is recovered by this type of equipment must be properly reclaimed before it can be reused in an MVAC or MVAC-like appliance. The rule requires that this equipment meet the standards set forth in appendix F. Appendix F is based on, but not identical to, the recover-only standard for HFC–134a set forth in appendix D. The standard states that the recovery equipment be able to separate the lubricant from the recovered refrigerant and indicate the amount of lubricant removed so that the technician can return the proper amount of lubricant to the system. The primary substantive differences between appendix D and appendix F are located in section 6.2.1, the description of the ''dirty cocktail'' of standard contaminated refrigerant which is run through the equipment in order to test its efficacy. First, in order to ensure that the ''dirty cocktail'' of contaminated refrigerant provides an accurate test of the equipment's ability to recover used refrigerant, the standard set forth in appendix F specifies in 6.2.1 that ''refrigerant shall be identified prior to the recovery process to within ±2% of the original manufacturer's formulation which was submitted to, and accepted by, EPA under its Significant New Alternatives Policy program.'' That requirement is not contained in appendix D. Second, the ''dirty cocktail'' for testing HFC–134a equipment contains only PAG oil, while the ''dirty cocktail'' for testing other replacement refrigerants contains equal parts of PAG, POE and mineral oils. This specification should approximate more realistically the type of contaminants in used refrigerant that such equipment is likely to handle.

C. Substantially Identical Equipment

Section 609 of the Act provides that equipment purchased before the proposal of standards shall be considered certified if it is substantially identical to equipment certified by the EPA or by an independent standards testing organization approved by EPA. Section 82.36(b) of the regulations states that recover/recycle equipment designed for use with CFC–12 and purchased before the proposal of the standards for refrigerant recycling equipment in appendix A (*i.e.*, before September 4, 1991), and recover-only equipment designed for use with CFC–12 and purchased before the proposal of the standards for such equipment in appendix B (*i.e.*, before April 22, 1992), shall be considered certified if it is ''substantially identical'' to equipment approved under § 82.36(a).

Today's rule applies the Act's ''substantially identical'' provision to recover/recycle and recover-only equipment that services HFC–134a MVACs, recover/recycle equipment intended for use with both CFC–12 and HFC–134a MVACs, and equipment that recovers but does not recycle single, specific replacement refrigerants other than HFC–134a. These types of equipment will be considered approved if they are substantially identical to equipment approved under § 82.36(a) and if they were purchased prior to March 6, 1996, the date on which today's rule was proposed. A manufacturer or owner may request a determination from EPA on whether a particular unit or model is substantially identical. Equipment used with MVAC-like appliances is not covered under the ''substantially identical'' provision in § 82.36(b); rather, §§ 82.156(a)(5) and 82.158 (f) and (g) of the subpart F regulations establish grandfathering criteria for equipment used with MVAC-like appliances.

EPA considers equipment to be substantially identical if it performs equivalently to the equipment that is

certified to meet all the approved equipment standards but was purchased prior to the date of publication of the appropriate EPA proposed standard. In general, EPA proposes to follow the same strict approach in implementing the substantially identical provision for the equipment subject to the standards promulgated today as for recover/recycle and recover-only equipment that services CFC–12 MVACs and MVAC-like appliances. In situations where the models sold were not the same as the approved model, EPA will consult with approved independent standards testing organizations to evaluate the previously sold equipment. EPA will use these organizations' test data and any additional information submitted by the manufacturer, such as process diagrams and lists of components, in the evaluation. EPA will maintain a list of equipment determined to be substantially identical. An essential criterion for evaluation is that equipment removes refrigerant as efficiently as the applicable EPA standard and separates lubricant from refrigerant. The Agency is also interested in ensuring safety in operation of the equipment. Should manufacturers consider the possibility of retrofit kits to bring the pre-certification models up to the performance standard of certified models, EPA would require that the retrofit kits be certified by an approved independent standards testing organization and that equipment owners indicate in their certification to the Agency that they have retrofitted equipment.

