

ENVIRONMENTAL PROTECTION AGENCY**40 CFR Part 82**

[FRL-5428-1]

RIN 2060-AF36

Protection of Stratospheric Ozone: Supplemental Rule Regarding a Recycling Standard Under Section 608 (Proposed) of the Clean Air Act**AGENCY:** Environmental Protection Agency (EPA).**ACTION:** Proposed rule.

SUMMARY: Through this action EPA is proposing to amend the Refrigerant Recycling Regulations promulgated under section 608 of the Clean Air Act Amendments of 1990. This proposal is being undertaken to provide more flexibility where refrigerants are transferred between appliances with different ownership; to adopt a third-party certification program for reclaimers and laboratories; to propose amendments to the recordkeeping aspects of the technician certification program; and to clarify aspects of the sales restriction. In addition, EPA is proposing changes for the testing of recovery/recycling equipment; and proposes to adopt changes to ARI Standard 740, an industry standard previously adopted by EPA. Also, this action clarifies the distinction between major and minor repairs. In most instances, this action proposes to provide greater flexibility to technicians servicing equipment and it streamlines several existing provisions without compromising the goals of protecting public health and the environment or compliance with the requirements of the Clean Air Act Amendments.

DATES: Comments on this proposal must be received by April 1, 1996 at the address below. A public hearing, *if requested*, will be held in Washington, DC. If such a hearing is requested, it will be held on March 18, 1996 at 9 am, and the comment period would then be extended to April 17, 1996. Anyone who wishes to request a hearing should call Cindy Newberg at 202/233-9729 by March 7, 1996. Interested persons may contact the Stratospheric Protection Hotline at 1-800-296-1996 to learn if a hearing will be held and to obtain the date and location of any hearing. Any hearing will be strictly limited to the subject matter of this proposal, the scope of which is discussed below.

ADDRESSES: Comments on this proposal must be submitted to the Air Docket Office, Public Docket No. A-92-01 VIII.I, Waterside Mall (Ground Floor)

Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460 in room M-1500. Additional comments and materials supporting this rulemaking are contained in Public Docket No. A-92-01. Dockets may be inspected from 8 a.m. until 5:30 p.m., Monday through Friday. A reasonable fee may be charged for copying docket materials. The public hearing will be held at the EPA Auditorium, 401 M Street, SW., Washington, DC.

FOR FURTHER INFORMATION CONTACT:

Cindy Newberg, Program Implementation Branch, Stratospheric Protection Division, Office of Atmospheric Programs, Office of Air and Radiation (6205-J), 401 M Street, SW., Washington, DC 20460, (202) 233-9729. The Stratospheric Ozone Information Hotline at 1-800-296-1996 can also be contacted for further information.

SUPPLEMENTARY INFORMATION: The contents of this preamble are listed in the following outline:

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I. Refrigerant Recycling Regulations

Final regulations promulgated by the U.S. Environmental Protection Agency (EPA) under section 608 of the Clean Air Act Amendments of 1990 (the Act), published on May 14, 1993 (58 FR 28660), establish a recycling program for ozone-depleting refrigerants recovered during the servicing and disposal of air-conditioning and refrigeration equipment. Together with the prohibition on venting during the maintenance, service, repair, and disposal of class I and class II substances (see the listing notice January 22, 1991; 56 FR 2420) that took effect on July 1, 1992, these regulations are intended to substantially reduce the emissions of ozone-depleting refrigerants. These regulations were subsequently revised in the final regulations published on August 19, 1994 (59 FR 42950), November 9, 1994 (59 FR 55912), March 17, 1995 (60 FR 14607) and August 8, 1995 (60 FR 40419).

The current regulations require that persons servicing air-conditioning and refrigeration equipment observe certain service practices to reduce emissions, establish equipment and reclamation certification requirements, and comply with a technician certification requirement. The regulations also require that ozone-depleting compounds contained in appliances be removed prior to disposal of the appliances, and that all air-conditioning and refrigeration equipment, except for small appliances, be provided with a servicing aperture that will facilitate recovery of refrigerant. In addition, the regulations restrict the sale of refrigerant and establish a leak repair requirement for appliances that normally hold a refrigerant charge of more than fifty pounds. Also, the current regulations require that refrigerant recovered from an appliance but not returned to that appliance or another appliance with the same ownership, must be reclaimed by an EPA certified reclaimer. This last provision is scheduled to sunset in March 1996. Today EPA is issuing a direct final rulemaking and a corresponding proposal to extend the effectiveness of these requirements until December 31, 1996 or until EPA completes this rulemaking, whichever occurs first. EPA suggests that the reader review those notices as well.

II. Proposed Revisions to the Refrigerant Recycling Regulations

A. Contractor Reclamation

In this action EPA is proposing to revise the requirements to have refrigerant reclaimed by a certified reclaimer where the level of purity can be ensured through the testing of representative samples. EPA currently prohibits the sale or offer for sale for use as a refrigerant any class I or class II substance consisting wholly or in part of used refrigerant, unless the refrigerant has been reclaimed by a person who has been certified as a reclaimer pursuant to § 82.164. Thus, where refrigerant is moved between appliances with different owners, the refrigerant must be reclaimed by a certified reclaimer. The only exceptions to this current prohibition, such as where refrigerant is transferred between motor vehicle air conditioners (MVACs) that have different ownership, is indicated in § 82.154(g) and (h).

The definition of reclaim promulgated on August 19, 1994 (59 FR 42956), is as follows:

[To] reclaim refrigerant means to reprocess refrigerant to at least the purity specified in appendix A to 40 CFR part 82, subpart F (based on ARI Standard 700-1993, Specifications for Fluorocarbon and Other Refrigerants) and to verify this purity using the analytical methodology prescribed in appendix A. In general, reclamation involves the use of processes or procedures available only at a reprocessing or manufacturing facility.

EPA promulgated this reclamation requirement to address concerns with the quality of refrigerants, the potential for inadvertent mixing of refrigerants, and the potential costs to the owners of appliances damaged by the use of used refrigerants that do not meet any purity standard. A purity standard helps protect consumers who lack the technical knowledge to evaluate the risks of using refrigerant obtained from an outside source that may be excessively contaminated. EPA stated that "limited off-site recycling that is supported by a standard of purity and a testing method for recycled refrigerant may be the most cost-effective means of carrying out Section 608 while protecting air-conditioning and refrigeration equipment" (May 14, 1993, (58 FR 28679)). To protect consumers, EPA permitted off-site recycling only when the ownership of the refrigerant did not change. In instances where ownership of the refrigerant did change, EPA required reprocessing by a certified reclaimer and chemical analysis to ensure conformance with ARI Standard 700.

However, the Agency noted that it would conduct a further rulemaking to address whether a standard for used refrigerant could be developed that would protect air-conditioning and refrigeration equipment, but would permit technicians to clean refrigerant themselves by recycling, rather than sending the refrigerant to a reclaimer.

Since the implementation of these regulations, EPA believes that there is consensus concerning the need to continue to depend on ARI Standard 700 as the appropriate standard for purity of used refrigerants. Therefore, EPA considered extending the current reclamation requirement indefinitely. EPA strongly believes this requirement has provided an effective means for ensuring refrigerant purity and, therefore, protecting consumers. However, the industry standard that is the basis for today's proposal maintains the important aspects of the current requirement while providing greater flexibility. Where an alternative to sending the entire refrigerant charge to a certified reclaimer is advocated, a protocol for analyzing the refrigerant has been maintained. Since chemical analysis is the crux of the reclamation program EPA believes it is possible to provide this flexibility while maintaining an effective program. As stated above, the Agency's goal has been to develop a more flexible procedure that would ensure compliance with the standard without disrupting the marketplace.

While EPA has required that refrigerant transferred between different owners be reclaimed, EPA has encouraged the development of a procedure for ensuring the purity of used refrigerants. This procedure is referred to as "off-site recycling." Since May 1993, EPA has monitored the industry's development of new standards. EPA has participated and observed several industry forums and has met with various stakeholders. As development of a potential standard for off-site recycling progressed, it became apparent that such a standard could not be developed by industry and adopted by EPA prior to the expiration of the promulgated reclamation requirement on May 14, 1995. Therefore, EPA extended the reclamation requirement until March 17, 1996 (60 FR 14607) and more recently published an action to further extend the effectiveness of these requirements. These actions ensured that a purity standard remained in effect during consideration of the newly developed industry standard discussed below. If EPA adopts the standard proposed today, EPA will

simultaneously sunset the current reclamation requirement.

"Handling and Reuse of Refrigerants in the United States," commonly known as Industry Recycling Guide (IRG-2), was published in December 1994. IRG-2 was developed and endorsed by the following organizations:

- Air-Conditioning and Refrigeration Institute (ARI);
 - Air Conditioning Contractors of America (ACCA);
 - Association of Home Appliance Manufacturers (AHAM);
 - Food Marketing Institute (FMI);
 - Mechanical Service Contractors of America (MSCA);
 - Mechanical Contractors Association of America (MCAA);
 - National Association of Plumbing-Heating-Cooling Contractors (NAPHCC);
 - Refrigeration Service Engineers Society (RSES);
 - Sheet Metal and Air-Conditioning Contractors National—Association, Inc. (SMACNA);
 - Spauschus Association, Inc.; and
- developed in cooperation with the General Services Administration of the U.S. Government.

This group represents refrigerant reclaimers, manufacturers of air-conditioning and refrigeration equipment, manufacturers of recovery and recycling equipment, compressor manufacturers, contractors, engineers, food stores, building owners and managers, and the federal government.

IRG-2 provides guidelines for determining how to handle refrigerant that has been recovered from an air-conditioning or refrigeration appliance. IRG-2 describes four potential options:

- (1) Putting the refrigerant back into the system without recycling it;
- (2) Recycling the refrigerant and putting it back into the system from which it was removed or back into a system with the same owner;
- (3) Recycling the refrigerant to verify conformance with ARI Standard 700 prior to reuse in a different owner's equipment, provided that the refrigerant remains in the contractor's custody and control at all times from recovery through recycling to reuse; and
- (4) Sending the refrigerant to a certified reclaimer.

The current regulations allows options 1, 2, and 4. Through this action, EPA is proposing also to permit option 3.

While not part of today's proposal, EPA notes that a technician should consider many factors when servicing an appliance and deciding how to handle the refrigerant that has been recovered. Technicians should consider

why the system is being serviced. Compressor failures, particularly motor burnouts, will affect the service person's decision concerning how to clean the refrigerant. The service history and age of the appliance can be important. Appliances that have not been cleaned or evacuated properly from a previous service problem may have higher levels of contamination in the refrigerant and in the oil. If the service history is unavailable the technician may, at a minimum, wish to recycle the refrigerant. If the appliance had a previous burnout, the technician should be concerned with the purity of the refrigerant. Technicians should consider the equipment manufacturer's policies and recommendations concerning the use of recycled refrigerant. Finally, the technician should consider the cleaning capacity of the recycling equipment.

If the refrigerant needs to be recycled it should be cleaned to acceptable contaminant levels. Equipment certified to meet ARI Standard 740, "Performance of Refrigerant Recovery/ Recycling Equipment," should be able to clean refrigerants, although it should be noted ARI Standard 740-1993 does not specify minimum contaminant levels and equipment designed for recycling cannot separate mixed refrigerants. Technicians may need to consider the cleaning capabilities of their recycling equipment over time to ensure that its cleaning performance has not significantly diminished. In addition, filter systems in recycling equipment need to be changed or cleaned regularly to ensure maximum performance.

These factors are part of the complex decisionmaking system the technicians use when determining the appropriate actions for safe refrigerant management. If EPA adopts today's proposed contractor reclamation standard, in many cases the technicians may still choose to recover and have the refrigerant reclaimed by a certified reclaimer.

EPA would like to clarify that what has formerly been referred to as an "off-site recycling standard" is essentially reclamation by the technician or contractor, instead of reclamation by the certified reclaimer. EPA and industry have distinguished between recycling and reclamation. To recycle refrigerant means to extract refrigerant from an appliance and to clean the refrigerant for reuse without meeting the requirements for reclamation. Recycled refrigerant is cleaned using oil separation and one or more passes through recycling devices. Recycling procedures are usually performed at the job site. As discussed above,

reclamation means that the refrigerant has been cleaned and chemically analyzed for conformity with the ARI Standard 700-1993 purity levels. EPA believes the pertinent part of the definition of reclamation is conformance with the ARI Standard 700-1993 purity levels. Hence, refrigerant that has been cycled through recycling equipment and tested to ensure that ARI Standard 700-1993 has been achieved is actually reclaimed refrigerant. Therefore, henceforth in this notice, EPA will refer to this procedure as contractor reclamation, or contractor reclaiming rather than off-site recycling. Accordingly, EPA is proposing to revise the definition of reclamation to eliminate references to the physical location where reclamation can occur.

EPA is proposing that when the refrigerant remains in the custody of a single technician or contractor and a representative sample of that refrigerant has been chemically analyzed to determine conformance with the ARI Standard 700-1993, the refrigerant will be considered reclaimed and may be charged into a new owner's appliance. A representative sample may be defined as a sample taken from each container of refrigerant to be chemically analyzed and tested to ARI Standard 700-1993 prior to packaging for resale or reuse. Such samples will be at least 500 ml and shipped in stainless steel test cylinders that include 1/4" valve assembly and pressure relief rupture disc. Cylinders should be rated by the Department of Transportation. EPA believes that as long as representative samples of the refrigerant are chemically analyzed by certified laboratories to meet the contaminant levels in ARI Standard 700-1993, and as long as refrigerant remains in the contractor's custody and control, the quality and purity of the reclaimed refrigerant can be ensured.

EPA believes it is essential that the contractor-reclaimed refrigerant remain in the custody and control of the contractor prior to resale. EPA believes that the contractors and technicians understand the importance of maintaining refrigerant purity, particularly in light of the phaseout of ozone-depleting substances. EPA's technician certification program, other relevant educational venues, and work experience, provides contractors and technicians with a level expertise in their chosen endeavor. Their training has made the contractors and technicians aware of the need to avoid releases and refrigerant contamination as well as the dangers that could result from such actions. These factors lead EPA to believe that contractors and

technicians can protect the integrity of refrigerant in their charge. There is no practical method for tracking and verifying the purity of refrigerant charges where the custody and control of the refrigerant charges have not been maintained. EPA believes it is necessary to ensure that such mechanisms exist because of the need to ultimately ensure the protection of the equipment that will be charged with the refrigerant. Through this action, EPA is proposing that the contractor or technician maintain records consisting of the date and location of where the refrigerant was recovered, the date(s) and location(s) of where the refrigerant is stored, the date(s) and location(s) of where representative samples are drawn, and the date(s) and location(s) of where the refrigerant is sold after a certified laboratory has verified the quality of the refrigerant. EPA believes this recordkeeping is necessary to ensure that only suitable refrigerant is charged into equipment with different ownership.

Under this proposal, each representative sample of the refrigerant must be chemically analyzed for conformity with ARI Standard 700-1993 by a laboratory that participates in an EPA-approved laboratory certification program. The requirements for laboratory certification are discussed in a later section of today's notice. If the laboratory report shows that the representative sample meets ARI Standard 700-1993 purity levels, then the refrigerant would be considered reclaimed and can be charged into a different owner's appliance.

EPA believes that this contractor reclamation option creates flexibility for the contractors and technicians while continuing to protect the owners or operators of the affected appliances and to meet the statutory requirements of the Clean Air Act Amendments. EPA believes that permitting contractor reclamation of refrigerants will provide savings to the contractors that may be passed on to the appliance owners. Shipping refrigerants to certified reclaimers often may constitute a large capital outlay for the contractor, whereas shipping only representative samples to laboratories may limit the expenses for the contractors. EPA also believes that this flexibility will not compromise compliance with the requirements of the Clean Air Act Amendments. Section 608(a) of the Clean Air Act Amendments requires that regulations include requirements that (A) reduce the use and emission of such substances to the lowest achievable level, and (B) maximize the recapture and recycling of such

substances. EPA believes that as long as the chain of custody and control of the refrigerant is not compromised, as discussed in IRG-2, and the purity of the refrigerant is chemically analyzed to ensure conformance with ARI Standard 700-1993, the purity of the refrigerant can be assured. In addition, this added flexibility will not increase emissions or lessen the recapture of ozone-depleting refrigerants. Technicians already recover these refrigerants and, where ownership of the refrigerant will change, the technicians already transfer the refrigerants to certified reclaimers. In accordance with the proposed contractor reclamation option, technicians would still recover the refrigerant. The only significant change is the ability to submit a representative sample for testing rather than shipping the entire refrigerant charge. Since the same required practices for handling refrigerants apply in both cases there is no additional risk of release of refrigerant stemming from this proposed change in the regulations.