The Agency is aware that some HFC–134a recover-only equipment has been sold prior to SAE's issuance in December, 1994 of the J1732 standard for HFC–134a recover-only equipment and that some dual refrigerant recycling equipment has been sold prior to SAE's issuance in December, 1995 of the J1770 standard for equipment that recovers both CFC–12 and HFC–134a. Because no SAE standard was in place at the time of sale, the equipment could not be certified by UL or ETL for EPA approval. In such an event, *i.e.*, where units are sold prior to the publication of the appropriate SAE standard, so that there is no sticker or plate on the unit showing that the model has been tested by UL or ETL to meet the appropriate SAE standard, and later, after publication of the SAE standard, units of the same model are certified by UL or ETL, the Agency considers the units sold prior to the publication of the standard to be substantially identical. The Agency reserves the right, however, to terminate such consideration of earlier units in the event the Agency receives evidence that some earlier units of that model (*e.g.*, prior to serial number xxxxx) were not able to achieve one or more of the provisions of the appropriate SAE standard. In that instance, the manufacturer will have to demonstrate to EPA that the units in question are substantially identical before EPA would make a determination to that effect. The Agency recognizes that manufacturers of units sold prior to the publication of the appropriate SAE standard may consider developing retrofit kits to bring pre-certification units up to the performance standard of certified units.

It should be noted that some dual refrigerant recycling equipment sold prior to SAE's issuance in December, 1995 of the J1770 standard for equipment that recovers both CFC–12 and HFC–134a, may be labeled with a UL or ETL sticker that indicates that the unit meets SAE J1990 and J2210. The Agency believes that these units do not necessarily meet the J1770 standard, and therefore the EPA standard set forth in appendix E. In the event that later versions of the same model of equipment become certified by UL or ETL to meet the J1770 standard, then the Agency will consider the units sold prior to the publication of the standard to be substantially identical, although EPA reserves the right to terminate such consideration, as noted above.

Several commenters stated that a simpler and more sensible approach to identifying substantially identical equipment would turn on whether the equipment was *manufactured* after a specific date, rather than *purchased* after the date upon which the applicable regulations were proposed. The statute itself, however, is explicit in its categorization of which equipment may qualify as substantially identical. Although it may be that pinpointing a manufacture date for a specific unit is generally easier than pinpointing a purchase date, the statute requires in section 609(b)(2)(B) that only equipment ''purchased before the proposal of regulations'' can be certified as being substantially identical. One commenter suggested that the resale of equipment by service facilities no longer in business to other facilities may cause confusion about how a purchase date is defined. Consequently, every reference set forth in the proposed text of 40 CFR 82.36(b)(1) to ''purchased before [date of applicable proposal]'' has been changed to ''initially purchased before [date of applicable proposal].''

D. Approved Independent Standards Testing Organizations

Section 82.38 establishes the criteria for approval of testing laboratories or organizations to certify whether equipment governed by the regulations meets the standards set forth in the regulations. Under the July 14, 1992 final rule and the May 2, 1995 supplemental final rule, approved organizations determine whether CFC–12 recover/recycle and recover-only equipment meets the standards set forth in the appendices A and B to the rule, which are based on SAE standards. Today's rule expands that provision so that these approved organizations may determine whether the equipment subject to today's rule meets the standards set forth in the appropriate appendices.

Because the application materials received by the Agency from UL on October 21, 1991, and from ETL on November 27, 1991 demonstrate that both organizations have met the criteria set forth in 40 CFR 82.38(b) with respect to all equipment subject to today's rule, and because the Agency has received from both UL and ETL written requests stating that all the application criteria are still being met, and requesting that they be approved to certify the equipment subject to today's rule, the Agency today approves UL and ETL to certify this equipment. The Agency also hereby approves any equipment certifications performed by either of these organizations which demonstrate that particular equipment models meet SAE standards upon which any of the appendices listed in this rule is based.

No commenters to the proposal made any statements concerning the approval by EPA of independent standards testing organizations.

E. Technician Training and Certification

Section 82.40 establishes the standards for the approval of programs to train and certify technicians. The standards cover training, the subject material that must be covered by each program, and minimum test administration procedures. Summaries of reviews of programs must be submitted every two years and programs must offer technicians proof of certification upon successful completion of the test.

The Agency wishes to note that the technician training and certification requirements set forth in today's rule amending § 82.40 apply to technicians who work on MVAC-like appliances as well as to those who work on MVACs. Section 82.161(a)(5) requires that technicians who service or repair

MVAC-like appliances either must be properly certified as Type II technicians in accordance with the subpart B regulations or must complete the training and certification test offered by a training and certification program approved under § 82.40. Any technicians who wish to service MVAC-like appliances and who in the future become certified under § 82.40 rather than as Type II technicians must therefore receive training in the equipment standards attached as appendices to today's rule.

At this time, 27 organizations have been approved by EPA to train and certify technicians in the use of CFC–12 recover-only and recover/recycle equipment. Ten of these organizations train and certify their employees, while the remaining train members of the general public. While EPA's approval of these organizations has been limited to CFC–12 equipment, the Agency believes that for purposes of training and certification conducted prior to January 29, 1998, these organizations should also be considered as approved for purposes of HFC–134a equipment, equipment that recycles both CFC–12 and HFC–134a using common circuitry, and equipment that extracts, but does not recycle, replacement refrigerants other than HFC–134a. As discussed below, the equipment governed by the standards in today's rule and CFC–12 equipment are very similar, the procedures for extracting refrigerant are very similar for all types of equipment, and the procedures for recycling refrigerant are very similar for all types of recycling equipment. Retraining and recertifying of technicians already certified to use CFC–12 equipment would therefore produce only a limited environmental benefit. In addition, such retraining and recertification would impose a large burden on the technicians and the organizations that certify them. For these reasons, EPA is today approving the 27 organizations noted above for training and certification of technicians in the use of equipment that is governed by the standards in today's rule, conducted prior to January 29, 1998.

EPA will also approve organizations for future training and certification of technicians for the use of HFC–134a equipment, equipment that recycles both CFC–12 and HFC–134a using common circuitry, and equipment that extracts, but does not recycle, replacement refrigerants other than HFC–134a, on the condition that each organization certify in writing to the Agency that its training materials discuss the standards set forth in Appendices C, D, E and F, and that its testing materials include questions concerning those standard. Each organization that submits such a certification shall be approved upon the date which is the later of (i) the effective date of this rule (*i.e.*, January 29, 1998), or (ii) the receipt by the Agency of such a certification. Organizations that do not submit such a certification will not be approved to train and certify future technicians for the use of the equipment governed by the standards in today's rule. The Agency reserves the right, pursuant to § 82.40(c), to request that when an organization submits its certification to EPA, it also provides the Agency with a summary of its review of its test subject material and any changes made.

As noted above, the prior training and testing of previously approved technicians for equipment governed by the standards in today's rule, adequately and sufficiently covers the standards set forth in appendices C, D, E and F because of the large overlap between the text of the standards contained in appendices A and B, and the text of the standards contained in appendices C, D, E and F. In appendices A and B, and in appendices C, D, E and F, the following provisions are identical or nearly identical: safety requirements; requirements that the manufacturer must provide operating instructions; requirements that the equipment must ensure the refrigerant recovery by reducing system pressure below atmospheric to a minimum of 102 mm of mercury; the preconditioning of the equipment with a contaminated sample; the composition of that contaminated sample; the requirements that the equipment must be certified by UL or an equivalent certifying laboratory; the requirements that the label on the equipment must state that it has been design certified to meet applicable SAE standards; and the additional storage tank requirements.

Where the SAE J1990-based standards in appendix A differ from the SAE J1732-based standards in appendices D and F, they differ largely because appendix A contains many provisions that relate to the recycle portion of the equipment operation and which are thus not applicable to appendices D and F. For example, appendix A describes requirements for the recycling test cycle and for the quantitative determination of moisture, lubricant, and noncondensable gas in that cycle.

Where the HFC–134a standards in appendices C and D differ from the SAE J1990- and J2209-based standards in appendices A and B, they differ largely because of the different chemical properties of the HFC–134a molecule. For example, the levels of contaminants in the CFC–12 ''dirty cocktail'' in J1990 are different than those in the HFC–134a ''dirty cocktail'' described in J2210, and the maximum acceptable levels of contamination by air, oil and moisture are different for CFC–12, as described in J1989, than for HFC–134a, as described in J2211.