EPA believes this approach provides economic benefits for the contractors and the appliance owners while maintaining the integrity of the refrigerant supply.

EPA believes that refrigerant will continue to be reclaimed properly even where someone other than a certified reclaimer is responsible for the refrigerant. EPA requests comment regarding contractor reclamation.

EPA also requests comments on the definition of a representative sample. EPA believes a more detailed definition is not necessary. A sample for chemical analysis is only as good as the method used to extract that sample. If samples that are not truly representational of the refrigerant charge are used for analysis, the results could be inaccurate. However, EPA understands that there are trade organizations, such as ARI, that can provide guidance on the correct procedures for sampling refrigerant. EPA also understands that laboratories can provide information to technicians concerning these methods for sampling and may not accept samples that have not been correctly extracted. Therefore, EPA does not believe it is necessary for the Agency to include such information in a definition.

EPA is also interested in how much savings the adoption of contractor reclamation may represent for contractors and technicians. EPA believes that shipping samples rather than the entire refrigerant charge should lessen costs. There may be other economic benefits derived from the adoption of contractor reclamation as well. EPA is interested in both

anecdotal and analytical information concerning the reduction of costs.

B. Laboratory Certification

The proposed adoption of contractor reclamation is directly linked to a means of ensuring that laboratories analyzing representative samples of the refrigerant charges are qualified to perform such services. Therefore, EPA believes it is appropriate to ensure that a means of oversight for the laboratories exists. Through this action, EPA will propose the adoption of a third-party certification program for laboratories. EPA is aware of a voluntary program developed by ARI to certify laboratories. Key elements of the program include qualifying tests, ongoing testing, and site visits. EPA believes that many of these elements are consistent with the elements that EPA is proposing for any person seeking to become a third-party laboratory certifier.

EPA considered other alternatives to third-party certification, including a direct certification program. However, the agency believes a third-party program would be more appropriate because industry organizations have the expertise and resources to establish and maintain an effective program. Moreover, EPA has learned from experience with other certification programs administered under subpart F that third-party certification can be highly effective, particularly where the third-party has already operated similar voluntary programs that can be used to help fine-tune the administration of a required certification program.

A third-party certification program would require EPA approval of the certifying programs and the development of standards for both the certifying programs and standards for the laboratories. This approach is similar to the several other certification programs successfully administered under the section 608 program.

1. Requirements for Laboratory Certification Programs

EPA believes that a laboratory certification program should develop a set of minimum performance requirements for initial and continuing certification. EPA has reviewed a draft program to be established by ARI. Many of the key elements included in this notice of proposed rulemaking (NPRM) are analogous to ARI's draft requirements.

EPA believes a signed agreement between the laboratory and the laboratory certification program will be necessary to ensure an understanding of the responsibilities of both the laboratory and the certifying program.

Such an agreement should include information concerning a laboratory's ability to test representative samples of refrigerant to the purity levels acceptable under the ARI Standard 700-1993 standard and a willingness to comply with the standards established by the EPA-approved laboratory certification program.

To become certified, EPA believes that a laboratory applying for certification should test and verify the composition of at least three refrigerants submitted by the EPA-approved laboratory program. Only laboratories that accurately determine, within an acceptable range, each contaminant in any of the qualifying samples should be certified. EPA believes the following list of values constitute acceptable ranges for reporting contaminants:

Purity: +/- 0.10%;

Water: +/- the greater of 3ppm or 10% of the actual value;

High Boiling Residue: +/- the greater of 0.01% (absolute) or 20% of the actual value; and

Non-condensibles: +/- the greater of 0.2% (absolute) or 10% of the actual value.

These values were developed by ARI and reviewed by EPA staff. EPA has determined that these values should ensure that a laboratory is able to provide accurate results within an acceptable range.

The laboratory certification program should perform a site visit prior to certifying the laboratory to ensure that the laboratory is capable of performing correct refrigerant analysis and performed its own analysis of the samples submitted for verification. Site visits should include a visual inspection of the laboratory's equipment and ascertain whether each item necessary for routine refrigerant analysis is present and is functional. In addition, the site visit should include a procedural review of the laboratory's methods and procedures for refrigerant analysis. EPA anticipates that a schedule of continued site visits will be necessary to ensure the continued qualifications of the laboratory. EPA believes these visits should occur on at least a semiannual basis.

To provide contractors and technicians with information concerning the status of the laboratory, EPA believes it is necessary for the laboratory certification program to provide the laboratory with evidence that the laboratory is certified. EPA is proposing to require that this evidence be displayed conspicuously; therefore, EPA anticipates that a seal or logo will be necessary. In addition, EPA believes

that the seal or logo should contain standardized language. EPA is proposing that the seal or logo include the following statement: "_____ has been certified as a laboratory to analyze refrigerant, as required by 40 CFR part 82, subpart F." This evidence demonstrates to those unfamiliar with the status of every laboratory, that a particular facility is properly certified. The requirement to display evidence is consistent with the requirements for other third-party certification programs promulgated under subpart F. This notification could be particularly important if a technician or contractor is aware of which laboratory certification programs are approved by EPA, but does not have a list of every laboratory that has been certified. EPA anticipates that there will be a limited number of laboratory certification programs; however, the potential list of laboratories certified to test and verify refrigerant samples could be extensive.

Laboratories that are unable to substantiate their ability to comply with the criteria established through this rulemaking, or with any relevant additional criteria established by the EPA-approved laboratory certifier, should be disqualified from the review process. The laboratory should be permitted to reapply at a later date. A certified laboratory no longer able to meet the continuing criteria should be decertified. EPA believes that laboratories that misrepresent their status, do not comply with the payment of any reasonable fees to the certifying program, and laboratories that do not submit required data, are examples of laboratories that should be disqualified. If a laboratory is decertified, the laboratory certification program should inform EPA within 30 days.

Laboratory certification programs that cannot or do not decertify laboratories that do not comply with the standards set forth in this proposal could have their EPA approval revoked. If such a case arises, laboratories certified by that laboratory certification program would be required to be certified by another approved program within 6 months.

EPA proposes to approve laboratory certification programs that demonstrate to EPA their ability to establish and maintain a program that includes the elements discussed in this proposal and that provide the necessary level of continued oversight for the certified laboratories. At a minimum, those seeking EPA approval for a laboratory certification program would need to submit information to EPA demonstrating the program's ability to meet the criteria established by this proposal. Furthermore, EPA anticipates

that there may be a need for a site visit by EPA to the potential laboratory certification program to ensure the ability of the potential program to perform verification of representative samples. If the laboratory certification program uses an independent laboratory to analyze samples, information concerning that laboratory and/or inspection of that laboratory may be necessary.

2. Requirements for Laboratories

Through this action, EPA is proposing a process for third-party certification of laboratories that would analyze samples of refrigerant submitted by contractors in accordance with the proposed scheme for contractor reclamation. Those seeking to become laboratory certification programs would submit information demonstrating their ability to meet the requirements specified in this proposal.

EPA requests comments on the proposed certification of laboratories. EPA particularly is interested in comments concerning the criteria for the laboratories that would be certified under this proposed scheme. EPA has not set forth a protocol for handling representative samples in this NPRM. EPA is interested in whether it is necessary to require a protocol, and if so, what such a protocol should encompass. In addition, EPA requests comments on the requirement that laboratory certification programs receive and maintain EPA approval. EPA is also interested in comments concerning decertification and revocation.

C. Revocation and Suspension

Failure to abide by any of the provisions of Subpart F may result in the revocation or suspension of the approval of the laboratory certification program. In addition, EPA is proposing that these same procedures be applicable to other third-party certification programs promulgated under Subpart F. Those certification programs include: technician certification, equipment certification, recovery and recycling equipment certification and reclaimer certification as discussed later in this notice. In such cases, EPA will notify the certification program in writing. Today's action specifies the proposed procedures for suspension and revocation as well as providing information concerning the ability of an approved certification program to challenge a decision of revocation or suspension. In such cases the program may request a hearing within 30 days; however, the program must submit in writing the program's objections and supporting data. If, after

review of the request the Agency agrees that the program raises a substantial and factual issue the Agency would provide a hearing and assign a Presiding Officer. The Agency may direct that all arguments and presentation of evidence be concluded within a specified time of no less than 30 days from the date that the first written offer of a hearing was made and may direct that the decision of the Presiding Officer will be final. EPA is proposing that the decision of the Presiding Officer will be final without further proceedings, unless there is an appeal or motion for review by the Administrator within 20 days of the decision. On appeal, EPA is proposing to provide the Administrator with all the powers that he or she would have in making the initial decision, including the discretion to require or permit briefs, oral arguments, the taking of additional evidence, or the remanding to the Presiding Officer for additional proceedings. EPA requests comments on these proposed procedures.

D. Adoption of Third Party Approval of Reclaimers

In order to ensure the quality of reclaimed refrigerant on the market, EPA requires the certification of reclaimers. Currently, reclaimers certify to EPA that they return refrigerant to at least the ARI Standard 700-1993, verify the purity using the methods set forth in ARI Standard 700-1993, and dispose of wastes from the reclamation process in accordance with applicable laws and regulations. During initial rulemaking under section 608, EPA considered an option whereby EPA would approve third parties that would certify reclaimers, and could administer site inspections and/or sampling of refrigerant. EPA stated that a third-party certification would be more reliable than self-certification. Inspections and sampling would provide independent evidence that the ARI Standard 700-1993 was being achieved at the reclamation facility. At the time the rule was drafted, one party demonstrated interest in seeking approval to be a third-party certifier. EPA indicated in the preamble discussion (58 FR 28699) that at a future date, it may consider replacing the self-certification program with third-party certification.

Through this notice, EPA is proposing to take such action. EPA believes that ARI and perhaps other industry entities will be interested in applying to become an EPA laboratory certification program. These organizations could provide site inspections and test refrigerant samples. EPA understands that to ensure compliance with a voluntary program

currently administered by ARI, ARI audits refrigerant to verify the ability of the ARI-certified reclaimers to comply with the program's criteria. EPA believes this type of oversight provides a stronger mechanism for ensuring the purity of refrigerants than the self-certification program currently administered by EPA.

EPA believes that since its inception, ARI's voluntary program has been highly successful. The program ensures the quality of the refrigerant, thus protecting the appliances and the consumer. Therefore, EPA believes it is appropriate to replace its self-certification program with a third-party certification that includes certain aspects of the ARI program.

EPA believes reclamation certification programs should perform oversight and refrigerant analysis to ensure conformance. In addition, programs would be required to process and maintain reports concerning the amount of reclaimed refrigerant that each certified reclaimer processes. The reclamation certification program would be required to verify the information reported by the reclaimers. Verification could be part of the inspection and testing process. Aggregate annual reporting to EPA would be required.

At a minimum the reclamation certification program would be required to ensure that at least four samples of reclaimed refrigerant from each certified reclaimer's facilities are tested by a laboratory and verified by the program each year. The particular samples to be tested are to be selected from an inventory of refrigerant that has been reclaimed by the reclaimer. If the reclaimer processes many types of refrigerants, each refrigerant listed by the reclaimer should be tested at least once a year. These tests must be performed on a random basis. Certified reclaimers should be required to display a logo, seal, or other like notification, indicating which EPA-approved reclamation certification program has certified the reclaimer. This notification ensures that the refrigerant purchaser is suitably informed about the certified reclaimer's affiliations. EPA believes that the seal or logo should contain standardized language. EPA is proposing that the seal or logo include the following statement: "_____ has been certified as a refrigerant reclaimer, as required by 40 CFR part 82, subpart F." This seal or logo should be displayed in a manner that permits a technician or contractor to know that the reclaimer is certified by an EPA-approved program. This information could be particularly important if a person knows the names of all EPA-

approved reclamation certification programs but does not know the names of all the certified reclaimers. EPA anticipates that there will be a limited number of approved reclamation certification programs; however, the potential list of certified reclaimers is far more extensive.

Reclaimers that are unable to substantiate their ability to comply with the criteria established through this rulemaking, or with other relevant state, local or federal requirements, should not be certified. In addition, a certified reclaimer no longer able to meet the continuing criteria should be decertified. For example, reclaimers that submit incomplete or inaccurate reports, refuse to permit site inspections, or fail to perform sufficient refrigerant analysis should be decertified. The reclaimer should be permitted to reapply at a later date. The reclaimer certification program would be required to inform EPA that a reclaimer has been decertified within 30 days.

Reclamation certification programs that cannot or do not decertify reclaimers that do not comply with the standards set forth in this proposal, or do not comply with other provisions, could have their EPA approval revoked. If such a case arises, reclaimers certified by the certifying program would be required to be certified by another approved program within six months. Such a requirement is necessary to ensure that the reclaimer continues to be certified by an EPA-approved program, not a program that has had its approval revoked. Moreover, such a requirement is necessary because if EPA has taken action to revoke approval, such action may be based on improper certification procedures used by the program. As discussed above, EPA is proposing specific procedures for suspension and revocation, as well as providing information concerning the ability of a reclaimer certification program to challenge a decision of revocation or suspension. These procedures would be the same for all third-party certification programs established under Subpart F.

EPA is concerned with transferring one aspect of its current reclaimer certification program to third parties. Certified reclaimers currently certify to EPA compliance with requirements for waste disposal. EPA is not convinced that approved reclamation certification programs would be capable of ensuring full compliance with federal, state, or local requirements outside of those promulgated under section 608, such as hazardous waste disposal. However, it is necessary that any potentially certified reclaimer either indicate to EPA or to an

approved reclamation certification program that such compliance is occurring. Therefore, EPA is proposing that the reclaimers certify that they dispose of wastes from the reclamation process in accordance with applicable laws and regulations. However, if the certification program suspects that these laws and regulations are not being met, such information would be forwarded to EPA for further investigation.

EPA believes that at a minimum, one organization that already has a voluntary reclamation certification program may apply. EPA believes that other organizations will also consider applying to become an approved reclamation certification program. EPA believes that third-party certification will better meet EPA's goals. Moreover, the success of the third-party recycle/recovery equipment certification, and the third-party technician certification, demonstrates the effectiveness of this approach. Therefore, EPA is proposing to modify the reclamation requirements to state that reclaimers must instead be certified by an EPA-approved reclaimer certification program. EPA plans to approve certifiers based on the criteria discussed above as soon as the criteria is promulgated. Those reclaimers already certified by EPA will need to be certified by an EPA-approved reclaimer certification program.

Those interested in becoming approved reclamation certification programs would be required to submit information to EPA indicating the ability to conform with all regulatory requirements for certifying and monitoring reclaimers. EPA would review this information and if appropriate, issue a letter of approval.

EPA realizes that provisions must be made for the changeover. Therefore, EPA proposes to continue to permit the reclamation of refrigerant by EPA-approved reclaimers until six months from the date EPA approves of at least one reclamation certification program. During the six months after EPA has approved at least one reclamation certification program, reclaimers not certified by EPA but instead certified by the EPA-approved program would also be permitted to reclaim refrigerant. Those certified by EPA will be required to become certified by an EPA-approved program prior to the end of that six-month period. After that date, reclaimers previously certified by EPA that have not been recertified by an approved third-party, will no longer be considered certified.

EPA requests comment on the adoption of a third-party certification program for reclaimers. EPA is particularly interested in the increased

benefits that may derive from this regulatory scheme rather than the current self-certification program run directly by the Agency. EPA also requests comments on the proposed procedure for converting to third-party certification, including provisions to include reclaimers that are currently certified by a program submitting an application. EPA also requests that any program that intends to apply to become a third-party certifier submit a draft application. EPA believes that reviewing draft applications during the comment period will permit EPA to include information on the timeframe for approving applications in the final rule.

E. Technician Certification and the Sales Restriction

1. Recordkeeping

EPA is concerned with the maintenance of records for certified technicians by approved programs that no longer provide test administration. Currently there are more than 90 EPA-approved technician certification programs that provide testing in accordance with § 82.161 and Appendix D. These programs administer and grade tests, maintain records, issue certification credentials, and submit reports to EPA twice each calendar year. EPA believes that technician certification has been very effective. Within 24 months, more than 600,000 technicians were certified. However, it has come to the Agency's attention that since the bulk of existing technicians have become certified, and the certification market now focuses on those first entering this field, some EPA-approved certification programs may choose to discontinue providing this service. To date, three programs, two of which did not actually ever administer tests, have withdrawn.

EPA is concerned with the maintenance of records for technicians who were tested by a program that no longer exists or no longer provides technician certification. EPA believes that the likelihood of this occurring will increase in the future. EPA is concerned that if a technician's certification credentials are lost and the program no longer exists, it may not be possible for the technician to receive duplicate credentials, thus denying the technician the ability to purchase class I or class II refrigerants.

Currently, programs that have been approved to administer the test must maintain records for three years (58 FR 28734). However, EPA does not believe an enforcement mechanism exists that would effectively ensure that this occurs if the program declares bankruptcy.

Furthermore, even if the program does continue to maintain the records, access to the records may be difficult if the program itself is no longer in business. Therefore, EPA is considering several potential options.

EPA could require programs to forward their records to EPA. EPA would therefore be responsible for maintaining those records. However, EPA is concerned that the Agency does not have adequate resources for maintaining these records effectively. A second option would be to have the programs send the records to EPA and have EPA choose a suitable existing certification program to maintain the records and forward the records to that program. EPA is uncertain as to adequate criteria that would be used for choosing the appropriate program. With more than 90 existing programs, all approved based on the same criteria, EPA would not be in a position to select a single program without acting in an arbitrary manner. A third option would be to have the program that intends to cease operation determine which active program, willing to accept the records, to submit its records to, and to notify EPA of its decision. In this scenario, all pertinent information, including the records relating to the technicians and the testing information would be forwarded to another program. The program pulling out would notify EPA of its decision, and the recipient of the records would notify EPA upon receipt of the records.

EPA believes the third option represents the most equitable approach. EPA believes that having an existing company maintain records is most appropriate. Therefore, EPA is proposing to promulgate this option.

EPA requests comments on requiring programs that no longer offer technician certification to locate a suitable program for continuation of the maintenance of the relevant records. EPA also requests comment on the two alternative methods for ensuring that recordkeeping is adequately provided.

In addition, EPA is also concerned with whether certification records should be maintained beyond the current three-year requirement. EPA believes that if a technician loses his/her identification card after the three years has passed, it should be possible for a replacement card to be issued. However, without a requirement that records are maintained indefinitely, it is unclear that the approved certification organizations will retain sufficient information to issue new credentials. Therefore, through this action, EPA requests comments on whether or not there are more appropriate timeframes.

2. Technicians Certified to Work on Motor Vehicle Air Conditioners

EPA is concerned about an inconsistency that exists in the sales restriction. Currently, technicians who are certified by either an EPA-approved section 608 or section 609 program, in accordance with § 82.40 and § 82.161, may purchase ozone-depleting refrigerants.¹ At the time the sales restriction was drafted and promulgated in May 1993 (58 FR 28714, May 14, 1995), EPA was aware that potential substitutes for CFC-12 for use in motor vehicle air conditioners (MVACs) could include an HCFC or a blend with an HCFC component. Therefore, EPA did not restrict the types of refrigerants that could be purchased by those with section 609 certification.

At the same time, EPA was also drafting and later promulgated regulations regarding acceptable and unacceptable alternatives to class I substances. Those regulations, promulgated under section 612, identify acceptable alternatives in various sectors, including refrigeration. These regulations, known as the Significant New Alternatives Policy (SNAP) Program were not yet promulgated when the sales restriction was promulgated. Therefore, EPA did not know to what extent the refrigeration sector would be subdivided. Subsequently, the SNAP refrigerant sector has been subdivided to indicate which refrigerants are acceptable for various types of appliances. Therefore, since SNAP now clearly delineates which refrigerants are acceptable for use in MVACs, EPA believes it is appropriate for the sales restriction under § 608 to employ a similar provision.

Furthermore, EPA is concerned with reports that those certified to work on MVACs are purchasing refrigerants that are not acceptable for use in MVACs. In all likelihood, this refrigerant is either being improperly installed in MVACs or those technicians may be servicing other appliances in violation of the regulations promulgated under Section 608. The sales restriction is intended to decrease emissions of ozone-depleting substances. If refrigerant not suitable for use in MVACs is improperly installed it may be vented. A technician certified to service MVACs with recovery equipment for use with suitable refrigerants may vent the unsuitable refrigerant rather than risk contaminating the recovery equipment. A person who is not certified to service

¹ 1. The sale of small cans of CFC-12 is further restricted to those certified by an EPA-approved § 609 program.

appliances other than MVACs and purchases refrigerant with the intent of servicing non-MVACs or non-MVAC-like appliances, may not be familiar with the required service practices established by EPA under § 82.156 and intended to ensure the lowest achievable emissions level. Improper service by that technician could lead to the release of the class I or class II refrigerant as well as damage to the appliance.

Therefore, through this action, EPA is proposing to modify the sales restriction. The proposed changes would restrict the sale of refrigerants to those certified in accordance with § 82.34, by a program approved under § 82.40, to purchasing CFC-12 in small cans and refrigerants listed as acceptable for use in MVACs in accordance with all regulations promulgated under Section 612. EPA requests comment on the appropriateness of modifying the sales restriction to limit the types of refrigerant that can be purchased by those certified to service and maintain MVACs under § 609.

3. Transfers Between Wholly-Owned Subsidiaries

EPA has received comments from several organizations where one wholly-owned subsidiary of a holding company would like to transfer refrigerant to another wholly-owned subsidiary of the same holding company. The requirement to reclaim refrigerant before the refrigerant changes ownership applies to these transfers. Therefore, without first reclaiming the refrigerant, these transfers are not permitted. EPA is aware of one company that wanted to make such transfers and had the capability to reclaim refrigerant. This company decided to become certified rather than have a third party involved.

As discussed in other sections of this proposal, EPA's reclamation provisions are designed to protect the refrigerant consumer and the appliances into which used refrigerant is charged. In the example described above, EPA believes the relationship between these two subsidiaries should provide a sufficient means to ensure that transfers between the subsidiaries would be akin to transfers within one company. Therefore, EPA is proposing to provide an exception to the sales for the transfers of refrigerant between two wholly-owned subsidiaries of the same company.

EPA also received comment requesting that EPA permit the transfer of unreclaimed refrigerant between subsidiaries that are not wholly-owned. Since these types of subsidiaries would

involve other investors that may have less of a commitment to each of the subsidiaries involved in the transactions, EPA does not believe transfers between these types of subsidiaries are akin to those within one organization. Therefore, EPA is limiting today's proposal to wholly-owned subsidiaries. EPA requests comment on this proposal.

F. Motor Vehicle Air Conditioner-Like Appliances

Through this action, EPA would like to modify the definition of Motor Vehicle Air Conditioner (MVAC)-like appliances. § 82.152 states that:

MVAC-like appliance means mechanical vapor compression, open-drive compressor appliances used to cool the driver's or passenger's compartment of a non-road motor vehicle. This includes the air-conditioning equipment found on agricultural or construction vehicles. This definition is not intended to cover appliances using HCFC-22 refrigerant. (58 FR 28713)

Since the promulgation of this definition in May 1993, EPA has received requests to clarify whether various types of appliances are in fact MVAC-like appliances. These appliances include air conditioners on small private planes, boats and trolleys. In these examples EPA has agreed that the appliances are MVAC-like. EPA believes that if the appliance is similar to an MVAC in all substantive matters, it should be treated as an MVAC. However, EPA has become concerned that the definition of MVAC-like should include an upper limit on the amount of refrigerant contained in the appliance. Without an upper limit, the current definition could be construed to include appliances that are not similar to an MVAC in all substantive matters. For example, a chiller located on a marine vessel could be mistakenly considered MVAC-like. Therefore, an upper limit would prevent any possible confusion. To ensure consistency between what is an MVAC and what is MVAC-like, the refrigerant limit for MVAC-like appliances should be similar to the largest amount of refrigerant contained in most MVACs. EPA believes that bus air conditioners using CFC-12 may represent the type of MVAC with the largest average charge size. Moreover, EPA believes that all MVACs contain less than 20 pounds of refrigerant. EPA does not believe that the adoption of a 20-pound limit for MVACs would exclude any appliance that reasonably should be considered MVAC-like.

EPA believes that a limit will provide clarity to those unsure about whether a particular appliance qualifies as MVAC-like, specifically where the charge is

larger than that of the average automobile air conditioner, yet smaller than that of the average bus air conditioner. Therefore, EPA is proposing to add a 20-pound ceiling to the definition of MVAC-like appliances.

EPA requests comment on amending the definition of MVAC-like appliances and whether a ceiling of 20 pounds represents an appropriate cutoff.

G. Changes to the ARI 740 Test Procedure for Refrigerant Recycling and Recovery Equipment

The final rule published on May 14, 1993 requires that refrigerant recycling and recovery equipment manufactured after November 15, 1993, be tested by an EPA-approved laboratory. The laboratory must verify that the equipment is capable of achieving applicable required evacuation levels and that the equipment releases no more than 3% (previously 5%) of the quantity of refrigerant being recycled through purging of noncondensables. In addition, the laboratory must measure the vapor and liquid recovery rates of the equipment. To perform all of these measurements, the laboratory must use the test procedure set forth in ARI 740-93, an industry test protocol for recycling and recovery equipment that was included in the final rule as appendix B.

During the comment period on the proposed rule, some commenters raised concerns regarding the ARI 740 test protocol. After investigating these concerns, EPA concluded that some were unwarranted, but that others required further investigation and, in some cases, action as discussed in that rule (58 FR 28687). Among the issues requiring more investigation were concerns that (1) the current method for measuring the vapor recovery rate of equipment yields a maximum, rather than an average, recovery rate; (2) the test only tests equipment at one temperature, 75° F, although the performance of recycling and recovery equipment varies significantly depending upon ambient temperature, (3) the test does not include measurement of the quantity of refrigerant that remains in the equipment (e.g., condenser) at the conclusion of the recovery procedure, potentially allowing contamination of subsequent recovery or recycling jobs or release of refrigerant during condenser clearing, and (4) the test does not test equipment for durability, raising the possibility of widespread equipment failure after only a few months of use (58 FR 28682, 28687-88).

Testing experience and international developments have raised other issues

since the rule was promulgated. Underwriters Laboratories (UL), one of the equipment testing organizations approved by EPA, has pointed out the need to adopt standards for external hose permeability and to ensure that recovery and recycling equipment is tested with recovery cylinders no larger than those with which the equipment is used in the field. The standard for recycling and recovery equipment being developed by the International Standards Organization (ISO) addresses refrigerant emissions from oil draining in addition to emissions from air purging and equipment (condenser) clearing, limiting the total that can be released during these procedures to 3% of the total refrigerant processed. Finally, the Industry Recycling Guideline 2 (IRG-2) established a recommended "clean-up" standard for recycled refrigerant that is used in the same owner's equipment (Maximum Contaminant Levels of Recycled Refrigerants in Same Owner's Equipment).

EPA has worked closely with the two EPA-approved equipment testing organizations, the Air-Conditioning and Refrigeration Institute (ARI) and Underwriter's Laboratories (UL), to resolve these concerns. EPA has also worked with members of the International Standards Organization (ISO) Committee for Recycling and Recovery Equipment to ensure that the issues are addressed in international standards. With the exception of durability testing, all of the issues are being addressed by voluntary changes to both the ISO draft standard and the ARI 740 standard. EPA participated in the drafting of the revised ARI 740 Standard, and EPA is planning to adopt the latest version of it, ARI Standard 740-1995. In addition, EPA is planning to require that equipment that is advertised as recycling equipment be able to meet the IRG-2 "clean-up" standard. EPA is not planning to require additional durability testing for recycling and recovery equipment.

1. Measurement of Vapor Recovery Rates

Before the final rule was published on May 14, 1993, ARI had already indicated that it was willing to adopt a more representative measure of vapor recovery rates (58 FR 28667). (EPA could not adopt this methodology in the May 14, 1993, rule because it had not been proposed.) As discussed in the final rule, the current standard requires measuring the maximum vapor recovery rate, but two pieces of equipment with identical maximum recovery rates can have very different average recovery

rates. This is because equipment characteristics that are not important to vapor recovery rates at the beginning of recovery, such as compressor clearance, become increasingly important as recovery progresses. Although EPA has not established minimum vapor or liquid recovery rates, the Agency believes that the best possible information on these rates should be available to technicians to ensure that they purchase recycling and recovery equipment adequate to their needs. Technicians with adequate recovery equipment are less likely than technicians with slow equipment to interrupt the recovery procedure before it is complete. As noted in the final rule, measurement of the vapor recovery rate would require timing the recovery procedure that is already included in the standard. EPA is proposing to adopt the most recent version of ARI 740, 740-1995, which includes a measure of the average recovery rate. The new test measures the change in mass and time elapsed as the pressure of the test chamber is lowered from the saturation pressure of the refrigerant at 24° C (75° F) (or from atmospheric pressure, if the refrigerant boils at a temperature above 75°) to the lower of atmospheric pressure or 10% of the initial pressure. (As discussed below, the test is repeated with R-22 at 40° C (104° F).) This provision is similar to a provision in the draft ISO standard, which measures the change in mass and time elapsed as the pressure of the test chamber is lowered from the saturation pressure of the refrigerant to 15% of that pressure.

For R-12, 10% of the saturation pressure at 75° F is 9.2 psia, or 11 inches of mercury vacuum, which is slightly lower than the final recovery vacuum required for recovery equipment used with R-12 appliances containing less than 200 pounds of refrigerant (10 inches of vacuum), but is higher than the final recovery vacuum required for recovery equipment used with larger R-12 appliances (15 inches of vacuum). For R-22, 10% of the saturation pressure is 14.7 psia, which means that atmospheric pressure (14.7 psia) would be the final pressure. Atmospheric pressure is also the final recovery vacuum required for recovery equipment used with R-22 appliances containing less than 200 pounds of refrigerant, but again, is higher than the final recovery vacuum required for larger R-22 appliances (10 inches of vacuum). Finally, for R-11, 10% of the saturation pressure is 1.47 psia (27 inches of vacuum), which again is slightly higher than the final recovery vacuum required for recovery

equipment used with R-11 appliances (29 inches of vacuum).

EPA requests comment on adopting this method of measuring the average recovery rate of recycling and recovery appliances. EPA specifically requests comment on whether the final pressure of 10% of the saturation pressure is close enough to the required vacuum to ensure that the test is representative of recovery rates in the field. EPA also requests comment on whether the current measure of maximum vapor recovery rates yields any useful information that the new test would not, and on whether it should therefore be retained.

2. High-Temperature Testing

One of the most important additions to the ARI 740 standard is a requirement that the vapor recovery rate and final recovery vacuum of recovery and recycling equipment be measured at 40° C (104° F), in addition to 24° C (75° F), for recovery and recycling equipment intended for use with high-pressure refrigerants. As noted in the final rule published on May 14, 1994, recovery and recycling equipment in the field is likely to have to function at temperatures considerably higher than 75° F (58 FR 28683). For instance, recovery often takes place on rooftops in the summer, where temperatures frequently exceed 100° F. The performance of recovery and recycling equipment is likely to be affected by such high temperatures (58 FR 28688). This is because high temperatures raise the saturation pressure of the refrigerant in the recovery tank, raising the compression ratio against which the compressor in the recovery device must work to evacuate the appliance. This can both slow recovery and prevent the equipment from achieving vacuums that it can achieve at 75° F. In some cases, equipment can actually stop running at high temperatures, because pressures rise too high or because the motor overheats or draws too much current in its attempt to recover the refrigerant, tripping safety switches. Underwriters Laboratories reported that over 50 percent of refrigerant recovery and recycling units initially failed to operate continuously during high temperature testing that is required as part of UL's safety testing (letter from Glenn Woo and Larry Kettwich to Debbie Ottinger)².

EPA believes that the high-temperature tests included in the revised ARI 740 standard would provide useful information on equipment's

² The equipment was redesigned to operate at elevated temperatures before it was UL listed.

ability and quickness to draw vacuums at high temperatures. At the same time, these tests are likely to reveal many of the problems that might occur in equipment operated at high temperatures in the field (as has UL's safety test at 104° F), such as thermal or electrical overloading of motors. The test requires that the mixing chamber, a container with a minimum volume of three cubic feet, be filled with refrigerant vapor (but no liquid) at the refrigerant's saturation pressure at 104° F. As in the 75° test, this vapor is then recovered until the final recovery vacuum is reached. Also as in the 75° test, the vapor recovery rate is measured while the pressure in the mixing chamber is reduced to 10% of the initial pressure. Because repeating the test with all of the refrigerants for which the equipment is rated would considerably raise the costs of certification, the high-temperature test is performed with one refrigerant, R-22. (If the recycling or recovery equipment is not rated for R-22, then equipment is tested with the refrigerant with the lowest boiling point, and therefore highest saturation pressure, for which it is rated.)