Appendix E is similar to the other standards for recycling CFC–12 refrigerant set forth in appendix A and for recycling HFC–134a refrigerant set forth in appendix B, but also contains requirements designed to demonstrate that the equipment is capable of preventing cross-contamination of refrigerants, including a seat leakage test and the installation of electrical interlock devices and filters. In addition, the standard requires the performance of a testing sequence which puts the equipment through a CFC–12 recycling sequence, followed by an HFC–134a recycling sequence. The ''dirty cocktails'' used in such testing, however, are identical to the ''dirty cocktails'' used in appendices A and C for testing the efficacy of cleaning single refrigerants.

A review of SAE J1732 indicates that it contains two provisions that relate to the recovery of refrigerant for which there are no equivalent provisions in SAE J1990. First, section 6.3.2 of SAE J1732 requires that the equipment discharge or transfer fitting shall be ½″ ACME thread. SAE did not consider this requirement until after the publication of the final version of J1990. This requirement to include a unique fitting guards against the mixing of different refrigerants. Second, section 6.1 of SAE J1732 requires that the unit must have a device that assures that refrigerant has been recovered so that outgassing is prevented. Although there is no equivalent to this provision in SAE J1990, J1989 requires safeguards to prevent outgassing.

No commenters to the proposed rule suggested any revisions to the technician training and certification provisions outlined in the proposal.

F. Sales Restriction

Section 609 made it unlawful, effective November 15, 1992, for any person to sell or distribute, or offer for sale or distribution, except to section 609 certified technicians, any class I or class II substance suitable for use as refrigerant in a motor vehicle air-conditioning system and that is in a container with less than 20 pounds of refrigerant. Consequently, sales of small cans of CFC–12, as well as small cans of any HCFC blend which EPA's Significant New Alternatives Policy

(SNAP) program may determine to be acceptable as a substitute for CFC–12 in MVACs and MVAC-like appliances, are limited to section 609 certified technicians. In addition, section 608 regulations that became effective November 14, 1994 (58 FR 28714) restrict the sales of all containers (regardless of size) of any class I or II refrigerant to technicians certified under either section 608 or section 609 of the Act.

EPA is preparing to propose in a separate rule several changes to the regulations promulgated under section 608 of the Act. The proposed changes to the section 608 regulations, pursuant to the mandate of section 608(c)(2), would establish standards and requirements for the servicing of appliances and industrial process refrigeration systems that use refrigerants that substitute for the currently-regulated class I or class II substances. In addition, in that proposal, the Agency may include a provision proposing to restrict the sale of all containers (regardless of size) of non-ozone-depleting substitute refrigerants, including HFC–134a, to technicians certified under either section 608 or section 609 of the Act. Should the Agency determine to propose such a sales restriction, the proposed changes to the regulatory text and explanatory discussion in the preamble would be entirely contained in the section 608 proposed rule, even though the changes would also affect industries governed under section 609—automotive refrigerant distributors, automobile manufacturers, and the automotive service industry. All parties interested in whether EPA decides to institute a sales restriction are therefore urged to review the language contained in any future section 608 proposal.

V. Summary of Supporting Analyses

A. Executive Order 12866

Under Executive Order 12866 (58 FR 51735, October 4, 1993), the Agency must determine whether this regulatory action is ''significant'' and therefore subject to OMB review and the requirements of the Executive Order. The Order defines ''significant'' regulatory action as one that is likely to lead to a rule that may:

(1) Have an annual effect on the economy of $100 million or more, or adversely and materially affect a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;

(2) Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

(3) Materially alter the budgetary impact of entitlement, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or

(4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

It has been determined that this rule is a ''significant regulatory action'' within the meaning of the Executive Order. EPA has submitted this action to OMB for review. Changes made in response to OMB suggestions or recommendations will be documented in the public record. The Agency prepared an analysis to assess the impact of this regulation (see Regulatory Assessment for EPA's Proposed Rule on Standards and Requirements for Servicing of Motor Vehicle Air Conditioners that use Refrigerants other than Class I or Class II Substances, U.S. EPA Stratospheric Protection Division, November, 1995) which covers both recover/recycle equipment and recover-only equipment, and is available for review in the public docket for this rulemaking. The analysis indicates that total annualized costs to affected industrial sectors will range from $4.9 million to $14.3 million, depending on what type of recovery/recycling equipment automotive service facilities choose to purchase.