R-22 is used because it has the second highest saturation pressure of the common high-pressure refrigerants and because it has a high discharge temperature, putting more stress on both the compressor and motor of recovery equipment than other high pressure refrigerants. Thus, if a recovery device passes high-temperature testing with R-22, it is likely to be able to perform at high temperatures with all high-pressure refrigerants. This expectation is supported by experience; according to UL personnel, most recycling and recovery equipment (except that intended for use exclusively with motor vehicle air conditioners) that failed high-temperature testing failed during tests involving R-22. In addition, R-22 is the most common high-pressure refrigerant used outside of the motor vehicle air conditioner sector.

Because the 104° vapor recovery rate measurement begins at a higher pressure than the 75° vapor recovery rate measurement, it also ends at a higher pressure, atmospheric pressure. (Ten percent of the initial saturation pressure is actually 22.3 psia, which is higher than atmospheric pressure, 14.7 psia, but the test requires recovery at least to atmospheric pressure.) Atmospheric pressure is the level to which appliances containing less than 200 pounds of R-22 must be evacuated; however, it is higher than 10 inches of vacuum, which is the level to which appliances containing more than 200 pounds of R-22 must be evacuated. EPA

requests comment on whether the final pressure of 10% of the saturation pressure is close enough to the required vacuums to ensure that the test is representative of high-temperature recovery rates in the field.

The test procedure mimics what is often the most stressful portion of the recovery process at high temperatures, the recovery of vapor that remains in recycling and recovery equipment after all liquid has been recovered. Many recovery devices recover liquid from appliances, evaporating it to separate it from contaminants and then recondensing it to store it in the recovery tank. As long as liquid is available to evaporate, the evaporator can be used to absorb heat from the condenser. However, when no liquid remains in the appliance (or the mixing chamber that represents it in the ARI 740-1995 test procedure), the evaporator can no longer absorb any heat. Thus, the condenser, along with the compressor, begins to heat up. At the same time, the vapor pressure inside the appliance (or mixing chamber) begins to fall as vapor is pumped out. This has two consequences. First, it raises the compression ratio between the inlet and discharge sides of the compressor, raising the discharge temperature of the refrigerant. Second, it decreases the flow of refrigerant over the motor that hermetic compressors rely upon to cool the motor. By the time a ten-inch vacuum is reached, this flow is less than five percent of the flow that the motor started out with. Both of these effects accelerate the heating of the motor and compressor.

EPA believes that, in general, the high-temperature vapor recovery procedure in the revised standard is more likely to identify inadequate recycling and recovery equipment than the vapor recovery procedure in the current standard. However, the current standard duplicates one type of stress on recovery equipment that the revised standard does not. This stress is that experienced by recovery equipment that is capable of recovering only vapor when liquid is present in the appliance.

When liquid is present in the appliance or test chamber, the mass flow through the recovery or recycling equipment is at its maximum. This yields a high estimate of the vapor recovery rate; however, it also imposes a high power demand on the recovery equipment's compressor as the compressor attempts to move the refrigerant, and it burdens the recovery equipment's condenser with a relatively large amount of heat to reject (because this heat is related not only to the temperature but also to the mass of the

refrigerant flowing through the condenser).

A laboratory that participated in the development of ARI 740-1995 expressed concern that equipment that had failed (through tripping of safety switches) the vapor recovery test of ARI 740-1993 might pass the vapor recovery test in ARI 740-1995. To investigate this concern, the laboratory tested the equipment first using the vapor recovery test in ARI 740-1993, and then the high-temperature vapor recovery test in ARI 740-1995. The laboratory found that equipment that cut out after 18 minutes of operation under ARI 740-1993 cut out after less than 10 minutes of operation under ARI 740-1995. (It should be noted that ARI 740-1993 does not expressly require lengthy, continuous vapor recovery at the saturation pressure of the refrigerant.) In view of this result and the fact that most recovery equipment is capable of recovering liquid, EPA believes that ARI 740-1995 will detect faulty equipment.

EPA requests comment on the usefulness of high-temperature testing, and on the choice of R-22 as a representative refrigerant.

3. Use of Representative Recovery Cylinders

To further ensure that equipment testing is representative of likely performance in the field, ARI 740-1995 specifies that recovery cylinders used in testing must be the same size as those sold with the equipment, and must be at the saturation pressure of the refrigerant when testing begins. Use of oversize or evacuated cylinders can yield artificially high recovery rates and artificially deep recovery vacuums, because the recovery compressor does not have to work as hard to move refrigerant into oversize or evacuated cylinders as it does to move refrigerant into normal size cylinders at the saturation pressure of the refrigerant. Both of these requirements codify procedures that are being followed voluntarily at both of the EPA-approved equipment testing laboratories.

4. Limiting Emissions from Condenser Clearing, Oil Draining, Purging, and External Hoses

ARI 740-1995 addresses three potential sources of refrigerant emissions that ARI 740-1993 did not address: condenser clearing, oil draining, and emissions from external hoses. As noted in the May 14, 1994 final rule, substantial quantities of refrigerant may remain in the condensers of recycling and recovery equipment after refrigerant has been transferred to a recovery tank or back

into an appliance. Unless this refrigerant is properly removed, it will either contaminate subsequent batches of refrigerant, a serious concern when switching refrigerants (e.g., from R-12 to R-22), or be released to the atmosphere. There are a number of methods to remove this refrigerant properly; however, some of these methods are more complicated and time-consuming than others. One of the most important factors in the speed and effectiveness of the refrigerant clearing process is the design of the recovery or recycling equipment itself.

To help ensure that the design of recovery equipment minimizes the amount of residual refrigerant that either escapes to the atmosphere or contaminates subsequent batches, ARI 740-1995 includes measurements both of the mass of refrigerant that is released during clearing and of the mass of refrigerant that remains in the equipment after clearing is complete. The mass of refrigerant released during clearing is added to the masses released during non-condensables purging and oil draining (see below); this total cannot exceed three percent of the total mass of refrigerant processed through the equipment. The mass of refrigerant that remains in the equipment is not limited, but is reported in the equipment ratings so that prospective buyers can use the information in their purchasing decisions.

In these measurements and limits, ARI 740-1995 is similar to the draft ISO standard for recycling and recovery equipment. The one significant difference is that the draft ISO standard, in addition to weighing the residual refrigerant that remains trapped in the equipment, measures cross-contamination directly by processing a batch of a different refrigerant through the equipment after clearing is complete. This batch is then analyzed to determine the concentration of the first refrigerant using gas chromatography. The drafters of the ARI 740-1995 standard decided not to include this cross-contamination test because they believed that it would yield little additional information, while adding considerable expense to the test procedure. (Gas chromatography is one of the more costly components of certification testing.) Based on information gathered to date, EPA concurs; however, the Agency requests comment on whether the mass of residual refrigerant is likely to be a good predictor of cross-contamination or whether a more extensive test of cross-contamination is required.

To help ensure that the clearing procedure is not excessively

complicated or time-consuming, ARI 740-1995 also requires that the manufacturer provide a method and instructions that accomplish connections and clearing within 15 minutes. Any special equipment required for clearing, other than a vacuum pump or manifold gauge, must be provided by the manufacturer along with the recovery or recycling equipment, and the clearing procedure cannot rely upon a storage cylinder below the saturated pressure of the refrigerant. In setting up these constraints, ARI recognized that procedures that require exotic equipment or excessive time are less likely to be followed than procedures that are simple and fast.

Another source of potential emissions is oil draining. Refrigerant oils are designed to mix well with refrigerants so that they flow easily within the refrigeration system. A drawback to this characteristic is that significant quantities of refrigerant can remain entrained in oil that is withdrawn from appliances. Because several system contaminants tend to concentrate in the oil, many recycling and recovery machines include an oil separator that must be periodically emptied. To ensure that oil draining does not result in excessive refrigerant emissions, the ARI 740-1995 procedure measures the mass of refrigerant that is released from oil after its removal from the recovery or recycling equipment. As noted above, the sum of the masses of this refrigerant, the refrigerant emitted during condenser clearing, and the refrigerant emitted during noncondensables purging cannot exceed three percent of the mass of refrigerant processed by the equipment.

The third source of emissions addressed by ARI 740-1995 is external hose assemblies. Although ARI 740-1993 includes a permeability limit for internal hoses (of 5.8 g/cm²/yr), it does not include such a limit for external hoses. ARI 740-1995 establishes a limit of 3.9 g/cm²/yr at 48.8° C (120° F) for all hose assemblies, to be tested under the conditions of UL 1963. (Hoses that are already UL recognized as having passed UL 1963 need not be retested).

EPA believes that these emissions limits will ensure that recycling and recovery equipment achieves the lowest achievable level of emissions. EPA requests comment on adopting these emissions limits from the ARI 740-1995 standard.

5. Requirements for Equipment Advertised as "Recycling Equipment"

Because EPA is proposing to require that representative samples of used refrigerants be chemically analyzed to

verify their purity before they are used in another owner's equipment, EPA does not believe that it is necessary to require that refrigerant be processed or recycled in any particular way. The analysis itself guarantees that refrigerant meets the required purity standard. For this reason, EPA is not requiring that contractors use recycling as opposed to recovery equipment to handle refrigerants. (Recovery equipment is designed simply to recover the refrigerant without cleaning it; recycling equipment is designed to clean the refrigerant to some extent.) However, EPA believes that technicians and contractors should have some assurance that equipment that is marketed as "recycling equipment" is capable of cleaning up used refrigerant to some minimum level. This assurance would be especially useful to contractors who use recycling equipment to purify refrigerant for use in the same owner's equipment because these contractors may not use any other means to assure refrigerant purity.

Although ARI 740-1995 includes a test of the ability of recycling equipment to clean up a standard sample of dirty refrigerant and requires that the final contaminant levels of the recycled refrigerant be presented for each make and model, it does not establish any maximum allowable levels for these contaminants. However, IRG-2 contains recommended maximum contaminant levels for refrigerant that is returned to its original equipment or to equipment with the same owner. IRG-2 further states:

Recycling equipment that is certified to ARI Standard 740, "Performance of Refrigerant Recovery/Recycling Equipment," and capable of consistently cleaning refrigerant to the contaminant levels in this Table should be used. The refrigerant sample used in ARI Standard 740 is representative of a highly contaminated system, so recycling equipment that can clean the refrigerant in this test to the contaminant levels in the Table has acceptable cleaning capabilities.

Thus, the "clean-up" test in the ARI 740 Standard and the maximum contaminant levels in IRG-2 can be combined to establish a test and standard for recycling equipment. EPA is proposing that equipment that is marketed as "recycling" equipment would have to be able to clean up the ARI 740 sample of dirty refrigerant to the maximum contaminant levels listed in IRG-2 when tested under the conditions of ARI 740. Below is a reprint of the Maximum Contaminant Levels of Recycled Refrigerants included in the IRG-2 standard. EPA is proposing to make the change effective 90 days after publication of the final

rule to give manufacturers the opportunity to change their advertising and marketing materials, if necessary.

EPA requests comment on this proposal and the proposed effective date.

MAXIMUM CONTAMINANT LEVELS OF RECYCLED REFRIGERANTS IN SAME OWNER'S EQUIPMENT

Contaminants	Low pressure systems	R-12 systems	All other systems
Acid Content (by wt.)	1.0 PPM	1.0 PPM	1.0 PPM
Moisture (by wt.)	20 PPM	10 PPM	20 PPM
Non Condensable Gas (by vol.)	N/A	2.0%	2.0%
High Boiling Residues (by vol.)	1.0%	0.02%	0.02%
Chlorides by Silver Nitrate Test	No turbidity	No turbidity	No turbidity
Particulates	Visually clean	Visually clean	Visually clean.
Other Refrigerants	2.0%	2.0%	2.0%

6. Durability Testing

One suggested addition to ARI 740-1993 that was not included in ARI 740-1993 is mandatory, long-term durability testing of recovery and recycling equipment. Equipment durability is of concern because if equipment repeatedly fails prematurely, technicians may eventually elect not to spend the money to repair or replace it, resulting in refrigerant emissions. As noted in the final rule published on May 14, 1994, recovery and recycling equipment may be constructed using components very similar to those in air-conditioning and refrigeration equipment, but recovery and recycling equipment is regularly subject to more stressful conditions than most air-conditioning and refrigeration equipment. For instance, recovery and recycling equipment will often operate at higher than ideal temperatures as it pulls vacuums on appliances.

To investigate the need for mandatory third-party equipment durability testing, EPA has met with the commenters who supported such testing and with ARI and manufacturers of recovery and recycling equipment. EPA has also used its information collection authority under section 114 of the Act to survey manufacturers of recovery and recycling equipment regarding causes and rates of recovery equipment failure. Finally, EPA has considered the extent to which the goals of mandatory durability testing may already be met by manufacturers' in-house durability testing, market forces, and the revisions to the ARI 740 Standard discussed above.

Based on this investigation, EPA does not believe that mandatory, third-party durability testing is necessary to ensure adequate equipment performance. First, equipment durability has a much less direct relationship to refrigerant emissions than do refrigerant recovery levels or rates. In fact, unless recovery equipment is so short-lived that technicians repeatedly wear it out and

grow tired of repairing it or replacing it, durability has no effect on refrigerant emissions. Detailed statistics obtained from manufacturers indicate that recovery equipment does not wear out this quickly; failure rates generally fall below five percent per year.

Second, to the extent that durability has been a problem, the market itself appears to have acted to address it. According to manufacturers, models that experienced relatively high failure rates have either been taken off the market or have had their designs corrected to address the problem. An article from the *Air Conditioning, Heating, and Refrigeration News* supports this view³. Contractors noted either that their recovery units were holding up well, or that they had changed their purchasing criteria to emphasize durability over price. The contractors who had changed their criteria observed that job interruptions caused by recovery equipment breakdowns had cost them business. Similarly, recovery equipment manufacturers stated that excessive repairs under warranty were expensive to bear, giving them a clear incentive to increase equipment longevity and reliability.

Third, manufacturers observed that recovery technology in general, including features to enhance equipment durability, has advanced markedly since refrigerant recovery was first required in 1992. Many problems emerged during the first year of manufacture and use of recovery equipment, which involved adapting existing refrigeration technology to new demands. These problems have been detected and addressed.

Fourth, EPA believes that any new equipment that is likely to fail under stress is likely to be identified by the

enhanced ARI 740 Standard, which, as discussed above, includes new, more strenuous testing at high temperatures. Testing laboratories have indicated that equipment that passed the old test "marginally" have not passed the new one.

Finally, ARI and manufacturers have noted that durability testing, because it is necessarily lengthy, would add considerable cost to the equipment certification procedure. One test that was submitted by a commenter who supported durability testing would require the continuous operation of the equipment for 30 hours. This would double or triple the cost of equipment certification. At the same time, the information gathered from such a test may not be applicable to the field, since recovery equipment is seldom required to function continuously for 30 hours. Given the improvements in recovery equipment that have resulted from the market and the enhanced ARI 740 standard, EPA does not believe that any further environmental benefits gained from durability testing would justify its costs. Therefore, today's action does not propose mandatory durability testing of recycling and recovery equipment.

H. Major and Minor Repairs

Effective July 13, 1993, technicians were required to evacuate air-conditioning and refrigeration equipment to established vacuum levels. However, EPA granted an exception to the evacuation requirements for non-major repairs that are not followed by an evacuation of the appliance to the environment, and for appliances with leaks that make the required evacuation levels impossible to attain. EPA intended non-major repairs to include procedures that involve uncovering only a small opening in the appliance, that take place in only a few minutes, and that are not followed by an evacuation of the appliance to the environment (high-level evacuation). EPA believed that such repairs would

³ "Hot Customers Don't Sweat Over Extra Recovery Costs," B. Checket-Hanks, *Air Conditioning, Heating, and Refrigeration News*, August 21, 1995.

result in the release of very little refrigerant to the environment.

However, EPA did not explicitly define "non-major" repairs; instead, EPA defined "major" repairs as maintenance, service, or repair that involves removal of the compressor, condenser, evaporator, or auxiliary heat exchanger coil. These procedures are relatively time-consuming and/or leave large openings in the system through which refrigerant can escape (and air and moisture can enter). After such procedures, evacuation of the system to the environment is customarily performed, expelling any residual refrigerant into the atmosphere.

1. Comments Received Since the Final Rule

Since the final rule was published, EPA has received several comments that

request that EPA expand and clarify the current definition of "major" and explicitly define "non-major" repairs.

Commenters believed that the current definition of major repairs was too narrow, excluding some types of repair that result in considerable refrigerant release. They recommended that the definition be modified to reflect the following: major repairs or service procedures that (1) involve the removal of the compressor, condenser, evaporator or auxiliary heat exchanger, or (2) require the appliance to be open to the atmosphere for an extended period of time, or (3) require the uncovering of large openings that cannot be isolated or capped. The commenters also recommended that before major repairs were undertaken, appliances should be required to be

evacuated to 25 mm Hg absolute (per EPA standards).

Several commenters maintained that non-major repairs should be explicitly defined as repairs or service procedures that involve uncovering only a small opening in the appliance and take place in only a few minutes, or that involve openings that may be capped or isolated using isolation valves, thereby limiting the quantity of refrigerant lost to the atmosphere. Additionally, commenters recommended that technicians be required to meet the following standards for minor repairs: 1) technicians must be able to hold the unit at 0 PSIG; (2) the unit may not be open for more than 15 minutes.

One commenter submitted the following list, which classifies several common service procedures or repairs as either major or minor.

Maintenance/service task	Minor	Major
1. Shaft Seal Replace (OCV)		XXX
2. Oil Change (oil temp @ 135 deg.)	XXX	
3. Oil Filter Change	XXX	
4. Vent Line Solenoid Valve Repair	XXX	
5. Vent Line Solenoid Replace		XXX
6. Oil Pump and/or Motor		XXX
7. Oil Pressure Regulator	XXX	
8. 3rd Stage Vane Bellows Repair/Replace		
9. 1st Stage Vane Oper. Repair/Replace	XXX	
10. Oil Eductor	XXX	
11. Motor Cooling Orifice	XXX	
12. Thrust Bearing (ball bearing) Replace		XXX
13. Thrust Bearing Cover Gasket Replace	XXX	
14. Pressure Control/Transducer/Gage Replace	XXX	
15. Suction Elbow Gasket Replace		XXX
16. Terminal Board Gasket Replace		XXX
17. Terminal Stud "O" Ring Replace		XXX
18. Purifier Purge Drier Core Replace	XXX	
19. Old Style Purge Service and Repair (all)	XXX	
20. Economizer Gasket Replace (upper)	XXX	
21. Economizer Gasket Replace (lower)		XXX
22. Hot Gas Bypass/Free Cool. Val. Stem Repair	XXX	
23. Hot Gas Bypass/Free Cool. Val. Gasket Replace		XXX
24. Oil Cooler replace with Isolation Valves	XXX	
25. Oil Cooler replace without Isolation Valves		XXX
26. Oil Heater (direct immersion) Replace	XXX	
27. Orifice Check/Clean "Upper" 15 Minutes Max.	XXX	
28. Orifice Work Upper/Lower Over 15 Minutes		XXX
29. Rupture Disk Replace	XXX	
30. Purge Solenoid Valve Replace	XXX	
31. Discharge Spool Gasket Replace		XXX
32. Oil Sump Gasket Replace		XXX
33. Sight Glass Replace (Evap. glass or any solder type)		XXX
34. Sight Glass Replace (oil system, non-solder)	XXX	
35. Valves, Service, Liquid	XXX	
36. Valves, Service, Vapor	XXX	
37. Flare Fitting Repair	XXX	
38. Solder or Braze Joint Repair, Vapor Section	XXX	
39. Solder or Braze Joint Repair, Liquid Section		XXX
40. Oil Cooler Repair/Replace		XXX
41. Float Chamber Gasket Replace or Float Repair		XXX
42. Motor Temp. Sensor Place O'Ring Replace	XXX	
43. Rupture Guard Installation	XXX	

2. Proposed Definitions

EPA agrees with the commenters that major repairs of low-pressure chillers have been defined too narrowly and should be expanded. EPA is therefore proposing to revise the definitions of major repairs and to define non-major repairs as follows:

(a) **Non-Major Repairs of Low-Pressure Chillers.** To be classified as non-major repairs or service procedures, the procedure or repair must (1) involve uncovering only a small opening (less than 2 inches in diameter) in the appliance, or involve openings that may be capped or isolated using isolation valves, (2) require the appliance to be open for no more than 15 minutes, and (3) permit the technician to hold the appliance at 0 psig.

(b) **Major Repairs for Low-Pressure Chillers.** Major repairs for low-pressure chillers: (1) involve removal of the compressor, condenser, evaporator or auxiliary heat exchanger, (2) require the appliance to be open to the atmosphere for more than 15 minutes, or (3) involve a large opening.

EPA requests comments on these definitions. EPA is particularly interested in whether these definitions are specific enough, whether other types of repairs should be considered and whether this definition is consistent with industry practices and/or terminology.

I. Change in the Definition of Small Appliance

1. Background

On May 14, 1993, EPA published final regulations expanding its proposed definition of "small appliance." EPA had previously proposed a definition for small appliances that included air-conditioning or refrigeration equipment containing less than one pound of charge during normal operation.

EPA received a number of comments that the one-pound limit used in the proposed definition was too restrictive. Commenters also stated that room air conditioners, packaged terminal air conditioners, and packaged terminal heat pumps are sufficiently similar to household refrigerators and freezers to justify inclusion in the definition of "small appliances."

EPA agreed with these comments and expanded the definition of small appliances to the following:

Small appliance means any of the following products that are fully manufactured, charged, and hermetically sealed in a factory with five (5) pounds or less of refrigerant: Refrigerators and freezers designed for home use, room air conditioners (including window air conditioners and

packaged terminal air conditioners), packaged terminal heat pumps, dehumidifiers, under-the-counter ice makers, vending machines, and drinking water coolers.

2. Additional Comments

Since the promulgation of the final rule, EPA has received additional comments requesting further expansion of the definition of small appliances to include units that meet the criteria for small appliances described in the beginning of the definition, but that are not specifically listed at the end of the definition. EPA could accomplish this by making the list of appliances in the definition illustrative rather than restrictive, by removing the list of appliances from the definition (leaving only the criteria), or by explicitly adding refrigerators and freezers built for medical research, industrial research and processes, and as components in other equipment, to the definition.

These comments stated that these refrigerators and freezers used for medical research, industrial research and processes and as components in other equipment (such as purge units in chillers) are extremely similar to the products designed for home use but are excluded from language of the current definition of small appliances. Commenters stated that these units meet the spirit of the definition of small appliances in that they are hermetically sealed in the factory with five (5) pounds of refrigerant or less, rarely require entry into the system and rarely develop refrigerant leaks. Thus, the definition should be expanded to treat them the same way in the rule as household refrigerators and freezers.

3. Today's Proposal

EPA agrees with the commenters that refrigerators and freezers that are built for medical research, industrial research, or processes, or that used as components in other equipment, and that are hermetically sealed at the factory and contain less than five (5) pounds of charge, should be added to the definition of small appliances. EPA is therefore proposing to revise the final definition of "small appliances" to:

Small appliance means any product that is fully manufactured, charged and hermetically sealed in a factory with five (5) pounds or less of refrigerant, including, but not limited to, refrigerators and freezers designed for home use, as components in other equipment, medical research, or industrial research, room air conditioners (including window air conditioners and packaged terminal heat pumps), dehumidifiers, under-the-counter ice makers, vending machines, and drinking water coolers,

Note that the list of appliances in this revised definition is illustrative rather than restrictive. EPA requests comments on this proposed definition of small appliances. EPA is particularly interested in whether it would be helpful to list additional examples of appliances that would be considered "small appliances" under the criteria of the definition.

III. Summary of Supporting Analysis

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 by OMB and EPA that this proposed action to amend to the final rule is not a "significant regulatory action" under the terms of Executive Order 12866 and is therefore not subject to OMB review under the Executive Order.

B. Unfunded Mandates Act

Section 202 of the Unfunded Mandates Reform Act of 1995 ("Unfunded Mandates Act") requires that the Agency prepare a budgetary impact statement before promulgating a rule that includes a Federal mandate that may result in expenditure by State, local, and tribal governments, in aggregate, or by the private sector, of \$100 million or more in any one year. Section 203 requires the Agency to establish a plan for obtaining input from and informing, educating, and advising any small governments that may be significantly or uniquely affected by the rule.

Under section 205 of the Unfunded Mandates Act, the Agency must identify and consider a reasonable number of

regulatory alternatives before promulgating a rule for which a budgetary impact statement must be prepared. The Agency must select from those alternatives the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule, unless the Agency explains why this alternative is not selected or the selection of this alternative is inconsistent with law.

Because this NPRM is estimated to result in the expenditure by State, local, and tribal governments or private sector of less than \$100 million in any one year, the Agency has not prepared a budgetary impact statement or specifically addressed the selection of the least costly, most cost-effective, or least burdensome alternative. Because small governments will not be significantly or uniquely affected by this rule, the Agency is not required to develop a plan with regard to small governments. As discussed in this preamble, many aspects of this NPRM proposes to provide increased flexibility that may have the net effect of reducing the burden of part 82 subpart F of the Stratospheric Protection regulations on regulated entities, including State, local, and tribal governments or private sector entities.

C. Paperwork Reduction Act

The information collection requirements in this rule will be submitted to by the Office of Management and Budget (OMB) under the Paperwork Reduction Act, 44 U.S.C. 3501 et seq. and will be assigned a control number. OMB) under the Paperwork Reduction Act, 44 U.S.C. 3501 et seq.

Since there are additional informational collection requirements required by this proposed amendment, EPA has determined that the Paperwork Reduction Act does apply to this proposed rulemaking and a revised Information Collection Request document is being prepared.

Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Director, Regulatory Information Division; EPA; 401 M Street SW. (Mail Code 2136); Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503, marked "Attention: Desk Officer for EPA."

D. Regulatory Flexibility Act

The Regulatory Flexibility Act, 5 U.S.C. 601-602, requires that Federal agencies examine the impacts of their

regulations on small entities. Under 5 U.S.C. 604(a), whenever an agency is required to publish a general notice of proposed rulemaking, it must prepare and make available for public comment an initial regulatory flexibility analysis (RFA). Such an analysis is not required if the head of an agency certifies that a rule will not have a significant economic impact on a substantial number of small entities, pursuant to 5 U.S.C. 605(b).

EPA believes that any impact that this amendment will have on the regulated community will either serve to provide relief from otherwise more burdensome requirements, or will not have a negative economic impact on a substantial number of small entities. An examination of the impacts on small entities was discussed in the initial final rule promulgated under § 608 (58 FR 28660). That final rule assessed the impact the rule may have on small entities. A separate regulatory impact analysis was developed. That impact analysis accompanied the final rule and is contained in Docket A-92-01.

I certify that this amendment to the refrigerant recycling rule will not have any additional negative economic impacts on any small entities.

List of Subjects in 40 CFR Part 82

Environmental protection, Air pollution control, Contractors, Laboratories, Major repairs, Minor repairs, Reclaimers, Reclamation, Recycling, Reporting and recordkeeping requirements, Technician.

Dated: February 14, 1996.
Carol M. Browner,
Administrator.

Part 82, chapter I, title 40, of the Code of Federal Regulations, part 82, is proposed to be 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 82.152 is amended by removing the definition for "Major repair," by revising the definition for "MVAC-like appliance," "reclaim," and "small appliance:" and by adding new definitions in alphabetical order to read as follows:

§ 82.152 Definitions.

* * * * *

Contractor-reclaimed refrigerant means refrigerant that has remained in custody of a single technician or contractor and a representative sample

of that refrigerant as defined in this section has been chemically analyzed by a certified laboratory to determine that it has been reprocessed to at least the purity specified in the ARI Standard 700-1993, Specifications for Fluorocarbon Refrigerants (appendix A to 40 CFR part 82, subpart F). Refrigerant reprocessed in this manner will be considered reclaimed refrigerant consistent with the definition of reclaim contained in this section.

* * * * *

Major repairs of low-pressure chillers means repair involving removal of the compressor, condenser, evaporator or auxiliary heat exchanger, or any repair that requires the appliance to open to the atmosphere for more than 15 minutes or that requires large openings to be uncovered.

* * * * *

MVAC-like appliance means mechanical vapor compression, open-drive compressor appliances with a normal charge of 20 pounds or less of refrigerant used to cool the driver's or passenger's compartment of a non-road motor vehicle. This includes the air-conditioning equipment found on agricultural or construction vehicles. This definition is not intended to cover appliances using HCFC-22 refrigerant.

* * * * *

Non-major repair of low pressure chillers means any service procedures or repairs that: (1) involve uncovering only a small opening (less than 2 inches in diameter) in the appliance for no more than 15 minutes, or (2) involve openings that may be capped or isolated using isolation valves, and (3) permit the technician to hold the appliance at 0 psig.

* * * * *

Reclaim refrigerant means to reprocess refrigerant to at least the purity specified in the ARI Standard 700-1995, Specifications for Fluorocarbon Refrigerants (appendix A to 40 CFR part 82, subpart F), and to verify this purity using the analytical methodology prescribed in the ARI Standard 700-1995. Contractor-reclaimed refrigerant as defined in this section is included in this definition.

* * * * *

Representative sample means for the purposes of 40 CFR Part 82, subpart F, a sample taken from each container of refrigerant to be chemically analyzed and tested to ARI Standard 700-1995 prior to packaging for resale or reuse. Such samples will be at least 500 ml and shipped in stainless steel test cylinders that include 1/4" valve assembly and pressure relief rupture

disc. Cylinders shall be rated by the Department of Transportation.

* * * * *

Small appliance means any product that is fully manufactured, charged, and hermetically sealed in a factory with five (5) pounds or less of refrigerant, including, but not limited to, refrigerators and freezers designed for home use or for medical or industrial research, room air conditioners (including window air conditioners and packaged terminal air heat pumps), dehumidifiers, under-the-counter ice makers, vending machines, and drinking water coolers.

* * * * *

3. Section 82.154 is amended by revising paragraphs (g), (h), and (m) to read as follows:

§ 82.154 Prohibitions.

* * * * *

(g) No person may sell or offer for sale for use as a refrigerant any class I or class II substance consisting wholly or in part of used refrigerant unless:

(1) The class I or class II substance has been reclaimed as defined in § 82.152;

(2) The class I or class II substance was used only in an MVAC or MVAC-like appliance and is to be used only in an MVAC or MVAC-like appliance and recycled in accordance with 40 CFR Part 82, Subpart B;

(3) The class I or class II substance is contained in an appliance that is sold or offered for sale together with the class I or class II substance; or

(4) The class I or class II substance is being transferred between two wholly-owned subsidiaries of the same holding company.

(h) No person may sell or offer for sale for use as a refrigerant any class I or class II substance consisting wholly or in part of used refrigerant unless:

(1) The class I or class II substance has been reclaimed by a person who has been certified as a reclaimer pursuant to § 82.165 or the substance has undergone contractor reclamation;

(2) The class I or class II substance was used only in an MVAC or MVAC-like appliance and is to be used only in an MVAC or MVAC-like appliance and recycled in accordance with 40 CFR 82 part Subpart B;

(3) The class I or class II substance is contained in an appliance that is sold or offered for sale together with the class I or class II substance; or

(4) The class I or class II substance is being transferred between two wholly-owned subsidiaries of the same holding company.

* * * * *

(m) No person may sell or distribute, or offer for sale or distribution, any class I or class II substance for use as a refrigerant to any person unless:

(1) The buyer has been certified as a Type I, Type II, Type III, or Universal technician pursuant to § 82.161;

(2) The buyer has completed a voluntary certification program requesting approval under § 82.161(g) by December 9, 1994. This paragraph expires on May 15, 1995.

(3) The buyer has been certified pursuant to 40 CFR part 82, subpart B and the refrigerant is either CFC-12 or an approved substitute consisting wholly or in part of a class I or class II substance for use in motor vehicle air conditioners pursuant to 40 CFR part 82, subpart G;

(4) The refrigerant is sold only for eventual resale to certified technicians or to appliance manufacturers (e.g., sold by a manufacturer to a wholesaler, sold by a technician to a reclaimer);

(5) The refrigerant is sold to an appliance manufacturer;

(6) The refrigerant is contained in an appliance, and after January 9, 1995, the refrigerant is contained in an appliance with a fully assembled refrigerant circuit;

(7) The refrigerant is charged into an appliance by a certified technician or an apprentice during maintenance, service, or repair; or

(8) The refrigerant is charged into an appliance by a technician who successfully completed a voluntary certification program requesting approval under § 82.161(g) by December 9, 1994. This paragraph (m)(8) expires on May 15, 1995.

(9) Rules stayed for reconsideration. Notwithstanding any other provisions of this subpart, the effectiveness of 40 CFR 82.154(m), only as it applies to refrigerant contained in appliances without fully assembled refrigerant circuits, is stayed from April 27, 1995

[until EPA takes final action on its reconsideration of these provisions. EPA will publish any such final action in the Federal Register].

* * * * *

4. Section 82.156 is amended by revising paragraph (a)(2)(i)(B) to read as follows:

§ 82.156 Required practices.