B. Regulatory Flexibility/Fairness to Small Entities

1. Regulatory Flexibility Act

a. Purpose: EPA has determined that it is not necessary to prepare a regulatory flexibility analysis in connection with this final rule. In addition, the Agency has performed an initial screening analysis and determined that this regulation does not have a significant economic impact on a substantial number of small businesses. The screening analysis is found in Appendix A in the Regulatory Assessment for EPA's Proposed Rule on Standards and Requirements for Servicing of Motor Vehicle Air Conditioners that use Refrigerants other than Class I or Class II Substances (U.S. EPA Stratospheric Protection Division, October, 1995) (Regulatory Assessment) and is available for review in the docket. A summary of the methodology and results of the analysis are presented below.

b. Screening Analysis Methodology and Results: EPA first characterized the regulated community by identifying the SIC codes that would be involved in the servicing and repair of motor vehicle air conditioners. EPA considered how the regulated community would be affected by the main provisions of the rule: the equipment standards, the technician certification regulations, and the regulations governing service facility practices. After looking at typical costs to each service facility, the analysis reviewed total costs to the regulated community as a whole.

The equipment standards and technician certification provisions contained in the rule impose costs on the regulated community. With respect to equipment standards, EPA assumed that each service establishment would purchase a single piece of equipment in order to comply with the regulation. The analysis took into account the life of the equipment (in terms of number of jobs performed), the incremental labor time to recover, or to recover and recycle, refrigerant, the current labor rate, and general operation and maintenance costs. EPA's analysis also considered the cost savings realized by service establishments for the recovery and reuse of substitute refrigerants and through the salvage value of equipment. The analysis then outlined two different private cost scenarios. The less expensive cost (lower-bound) scenario assumed that a facility would choose to purchase single refrigerant recover/recycle equipment, while the more expensive (upper-bound) option assumed that a facility would choose to purchase dual refrigerant recover/recycle equipment. In estimating the costs of complying with the technician certification requirements, the screening analysis took into account the number of service technicians employed by small and large facilities, employment turnover rates for those employees, and the cost to certify a single technician.

The screening analysis also estimated some of the benefits of the rule, distinguishing between those that are readily quantifiable and those that are not. Specifically, the analysis described the marginal social benefits associated with each kilogram of greenhouse gas emission reduction resulting from the imposition of the rule and then estimated the total social benefits associated with all emissions reductions resulting from the imposition of the rule. The benefits discussion also estimated the potential cost savings to members of the regulated community, including motor vehicle disposal facilities, that might take advantage of mobile recovery service, which today's rule explicitly permits. Finally, the analysis briefly discussed non-quantifiable benefits of the rule such as increased efficiencies and equity in the marketplace resulting from the imposition of the rule.

In order to determine whether the rule will have a significant economic impact on a substantial number of small entities, the Agency determined from financial data what portion of the regulated community falls within the definition of ''small entity,'' and performed tests using sales, profits and cash flow measures in order to determine the nature of adverse impacts, if any. The number of small entities servicing MVACs was estimated, using Small Business Administration guidelines, at 160,366. Using the sales test, EPA's preferred criterion for gauging the economic impact of a regulation on small businesses, the Agency determined that after the imposition of the 1992 section 609 regulations (the baseline), 3.6% of these facilities were significantly affected. With respect to the regulations being promulgated today, the screening analysis determined that an additional 1.8% of these facilities will be significantly impacted by today's rule, based on the estimated annualized cost of $100 for each small facility to comply. For more details concerning the results of the analysis, copies of the Regulatory Assessment are available for review in the docket.