(a) * * *

(2) * * *

(i) * * *

(B) Be pressurized to 0 psig before it is opened if it is a low-pressure appliance and cover openings when isolation valves are present or when the openings can be capped during the service. Persons pressurizing low-pressure appliances that use refrigerants with boiling points at or below 85 degrees Fahrenheit at 29.9 inches of mercury (standard atmospheric pressure), (e.g., CFC-11 and HCFC-123), must not use methods such as nitrogen, that require subsequent purging. Persons pressurizing low-pressure appliances that use refrigerants with boiling points above 85 degrees Fahrenheit at 29.9 inches of mercury, e.g., CFC-113, must use heat to raise the internal pressure of the appliance as much as possible, but may use nitrogen to raise the internal pressure of the appliance from the level attainable through use of heat to atmospheric pressure; or

* * * * *

5. Section 82.158(b)(1) is amended by removing the phrase "ARI Standard 740-1993, Performance of Refrigerant Recovery, Recycling and/or Reclaim Equipment (ARI 740-1993) (appendix B)" and adding in its place "appendix B", by revising paragraph (b)(3), by removing paragraph (b)(4), by redesignating paragraphs (b)(5) and (b)(6) as paragraphs (b)(4) and (b)(5), and by adding paragraph (b)(6) to read as follows:

§ 82.158 Standards for recycling and recovery equipment.

* * * * *

(b) * * *

(3) The equipment must meet the "General Equipment Requirements" in Section 4 of appendix B.

* * * * *

(6) Effective [90 days after publication of the final rule], equipment that is advertised or marketed as "recycling equipment" must be capable of cleaning the standard contaminated refrigerant sample of appendix B, Section 5, to the levels in the following table when tested under the conditions of appendix B.

MAXIMUM CONTAMINANT LEVELS OF RECYCLED REFRIGERANTS IN SAME OWNER'S EQUIPMENT

Contaminants	Low pressure systems	R-12 systems	All other systems
Acid Content (by wt.)	1.0 PPM	1.0 PPM	1.0 PPM

MAXIMUM CONTAMINANT LEVELS OF RECYCLED REFRIGERANTS IN SAME OWNER'S EQUIPMENT—Continued

Contaminants	Low pressure systems	R-12 systems	All other systems
Moisture (by wt.)	20 PPM	10 PPM	20 PPM
Non Condensable Gas (by vol.)	N/A	2.0%	2.0%
High Boiling Residues (by vol.)	1.0%	0.02%	0.02%
Chlorides by Silver Nitrate Test	No turbidity	No turbidity.	No turbidity.
Particulates	Visually clean	Visually clean	Visually clean.
Other Refrigerants	2.0%	2.0%	2.0%

6. Section 82.164 is amended by revising the heading and paragraphs (a), (b), and by removing paragraphs (c), (d), (e), (f) and (g) to read as follows:

§ 82.164 Reclaimer certification programs.

* * * * *

(a) Effective persons reclaiming used refrigerant for sale to a new owner must either:

(1) Be a reclaimer certified by an EPA-approved reclaimer certification program in accordance with this section and the requirements specified in § 82.165;

(2) In cases where the custody and control of the refrigerant charge is maintained, have a representative sample of that refrigerant from each container tested by a laboratory certified by an EPA-approved laboratory certification program in accordance with § 82.167 to ensure that the refrigerant has been reclaimed to at least ARI Standard 700-1995; or

(3) As permitted in paragraphs (a)(1) and (2) of this section.

(1) Reclaimers certified by EPA prior to [30 Days From the Date of Publication of the final rule] may continue to reclaim used refrigerant for sale to a new owner until six months from the date EPA approves at least one reclaimer certification program.

(2) Reclaimers certified by EPA prior to [30 Days From the Date of Publication of the final rule] may not reclaim used refrigeration for sale to a new owner six months after the date EPA approves at least one reclaimer certification program, unless the reclaimer has been certified by an EPA-approved reclaimer certification program, approved in accordance with this section.

(b) Any person seeking approval as a reclaimer certification program may apply for approval by the Administrator. The application must be sent to: Section 608 Recycling Program Manager, Reclaimer Certification, Stratospheric Protection Division, 6205J, U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460. Applications for approval must include written information verifying the ability of the reclaimer certification program to ensure that reclaimers it certifies meet

the criteria listed in this section and in § 82.165.

(1) Reclaimer certification programs must demonstrate to EPA the ability to perform oversight and verification to provide reasonable assurance that the certified reclaimers will reclaim used refrigerant for sale to a new owner to at least ARI Standard 700-1995 in accordance with this section.

(2) Reclaimer certification programs must demonstrate to EPA the ability to perform all recordkeeping and reporting requirements listed in § 82.166(g), (h) and (s) and verify that all persons seeking to become and remain certified reclaimers meet the criteria set forth in § 82.165.

(3) Reclaimer certification programs must maintain and effectively distribute a list of names and addresses of all reclaimers certified by the reclaimer certification program.

(4) Reclaimer certification programs must create, distribute, and control the use of a seal, logo, or other like notification, indicating that an approved reclaimer certification program has certified the reclaimer. The seal, logo, or other like notification must contain the following standardized language: "_____ has been certified as a refrigerant reclaimer required by 40 CFR part 82, subpart F." The certified reclaimer must display this notification conspicuously.

(5) Reclaimer certification programs must decertify a program where a pattern of violations occurs. The method of revoking certification of the particular reclaimer must be reasonable (such as including a provision for appeal) and conducted in a timely manner.

(6) Reclaimer certification programs must submit to EPA, in accordance with § 82.166(h), information concerning the quantity of material sent for reclamation, the mass of refrigerant reclaimed, and the mass of waste products.

(7) Reclaimer certification programs must demonstrate that certificates or other information indicating the certification of a reclaimer will not be transferable. In the event of a change in ownership of a certified reclaimer the new owner of the entity shall notify the

reclaimer certification program within 30 days of the change of ownership.

(8) Failure to abide by any of the provisions of this subpart may result in the revocation or suspension of the approval of the reclaimer certification program. In such cases, the Administrator or her or his designated representative shall give notice to the organization setting forth the basis for her or his determination and comply with the procedures contained in § 82.169.

6a. Section 82.165 is added to read as follows:

§ 82.165 Reclaimer certification criteria.

(a) Persons seeking to become certified reclaimers must be certified by an EPA-approved reclaimer certification program in accordance with § 82.164. Persons seeking to become certified reclaimers will be required to demonstrate the ability to meet the criteria set forth in paragraphs (b), (c), and (d) of this section.

(b) Certified reclaimers must submit monthly processing reports to the approved certification program. These processing reports must include, but are not limited to, the amount of reclaimed refrigerant each certified reclaimer has processed during the preceding month. The reclaimer certification program will examine the data received by the reclaimers to ensure completeness.

(c) Reclaimers seeking to become certified must submit to the reclaimer certification programs at least three samples of reclaimed refrigerant. The reclamation certification program or a designated laboratory must chemically analyze three samples of refrigerant processed by each of the reclaimer's facilities prior to certifying the reclaimer. Each calendar year the reclaimer certification program must receive and chemically analyze at least four representative samples of refrigerant processed by each of the reclaimer's facilities. These tests must be performed on a random basis.

(d) Reclaimers must submit and update an accurate list of all equipment used to reprocess and analyze used refrigerant to the reclamation certification program. Reclaimer

certification programs must maintain a list of equipment used to reprocess and to analyze the used refrigerant by each reclaimer certified by that reclaimer certification program.

(e) Reclaimers certified by a reclaimer certification program that has its certification revoked in accordance with § 82.164(b)(7) must be recertified by another EPA-approved certification program within six months of receiving notification of the revocation.

(f) Reclaimers certified by a reclaimer certification program must release no more than 1.5 percent of the refrigerant during the reclamation process and dispose of wastes from the reclamation process in accordance with all applicable laws and regulations.

7. Section 82.166 is amended by revising paragraph (g) and adding paragraphs (r), (s), and (t) to read as follows:

§ 82.166 Reporting and recordkeeping requirements.

* * * * *

(g) Reclaimer certification programs must maintain records of the quantity of material sent to them for reclamation, the mass of refrigerant reclaimed, and the mass of waste products. Reclaimer certification programs must report this information to the Administrator annually within 30 days of the end of the calendar year.

* * * * *

(r) Laboratory certification programs must maintain records of the quantity of material sent to them for purity testing, the mass of refrigerant tested, mass of waste products and information indicating the amount of the total charge of used refrigerant that the representative sample received and analyzed by the certified laboratories was drawn from. Laboratory certification programs must report this information to the Administrator annually within 30 days of the end of the calendar year.

(s) Reclaimer certification programs must maintain a list of equipment used to reprocess and to analyze the refrigerant used by each reclaimer certified by the reclaimer certification program. Reclaimer certification programs must maintain a list of names and addresses of all reclaimers certified by the reclaimer certification program.

(t) Any contractor or technician reclaiming refrigerant consistent with the definition of contractor reclamation must keep records indicating that the custody and control of the refrigerant has been maintained. Records must include the quantity of refrigerant, the date and location of where the refrigerant was recovered, the date(s)

and location(s) of where the refrigerant is stored, the date(s) and location(s) of where representative samples are drawn, and the date(s) and location(s) of where the refrigerant is sold after a certified laboratory has verified the quality of the refrigerant.

8. Section 82.167 is added to subpart F to read as follows:

§ 82.167 Laboratory certification.

(a) Any laboratory certification program may apply for approval by the Administrator to certify laboratories. The application must be sent to: Section 608 Recycling Program Manager, Laboratory Certification, Stratospheric Protection Division, 6205J, U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460. Applications for approval must include written information verifying the ability of the laboratory certification program to ensure that laboratories it certifies meet the criteria listed in paragraphs (b), (c), (d), (e), (f), (g), (h), (i), (j), (k), and (l) of this section and § 82.168.

(b) Laboratory certification programs must demonstrate to EPA the ability to perform oversight and analysis to ensure that the certified laboratories will test representative samples of used refrigerant for sale to a new owner to at least ARI Standard 700-1995 in accordance with this section.

(c) Laboratory certification programs must demonstrate to EPA the ability to perform all recordkeeping and reporting requirements listed in § 82.166(r) and (t) and to verify that all persons seeking to become and remain certified laboratories meet the criteria set forth in § 82.168.

(d) Laboratory certification programs must maintain information concerning a certified laboratory's ability to test refrigerant purity levels acceptable under the ARI 700-1995 standard and a commitment to comply with the standards established by the EPA-approved certifier.

(e) Laboratory certification programs must test verify at least three refrigerants submitted by a potentially certified laboratory prior to the issuance of certification. Only laboratories that accurately determine within an acceptable range each contaminant in any of the qualifying samples will be certified. The following list of values constitutes acceptable ranges for reporting contaminants:

- (1) Refrigerant purity: +/- 0.01%;
- (2) Water: +/- the greater of 3ppm or 10% of the actual value;
- (3) High Boiling Residue: +/- the greater of 0.01% (absolute) or 20% of the actual value; and

(4) Non-condensibles: +/- the greater of 0.2% (absolute) or 10% of the actual value.

(f) Laboratory certification programs must perform a site visit prior to certifying the laboratory to ensure that the laboratory has the capability of performing correct refrigerant analysis and that the laboratory did analyze samples submitted for verification. Site visits must include a visual inspection of the laboratory's equipment and ascertain whether each item necessary for routine refrigerant analysis exists and is functional. In addition, the site visit must include a procedural review of the laboratory's methods and procedures for refrigerant analysis.

(g) Laboratory certification programs must develop and perform a schedule of continued site visits to ensure the continued qualifications of the laboratory. These visits will be consistent with the requirements in § 82.168(c). Site visits must occur on at least a quarterly basis.

(h) Laboratory certification programs must require, receive, and consolidate monthly processing reports submitted from the certified laboratories. These processing reports must include, but are not limited to, the amount of used refrigerant tested during the preceding month and the total amount of used refrigerant the tested amount represents. The laboratory certification program will examine the data received by the laboratories for completeness and accuracy.

(i) Laboratory certification programs must submit to EPA in accordance with § 82.166(r) information concerning the quantity of material sent for testing, the mass of refrigerant tested, the mass of waste products, and the total amount of used refrigerant that has had its purity verified in this manner.

(j) Laboratory certification programs must create, distribute, and control the use of a seal, logo, or other like notification, indicating that an approved laboratory certification program has certified the laboratory. EPA anticipates that a seal or logo will be necessary. The seal, logo, or like notification must contain the following statement: "_____ has been certified as a certified laboratory to analyze refrigerant as required by 40 CFR part 82, subpart F." The laboratory certification program must require the display of this notification conspicuously.

(k) Only laboratories that are able to substantiate their ability to comply with the criteria established in this subsection may be certified. A certified laboratory no longer able to meet the continuing criteria must be decertified.

If such a case occurs, EPA must be notified within 30 days.

(l) Failure to abide by any of the provisions of this subpart may result in the revocation or suspension of the approval of the laboratory certification program. In such cases, the Administrator or her or his designated representative shall give notice to the organization setting forth the basis for her or his determination and identifying the procedures contained in § 82.169.

9. Section 82.168 is added to subpart F to read as follows:

§ 82.168 Laboratory certification criteria.

(a) Persons seeking to have their laboratories certified must be certified by a laboratory certification program approved in accordance with § 82.167. Persons seeking to have their laboratories certified will be required to demonstrate to the laboratory certification program the ability to meet the criteria set forth in this section.

(b) Persons seeking to have their laboratories certified must submit to a laboratory certification program for the purposes of test verification at least three refrigerants prior to the issuance of certification. Only laboratories that accurately determine, within an acceptable range, each contaminant in any of the qualifying samples will be certified. The following lists of values constitute acceptable ranges for reporting contaminants:

- (1) Refrigerant purity: $\pm 0.01\%$;
- (2) Water: \pm the greater of 3ppm or 10% of the actual value;
- (3) High Boiling Residue: \pm the greater of 0.01% (absolute) or 20% of the actual value; and
- (4) Non-condensibles: \pm the greater of 0.2% (absolute) or 10% of the actual value.

(c) Persons seeking to have their laboratories certified must permit a site visit by a laboratory certification program prior to becoming certified for the purposes of ensuring that the laboratory has the capability of performing correct refrigerant analysis and that the laboratory did analyze samples submitted for verification. Site visits must include a visual inspection of the laboratory's equipment to ascertain whether each item necessary for compliance exists and is functional for routine refrigerant analysis. In addition, the site visit must include a procedural review of the laboratory's methods and procedures for refrigerant analysis.

(d) Certified laboratories must permit a schedule of continued site visits to ensure the continued qualifications of the laboratory. These visits will be consistent with the requirements in

paragraph (c) of this section. Site visits must occur on at least a quarterly basis.

(e) Certified laboratories must submit monthly processing reports to the laboratory certification program. These processing reports must include, but are not limited to, the amount of used refrigerant tested during the preceding month and the total amount of used refrigerant the tested amount represents. The laboratory certification program will examine the data received by the laboratories to ensure completeness and accuracy.

(f) Laboratories certified by a laboratory certification program for which certification has been revoked in accordance with § 82.167(l) must be recertified by another EPA-approved certification program within six months of receiving notification of the revocation.

10. Section 82.169 is added to subpart F to read as follows:

§ 82.169 Suspension and revocation procedures.

(a) Failure to abide by any of the provisions of this subpart may result in the revocation or suspension of the approval to certify technicians, laboratories, reclaimers and/or recycling and recovery equipment. In such cases, the Administrator or her or his designated representative shall give notice to the organization setting forth the basis for her or his determination.

(b) The revoked or suspended certification program that chooses to request a hearing must file that request in writing within 30 days of the date of the Agency's decision at the address listed in § 82.160 and shall set forth the certification program's objections to the Agency's decision and data to support the objections.

(c) If, after review of the request and supporting data, the Administrator or her or his designated representative finds that the request raises a substantial and factual issue, she or he shall provide the certification program with a hearing.

(d) After granting a request for a hearing the Administrator or her or his designated representative shall designate a Presiding Officer for the hearing.

(e) The hearing shall be held as soon as practicable at a time and place determined by the Administrator, the designated representative, or by the Presiding Officer.

(f) The Administrator or her or his designated representative may, at his or her discretion, direct that all argument and presentation of evidence be concluded within a specified period established by the Administrator or her

or his designated representative. Said period may be no less than 30 days from the date that the first written offer of a hearing is made to the laboratory certification program. To expedite proceedings, the Administrator or her or his designated representative may direct that the decision of the Presiding Officer (who may, but need not, be the Administrator) shall be the final EPA decision.