2. Note on Recordkeeping and Reporting

This rule will not impose any new recordkeeping or reporting requirements on any small entity or other member of the regulated community.

3. Steps EPA Has Taken to Minimize Economic Impacts on Small Entities

The portions of today's regulation that impose costs on the regulated community implement specific requirements of section 609 of the Act, without the exercise of discretion by EPA. Section 609 explicitly requires the Administrator to promulgate regulations establishing standards for motor vehicle refrigerant recycling equipment. Regulations already in place have established standards for equipment that recovers and recycles CFC–12; the equipment standards set forth in today's rule fulfill the statutory obligation of the Administrator to establish standards for equipment that recovers and recycles HFC–134a and other substitute refrigerants. Section 609 also requires that automotive service technicians who service MVAC systems be trained and certified in the proper use of EPA-approved refrigerant recycling equipment. The technician certification requirements contained in today's rule fulfill the statutory mandate to establish such requirements for becoming certified to handle substitute refrigerants.

In order to minimize the economic impact on small entities created by the Agency's fulfilling its statutory mandate, EPA determined that the equipment standards promulgated today should resemble as closely as possible voluntary industry standards set by the Society of Automotive Engineers (SAE). Virtually all equipment marketed today that recovers, or recovers and recycles, substitute refrigerants already meets these voluntary industry standards. Installers have been purchasing the equipment at least since November 15, 1995, when a self-effectuating provision in section 608 of the Act prohibited venting substitute refrigerants into the atmosphere. Meeting the voluntary standards is a common indication of the quality of the equipment. When purchasing equipment, installers look not only to see that it meets the appropriate SAE standard, but also to determine that the equipment has been tested against that standard by an independent testing laboratory such as UL. In developing federally mandated equipment standards for refrigerant recycling equipment, section 609 required EPA to ensure that Agency standards were at least as stringent as the voluntary SAE standards. EPA has done so, but has also decided against issuing standards that were more stringent than the voluntary industry standards, not only in part because the Agency believes that the voluntary standards are protective of human health and the environment, but also because small businesses and other stakeholders are already familiar with the equipment that meets the voluntary standards and thus will also be familiar with the equipment that meets the EPA standards.

EPA has also engaged in extensive outreach to the affected community, and in particular to small entities within that community, in order to minimize any economic impacts this rule may have on them. To respond to questions, the Agency has long maintained a toll-free hotline (800/296–1996) and an award-winning web site that contains copies of any EPA fact sheets and regulations that relate to section 609. In addition, Agency staff have spoken, and/or sponsored trade booths, at conventions and conferences sponsored by industry trade associations such as the Mobile Air Conditioning Society, the International Mobile Air Conditioning Association, ASIA/APAA, and the National Tire Dealers and Retreaders Association. The Agency has also worked extensively on articles in automotive service journals such as Motor and Motor Age, and with other partners such as the National Institute for Automotive Service Excellence (ASE), which has tested over 150,000 technicians nationwide in motor vehicle heating and air-conditioning servicing. Using all of these methods, EPA has attempted to alert small entities to when and how the section 609 regulations would expand to apply to refrigerants that substitute for CFC–12 in MVACs, and to technicians who service vehicles that use substitute refrigerants. In conjunction with the publication of today's rule, EPA is issuing a short, plain-English fact sheet for automotive service facilities that summarizes the rule and responds to these questions.

EPA has also engaged in outreach activities to inform motor vehicle disposal facilities about the provisions of this rule that affect them. The recovery of refrigerant is a critical element in the motor vehicle disposal process, and yet calls to the hotline and to EPA staff had long indicated that automotive recyclers did not understand how to comply with Title VI regulations. EPA responded by promulgating today's rule. In conjunction with the publication of the rule, EPA is issuing a short, plain-English fact sheet specifically to assist the automotive recycling industry in its efforts to comply with the requirements of Title VI. It explains not only what requirements governing refrigerant recovery and re-use apply, but also where in the regulations each requirement is located.