(g) Upon appointment pursuant to paragraph (d) of this section, the Presiding Officer will establish a hearing file. The file shall consist of the following:

- (1) The determination issued by the Administrator under § 82.165;
- (2) The request for a hearing and the supporting data submitted therewith;
- (3) All documents relating to the request for certification and all documents submitted therewith; and
- (4) Correspondence and other data material to the hearing.

(h) The hearing file will be available for inspection by the applicant at the office of the Presiding Officer.

(i) An applicant may appear in person or may be represented by counsel or by any other duly authorized representative.

(j) The Presiding Officer, upon the request of any party or at his or her discretion, may arrange for a pre-hearing conference at a time and place he/she specifies. Such pre-hearing conference will consider the following:

- (1) Simplification of the issues;
- (2) Stipulations, admissions of fact, and the introduction of documents;
- (3) Limitation of the number of expert witnesses;
- (4) Possibility of agreement disposing of any or all of the issues in dispute; and
- (5) Such other matters as may aid in the disposition of the hearing, including such additional tests as may be agreed upon by the parties.

(k) The results of the conference shall be reduced to writing by the Presiding Officer and made part of the record.

(l) Hearings shall be conducted by the Presiding Officer in an informal but orderly and expeditious manner. The parties may offer oral or written evidence, subject to the exclusion by the Presiding Officer of irrelevant, immaterial, and repetitious evidence.

(m) Witnesses will not be required to testify under oath. However, the Presiding Officer shall call to the attention of witnesses that their statements may be subject to the provisions of 18 U.S.C. 1001 which imposes penalties for knowingly making false statements or representations or using false documents in any matter within the jurisdiction of any

department or agency of the United States.

(n) Any witness may be examined or cross-examined by the Presiding Officer, the parties, or their representatives.

(o) Hearings shall be reported verbatim. Copies of transcripts of proceedings may be purchased by the applicant from the reporter.

(p) All written statements, charts, tabulations, and similar data offered in evidence at the hearings shall, upon a showing satisfactory to the Presiding Officer of their authenticity, relevancy, and materiality, be received in evidence and shall constitute a part of the record.

(q) Oral argument may be permitted at the discretion of the Presiding Officer and shall be reported as part of the record unless otherwise ordered by the Presiding Officer.

(r) The Presiding Officer shall make an initial decision which shall include written findings and conclusions and the reasons or basis regarding all the material issues of fact, law, or discretion presented on the record. The findings, conclusions, and written decision shall be provided to the parties and made a part of the record. The initial decision shall become the decision of the Administrator without further proceedings, unless there is an appeal to the Administrator or motion for review by the Administrator within 20 days of the date the initial decision was filed.

(s) On appeal from or review of the initial decision, the Administrator or her or his designated representative shall have all the powers which he or she would have in making the initial decision, including the discretion to require or allow briefs, oral argument, the taking of additional evidence, or the remanding to the Presiding Officer for additional proceedings. The decision by the Administrator or her or his representative designate shall include written findings and conclusions and the reasons or basis therefore on all the material issues of fact, law, or discretion presented on the appeal or considered in the review.

11. Appendix B to subpart F is revised to read as follows:

Appendix B to Subpart F— Performance of Refrigerant Recovery, Recycling, and/or Reclaim Equipment

This appendix is based on Air-Conditioning and Refrigeration Institute Standard 740-1995.

Refrigerant Recovery/Recycling Equipment
Section 1. Purpose

1.1 *Purpose.* The purpose of this standard is to establish methods of testing for rating and evaluating the performance of refrigerant recovery, and/or recycling equipment and

general equipment requirements (herein referred to as "equipment") for contaminant or purity levels, capacity, speed and purge loss to minimize emission into the atmosphere of designated refrigerants.

Section 2. Scope

2.1 *Scope.* This standard applies to equipment for recovering and/or recycling single refrigerants, azeotropics, zeotropic blends, and their normal contaminants from refrigerant systems. This standard defines the test apparatus, test gas mixtures, sampling procedures and analytical techniques that will be used to determine the performance of refrigerant recovery and/or recycling equipment (hereinafter, "equipment").

2.1.2 Refrigerants used to evaluate equipment shall be pure halogenated hydrocarbons, azeotropes and blends containing halogenated hydrocarbons.

Section 3. Definitions

Definitions. All terms in this Appendix will follow the definitions in §82.152 unless otherwise defined in this Appendix.

Clearing Refrigerant. Procedures used to remove trapped refrigerant from equipment before switching from one refrigerant to another.

High Temperature Vapor Recovery Rate. For equipment having at least one designated refrigerant (see 11.2) with a boiling point in the range of -50 to $+10^{\circ}\text{C}$, the rate will be measured for R-22, or the lowest boiling point refrigerant if R-22 is not a designated refrigerant.

Published Ratings. A statement of the assigned values of those performance characteristics, under stated rating conditions, by which a unit may be chosen to fit its application. These values apply to all units of like nominal size and type (identification) produced by the same manufacturer. As used herein, the term "published rating" includes the rating of all performance characteristics shown on the unit or published in specifications, advertising or other literature controlled by the manufacturer, at stated rating conditions.

Push/Pull Method. The push/pull refrigerant recovery method is defined as the process of transferring liquid refrigerant from a refrigeration system to a receiving vessel by lowering the pressure in the vessel and raising the pressure in the system, and by connecting a separate line between the system liquid port and the receiving vessel.

Recycle Flow Rate. The amount of refrigerant processed divided by the time elapsed in the recycling mode. For equipment which uses a separate recycling sequence, the recycle rate does not include the recovery rate (or elapsed time). For equipment which does not use a separate recycling sequence, the recycle rate is a rate based solely on the higher of the liquid or vapor recovery rate, by which the contaminant levels were measured.

Residual Trapped Refrigerant. Refrigerant remaining in equipment after clearing.

"Shall," "Should," "Recommended" or "It is Recommended." "Shall," "should," "recommended" or "it is recommended" shall be interpreted as follows:

Shall. Where "shall" or "shall not" is used for a provision specified, that provision is

mandatory if compliance with the standard is claimed.

Should, Recommended or It is Recommended. "Should," "recommended" or "it is recommended" is used to indicate provisions which are not mandatory but which are desirable as good practice.

Standard Contaminated Refrigerant Sample. A mixture of new or reclaimed refrigerant and specified quantities of identified contaminants which constitute the mixture to be processed by the equipment under test. These contaminant levels are expected only from severe service conditions.

Trapped Refrigerant. The amount of refrigerant remaining in the equipment after the recovery or recovery/recycling operation but before clearing.

Vapor Recovery Rate. The average rate that refrigerant is withdrawn from the mixing chamber between two pressures as vapor recovery rate is changing pressure and temperature starting at saturated conditions either 24°C or at the boiling point 100 kPa (abs), whichever is higher. The final pressure condition is 10% of the initial pressure, but not lower than the equipment final recovery vacuum and not higher than 100 kPa (abs).

Section 4. General Equipment Requirements

4.1 *Equipment Information.* The equipment manufacturer shall provide operating instructions, necessary maintenance procedures and source information for replacement parts and repair.

4.2 *Filter Replacement.* The equipment shall indicate when any filter/drier(s) needs replacement. This requirement can be met by use of a moisture transducer and indicator light, by use of a sight glass/moisture indicator or by some measurement of the amount of refrigerant processed such as a flow meter or hour meter. Written instructions such as "to change the filter every 181 kg, or every 30 days" shall not be acceptable except for equipment in large systems where the liquid recovery rate is greater than 11.3 kg/min where the filter/drier(s) would be changed for every job.

4.3 *Purge of Non-Condensable.* If non-condensables are purged, the equipment shall either automatically purge non-condensables or provide indicating means to guide the purge process.

4.4 *Purge Loss.* The total refrigerant loss due to purging non-condensables, draining oil and clearing refrigerant (see 9.5) shall be less than 3% (by weight) of total processed refrigerant.

4.5 *Permeation Rate.* High pressure hose assemblies 5/8 in. [16 mm] nominal and smaller shall not exceed a permeation rate of 3.9 g/cm²/yr (internal surface) at a temperature of 48.8 °C. Hose assemblies UL recognized as having passed ANSI/UL 1963 requirements shall be accepted without testing. See 7.1.4.

4.6 *Clearing Trapped Refrigerant.* For equipment rated for more than one refrigerant, the manufacturer shall provide a method and instructions which will accomplish connections and clearing within 15 minutes. Special equipment, other than a vacuum pump or manifold gauge set shall be furnished. The clearing procedure shall not rely upon the storage cylinder below

saturated pressure conditions at ambient temperature.

4.7 *Temperature.* The equipment shall be evaluated at 24 °C with additional limited evaluation at 40 °C. Normal operating conditions range from 10 °C to 40 °C.

4.8 *Exemptions.* Equipment intended for recovery only shall be exempt from 4.2 and 4.3.

Section 5. Contaminated Refrigerants

5.1 *Sample Characteristics.* The standard contaminated refrigerant sample shall have the characteristics specified in Table 1, except as provided in 5.2.

5.2 *Recovery-Only Testing.* Recovery equipment not rated for any specific contaminant shall be tested with new or reclaimed refrigerant.

Section 6. Test Apparatus

6.1 *General Recommendations.* The recommended test apparatus is described in the following paragraphs. If alternate test apparatus are employed, the user shall be able to demonstrate that they produce results equivalent to the specified referee apparatus.

6.2 *Self-Contained Equipment Test Apparatus.* The apparatus, shown in Figure 1, shall consist of:

6.2.1 *Mixing Chamber.* A mixing chamber consisting of a tank with a conical-shaped bottom, a bottom port and piping for delivering refrigerant to the equipment, various ports and valves for adding refrigerant to the chamber and stirring means for mixing.

6.2.2 *Filling Storage Cylinder.* The storage cylinder to be filled by the refrigerant transferred shall be cleaned and at the pressure of the recovered refrigerant at the

beginning of the test. It will not be filled over 80%, by volume.

6.2.3 *Vapor Feed.* Vapor refrigerant feed consisting of evaporator, control valves and piping to create a 3.0 °C superheat condition at an evaporating temperature of 21 °C \pm K.

6.2.4 *Alternative Vapor Feed.* An alternative method for vapor feed shall be to pass the refrigerant through a boiler and then through an automatic pressure regulating valve set at different saturation pressures, moving from saturated pressure at 24 °C to final pressure of recovery.

6.2.5 *Liquid Feed.* Liquid refrigerant feed consisting of control valves, sampling port and piping.

6.2.6 *Instrumentation.* Instrumentation capable of measuring weight, temperature, pressure and refrigerant loss, as required.

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Table 1. Standard Contaminated Refrigerant Samples											
	R11	R12	R13	R22	R113	R114	R123	R134a	R500	R502	R503
Moisture Content: ppm by Weight of Pure Refrigerant	100	80	30	200	100	85	200	200	200	200	30
Particulate Content: ppm by Weight of Pure Refrigerant Characterized by ¹	80	80	NA	80	80	80	80	80	80	80	NA
Acid Content: ppm by Weight of Pure Refrigerant - (mg KOH per kg Refrig.) Characterized by ²	500	100	NA	500	400	200	500	100	100	100	NA
Mineral Oil Content: % by Weight of Pure Refrigerant	20	5	NA	5	20	20	20	5	5	5	NA
Viscosity (SUS)	300	150		300	300	300	300	150 ³	150	150	
Non-Condensable Gases (Air Content): % by Volume	NA	3	3	3	NA	3	NA	3	3	3	3
<p>¹ Particulate content shall consist of inert materials and shall comply with particulate requirements in Appendix B.</p> <p>² Acid consists of 60% oleic acid and 40% hydrochloric acid on a total number basis.</p> <p>³ Synthetic ester-based oil.</p>											

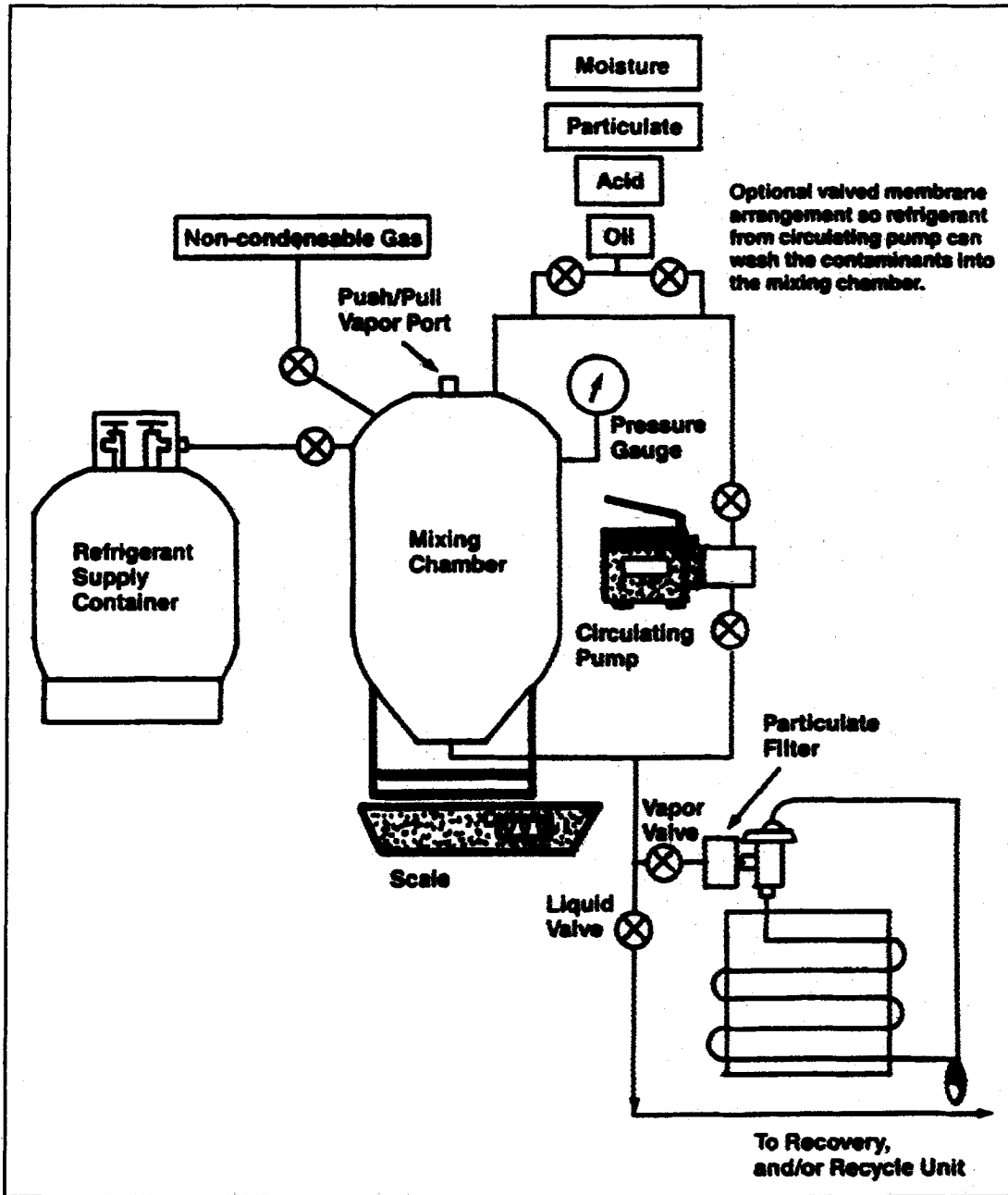


Figure 1. Test Apparatus for Self-Contained Equipment

6.3 *Size.* The size of the mixing chamber shall be a minimum of .09 m³. The bottom port and the refrigerant feed shall depend on the size of the equipment. Typically, the mixing valves and piping shall be 9.5 mm. For large equipment to be used on chillers, the minimum inside diameter of ports, valves and pipings shall be the smaller of the manufacturer's recommendation or 37 mm.

6.4 *System Dependent Equipment Test Apparatus.* This test apparatus is to be used for final recovery vacuum rating of all system dependent equipment.

6.4.1 *Test Setup.* The test apparatus shown in Figure 2 consists of a complete refrigeration system. The manufacturer shall identify the refrigerants to be tested. The test apparatus can be modified to facilitate operation or testing of the system dependent equipment if the modifications to the apparatus are specifically described within the manufacturer's literature. (See Figure 2.) A 6.3 mm balance line shall be connected across the test apparatus between the high and low pressure sides, with an isolation valve located at the connection to the compressor high side. A 6.3 mm access port with a valve core shall be located in the balance line for the purpose of measuring final recovery vacuum at the conclusion of the test.