C. Paperwork Reduction Act

This action does not add any new requirements or increases burden under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* The Office of Management and Budget (OMB) has previously approved the information collection requirements contained in the final rule, promulgated on July 14, 1992, which established standards and requirements regarding the servicing of MVACs and has assigned OMB control number 2060–0247 (EPA ICR No. 1617.02).

Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able

to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

An Agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations are listed in 40 CFR part 9 and 48 CFR Chapter 15.

D. Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104–4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local and tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with ''Federal mandates'' that may result in expenditures to State, local and tribal governments, in the aggregate, or to the private sector, of $100 million or more in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective or least burdensome alternative that achieves the objectives of the rule.

EPA has determined that this rule does not contain a Federal mandate that may result in expenditures of $100 million or more for State, local and tribal governments, in the aggregate, or the private sector, in any one year. The majority of the regulations promulgated today implement requirements specifically set forth by Congress in section 609 of the Clean Air Act without the exercise of any discretion by EPA. The remainder merely serve to clarify existing regulatory text and therefore impose no new additional enforceable duties on governmental entities or the private sector. Thus, today's rule is not subject to the requirements of sections 202 and 205 of the UMRA. EPA has also determined that this rule contains no regulatory requirements that might significantly or uniquely affect small governments.

E. Submission to Congress and the General Accounting Office

Under 5 U.S.C. 801(a)(1)(A) as added by the Small Business Regulatory Enforcement Fairness Act of 1996, EPA submitted a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the General Accounting Office prior to publication of the rule in today's **Federal Register**. This rule is not a ''major rule'' as defined by 5 U.S.C. 804(2).

List of Subjects in 40 CFR Part 82

Environmental protection, Motor vehicle air-conditioning, Reporting and recordkeeping requirements, Recover-only equipment, Recover/recycle equipment, Reporting and certification requirements, Stratospheric ozone layer.

Dated: December 17, 1997.

Carol M. Browner,

Administrator.

For the reasons set out in the preamble, 40 CFR Part 82 is amended as follows:

PART 82—PROTECTION OF STRATOSPHERIC OZONE

1. The authority citation for part 82 continues to read as follows:

Authority: 42 U.S.C. 7414, 7601, 7671–7671q.

2. Section 82.30 is amended by revising paragraph (a) to read as follows:

§ 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).

* * * * *

3. Section 82.32 is amended by adding a heading to paragraph (e), by revising paragraph (e)(1), by adding paragraphs (e)(3), (e)(4), and (e)(5), by revising paragraph (h), and by adding paragraph (i), to read as follows:

§ 82.32 Definitions.

* * * * *

(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.

* * * * *

(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.

* * * * *

(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.

4. Section 82.34 is amended by revising the section heading and by revising paragraph (a), revising the reference ''§ 82.42(b)(4)'' to read ''§ 82.42(b)(3)'' in paragraph (b), and by adding paragraph (d) to read as follows:

§ 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).

* * * * *

(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.

5. Section 82.36 is amended by revising paragraphs (a)(2) and (b) and adding paragraphs (a)(3) through (a)(7) to read as follows:

§ 82.36 Approved refrigerant recycling equipment.

(a)(1) * * *

(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.

* * * * *

6. Section 82.38 is amended by revising paragraphs (a) and (b)(1)(iii) to read as follows:

§ 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) * * *

(1) * * *

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

* * * * *

7. Section 82.40 is amended by revising paragraph (a)(2)(i) to read as follows:

§ 82.40 Technician training and certification.

(a) * * *

(2) * * *

(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.

* * * * *

8. Appendix C is added to Subpart B to read as follows:

Appendix C to Subpart B of Part 82—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
23 (73)	552	31 (88)	724	39 (102)	917	47 (117)	1158
24 (75)	572	32 (90)	752	40 (104)	945	48 (118)	1179

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

Temp, C(F)	kPa	Temp, C(F)	kPa	Temp, C(F)	kPa	Temp, C(F)	kPa
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.

9. Appendix D is added to Subpart B to read as follows:

Appendix D to Subpart B—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

10. Appendix E is added to Subpart B to read as follows:

Appendix E to 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.

11. Appendix F is added to Subpart B to read as follows:

Appendix F to Subpart B of Part 82—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

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