Section 7. Performance Testing

7.1 *General Testing.*

7.1.1 *Temperatures.* Testing shall be conducted at an ambient temperature of 24EC

±1K except high temperature vapor recovery shall be at 40EC ±1K. The evaporator conditions of 6.2.3 shall be maintained as long as liquid refrigerant remains in the mixing chamber.

7.1.2 *Refrigerants.* The equipment shall be tested for all designated refrigerants (see 11.2). All tests in Section 7 shall be completed for each refrigerant before starting tests with the next refrigerant.

7.1.3 *Selected Tests.* Tests shall be as appropriate for the equipment type and ratings parameters selected (see 9.9, 11.1 and 11.2).

7.1.4 *Hose Assemblies.* For the purpose of limiting refrigerant emissions to the atmosphere, hose assemblies shall be tested for permeation according to ANSI/UL Standard 1963, Section 40.10.

7.2 *Equipment Preparation and Operation.* The equipment shall be prepared and operated per the operating instructions.

7.3 *Test Batch.* The test batch consisting of refrigerant sample (see Section 5) of the test refrigerant shall be prepared and thoroughly mixed. Continued mixing or stirring shall be required during the test while liquid refrigerant remains in the mixing chamber. The mixing chamber shall be filled to 80% level by volume.

7.3.1 *Control Test Batch.* Prior to starting the test for the first batch for each refrigerant, a liquid sample will be drawn from the mixing chamber and analyzed per Section 8 to assure that contaminant levels match

Table 1 within ±10 ppm for moisture, ±20 ppm for particulate, ±20 ppm for oleic acid and ±0.5% for oil.

7.4 *Recovery Tests (Recovery and Recovery/Recycle Equipment).*

7.4.1 *Determining Recovery Rates.* The liquid and vapor refrigerant recovery rates shall be measured during the first test batch for each refrigerant (see 9.1, 9.2 and 9.4). Equipment preparation and recovery cylinder changeover shall not be included in elapsed time measurements for determining vapor recovery rate and liquid refrigerant recovery rate. Operations such as subcooling the recovery cylinder shall be included. Recovery cylinder shall be the same size as normally furnished by the equipment manufacturer. Oversized tanks shall not be permitted.

7.4.1.1 *Liquid Refrigerant Recovery Rate.* If elected, the recovery rate using the liquid refrigerant feed means (see 6.2.5) shall be determined. After the equipment reaches stabilized conditions of condensing temperature and/or recovery cylinder pressure, the recovery process shall be stopped and an initial weight shall be taken of the mixing chamber (see 9.2). The recovery process shall be continued for a period of time sufficient to achieve the accuracy in 9.4. The recovery process shall be stopped and a final weight shall be taken of the mixing chamber.

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Configuration of standard air conditioning or refrigeration system for use as a test apparatus

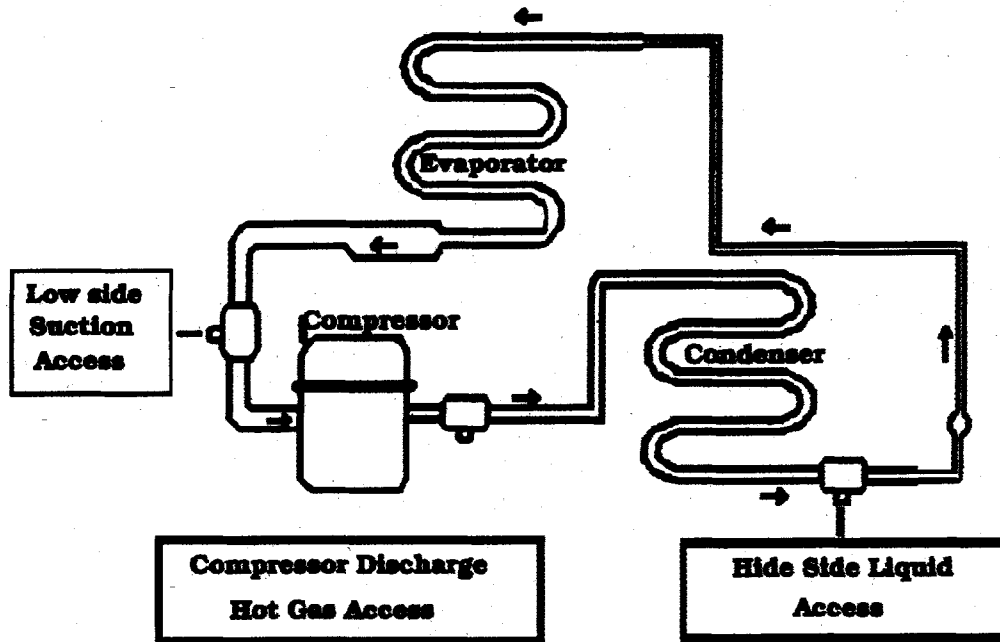


Figure 2. System Dependent Equipment Test Apparatus

7.4.1.2 Vapor Refrigerant Recovery Rate. If elected, the average vapor flow rate shall be measured to accuracy requirements in clause 9.4 under conditions with no liquid refrigerant in the mixing chamber. The liquid recovery feed means shall be used. At initial conditions of saturated vapor at the higher of 24EC or the boiling temperature (100 kPa absolute pressure), the weight of the mixing chamber and the pressure shall be recorded. At final conditions representing pressure in the mixing chamber of 10% of the initial condition, but not less than the final recovery vacuum (see 9.6) nor more than 100 kPa, measure the weight of the mixing chamber and the elapsed time.

7.4.1.3 High Temperature Vapor Recovery Rate. Applicable for equipment having at least one designated refrigerant (see 11.2) with a boiling point between -50EC and +10EC. Measure the rate for R-22, or the refrigerant with the lowest boiling point if R-22 is not a designated refrigerant. Repeat the test in 7.4.1.2 at saturated conditions at 40EC and continue to operate equipment to assure it will achieve the final recovery vacuum (see 7.4.3).

7.4.2 Recovery Operation. This test is for determining the final recovery vacuum and the ability to remove contaminants as appropriate. If equipment is rated for liquid recovery (see 7.4.1.3), liquid recovery feed means described in 6.2.5 shall be used. If not, vapor recovery means described in 6.2.3 or 6.2.4 shall be used. Continue recovery operation until all liquid is removed from the test apparatus and vapor is removed to the point where equipment shuts down by automatic means or is manually shut off per operating instructions.

7.4.2.1 Oil Draining. Capture oil from the equipment at intervals as required in the instructions. Record the weight of the container. Completely remove refrigerant from oil by evacuation or other appropriate means. The weight difference shall be used in 9.5.2.

7.4.3 Final Recovery Vacuum. At the end of the first test batch for each refrigerant, the liquid valve and vapor valve of the apparatus shall be closed. After waiting 1 minute, the mixing chamber pressure shall be recorded (see 9.6).

7.4.4 Residual Refrigerant. This test will measure the mass of remaining refrigerant in the equipment after clearing and therefore the potential for mixing refrigerants (see 4.6).

7.4.4.1 Initial Conditions. At the end of the last test for each batch for each refrigerant, the equipment shall be disconnected from the test apparatus (Figure 1). Recycle per 7.5, if appropriate. Perform refrigerant clearing operations as called for in the instruction manual. Capture and record the weight of any refrigerant which would have been emitted to the atmosphere during the clearing process for use in 9.5. If two loops are used for recycling, trapped refrigerant shall be measured for both.

7.4.4.2 Residual Trapped Refrigerant. Evacuate an empty test cylinder to 1.0 kPa absolute. Record the empty weight of the test cylinder. Open all valves to the equipment so as to provide access to all trapped refrigerant. Connect the equipment to the test cylinder and operate valves to recover the residual

refrigerant. Record the weight of the test cylinder using a recovery cylinder pressure no less than specified in 6.2.2. Place the test cylinder in liquid nitrogen for a period of 30 minutes or until a vacuum of 1000 microns is reached, whichever occurs first.

7.5 Recycling Tests (Recovery/Recycle Equipment).

7.5.1 Recycling Operation. As each recovery cylinder is filled in 7.4.2, recycle according to operating instructions. There will not necessarily be a separate recycling sequence. Note non-condensable purge measurement in 9.5.

7.5.1.1 Recycle Flow Rate. While recycling the first recovery cylinder for each refrigerant, determine the recycling flow rate by appropriate means (see 9.3) to achieve the accuracy required in 9.4.

7.5.2 Non-Condensable Sample. After completing 7.4.3, prepare a second test batch (7.3). Recover per 7.4.2 until the current recovery cylinder is filled to 80% level by volume. Recycle per 7.5.1. Mark this cylinder and set aside for taking the vapor sample. For equipment having both an internal tank of at least 3 kg refrigerant capacity and an external recovery cylinder, two recovery cylinders shall be marked and set aside. The first is the cylinder described above. The second cylinder is the final recovery cylinder after filling it to 80% level by volume and recycling.

7.5.3 Liquid Sample for Analysis. Repeat steps 7.3, 7.4.2 and 7.5.1 with further test batches until indication means in 4.2 show the filter/drier(s) need replacing.

7.5.3.1 Multiple Pass. For equipment with a separate recycling circuit (multiple pass), set aside the current cylinder and draw the liquid sample (see 7.4) from the previous cylinder.

7.5.3.2 Single Pass. For equipment with the single pass recycling circuit, draw the liquid sample (see 7.4) from the current cylinder.

7.6 Measuring Refrigerant Loss. Refrigerant loss due to non-condensables shall be determined by appropriate means (see 9.5.1). The loss could occur in 7.4.1, 7.4.2 and 7.5.1.

Section 8. Sampling and Chemical Analysis Methods

8.1 Chemical Analysis. Chemical analysis methods shall be specified in appropriate standards such as ARI 700-93 and Appendix-93 to ARI Standard 700. If alternate test methods are employed, the laboratory must be able to demonstrate that they produce results equivalent to the specified referee method.

8.2 Refrigerant Sampling.

8.2.1 Water Content. The water content in refrigerant shall be measured by the Karl Fischer Analytical Method or by the Karl Fischer Coulometric techniques. Report the moisture level in parts per million by weight.

8.2.2 Chloride Ions. Chloride ions shall be measured by turbidity tests. At this time, quantitative results have not been defined. Report chloride content as "pass" or "fail." In the future, when quantitative results are possible, report chloride content as parts per million by weight.

8.2.3 Acidity. The acidity test uses the titration principle. Report the acidity in parts

per million by weight (mg KOH/kg) of sample.

8.2.4 High Boiling Residue. High boiling residues shall use measurement of the volume of residue after evaporating a standard volume of refrigerant. Using weight measurement and converting to volumetric units is acceptable. Report high boiling residues as percent by volume.

8.2.5 Particulates/Solids. The particulates/solids measurement employs visual examination. Report results as "pass" or "fail."

8.2.6 Non-condensables. The level of contamination by non-condensable gases in the base refrigerant being recycled shall be determined by gas chromatography. Report results as percent by volume.

Section 9. Performance Calculation and Rating

9.1 Vapor Refrigerant Recovery Rate. This rate shall be measured by weight change of the mixing chamber divided by elapsed time (see 7.4.1.2). The units shall be kg/min and the accuracy shall be per 9.4.

9.1.1 High Temperature Vapor Recovery Rate.

9.2 Liquid Refrigerant Recovery Rate. This rate shall be measured by weight change of the mixing chamber divided by elapsed time (see 7.4.1.3). The units shall be kg/min and the accuracy shall be per 9.4.

9.3 Recycle Flow Rate. The recycle flow rate shall be as defined in 3.10, expressed in kg/min, and the accuracy shall be per 9.4.

9.3.1 For equipment using multi-pass recycling or a separate sequence, the recycle rate shall be determined by dividing the net weight W of the refrigerant to be recycled by the actual time T required to recycle. Any set-up or operator interruptions shall not be included in the time T.

9.3.2 If no separate recycling sequence is used, the recycle rate shall be the higher of the vapor refrigerant recovery rate or the liquid refrigerant recovery rate. The recycle rate shall match a process which leads to contaminant levels in 9.9. Specifically, a recovery rate determined from bypassing a contaminant removal device cannot be used as a recycle rate when the contaminant levels in 9.9 are determined by passing the refrigerant through the contaminant removal device.

9.4 Accuracy of Flow Rates. The accuracy of test measurements in 9.1, 9.2 and 9.3 shall be ± 0.008 kg/min or flow rates up to .42 kg/min and $\pm 2.0\%$ for flow rates larger than .42 kg/min. Ratings shall be expressed to the nearest .02 kg/min.

9.5 Refrigerant Loss. This calculation will be based upon the net loss of refrigerant which would have been eliminated in the non-condensable purge process (see 7.5.1), the oil draining process (see 7.4.2.1) and the refrigerant clearing process (see 7.4.4.1), all divided by the net refrigerant content of the test batches. The refrigerant loss shall not exceed 3% by weight.

9.5.1 Non-Condensable Purge. Evacuate an empty container to 2 kPa absolute. Record the empty weight of the container. Place the container in a dry ice bath. Connect the equipment purge connection to the container and operate purge according to operating instructions so as to capture the non-

condensables and lost refrigerant. Weigh the cylinder after the recycling is complete. Equivalent means are permissible.

9.5.2 *Oil Draining*. Refrigerant removed from the oil after draining shall be collected and measured in accordance with 7.4.2.1.

9.5.3 *Clearing Unit*. Refrigerant captured during the clearing process shall be measured in accordance with 7.4.4.1.

9.6 *Final Recovery Vacuum*. The final recovery vacuum shall be the mixing chamber pressure in 7.4.3 expressed in kPa. The accuracy of the measurement shall be within 0.33 kPa.

9.7 *Residual Trapped Refrigerant*. The amount of residual trapped refrigerant shall be the final weight minus the initial weight of the test cylinder in 7.4.4.2, expressed in kg. The accuracy shall be ± 0.02 kg and reported to the nearest 0.05 kg.

9.8 *Quantity Recycled*. The amount of refrigerant processed before changing filters (see 7.5.3) shall be expressed in kg to an accuracy of $\pm 1\%$.

9.9 *Contaminant Levels*. The contaminant levels remaining after testing shall be published as follows:

Moisture content, ppm by weight
Chloride ions, pass/fail
Acidity, ppm by weight
High boiling residue, % (by volume)
Particulates-solid, pass/fail (visual examination)
Non-condensables, % (by volume)

9.10 *Minimum Data Requirements for Published Ratings*. Published ratings shall include all of the parameters as shown in Tables 2 and 3 for each refrigerant designated by the manufacturer.

Section 10. Tolerances

10.1 *Tolerances*. Performance related parameters shall not be less favorable than the published ratings.

Section 11. Marking and Nameplate Data

11.1 *Marking and Nameplate Data*. The nameplate shall display the manufacturer's name, model designation, type of equipment, designated refrigerants, capacities and electrical characteristics where applicable.

Recommended nameplate voltages for 60 Hertz systems shall include one or more of the utilization voltages shown in Table 1 of ARI Standard 110-90. Recommended

nameplate voltages for 50 Hertz systems shall include one or more of the utilization voltages shown in Table 1 of IEC Standard Publication 38, IEC Standard Voltages.

11.2 *Data for Designated Refrigerants*. For each refrigerant designated, the manufacturer shall include all the following that are applicable per Table 2:

- a. Liquid Recovery Rate
- b. Vapor Recovery Rate
- c. High Temperature Vapor Recovery Rate
- d. Final Recovery Vacuum
- e. Recycle Flow Rate
- f. Residual Trapped Refrigerant
- g. Quantity Recycled

Section 12. Voluntary Conformance

12.1 *Conformance*. While conformance with this standard is voluntary, conformance shall not be claimed or implied for products or equipment within its *Purpose* (Section 1) and *Scope* (Section 2) unless such claims meet all of the requirements of the standards.

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Table 2. Performance				
Parameter/Type of Equipment	Recovery	Recovery/ Recycle	Recycle	System Dependent Equipment
Liquid Refrigerant Recovery Rate	1	1	N/A	N/A
Vapor Refrigerant Recovery Rate	1	1	N/A	N/A
High Temp. Vapor Recovery Rate	1	1	N/A	N/A
Final Recovery Vacuum	x	x	N/A	x
Recycle Flow Rate	N/A	x	x	N/A
Refrigerant Loss	3	x	x	3
Residual Trapped Refrigerant	2	2	2	2
Quantity Recycled	N/A	x	x	N/A
<p>* For recovery equipment, these parameters are optional. If not rated use N/A, "not applicable."</p> <p>x Mandatory rating.</p> <p>1 For a recovery or recovery/recycle unit, one must rate either liquid refrigerant recovery rate or vapor refrigerant recovery rate or one can rate for both. If rating only the one, the other shall be indicated by N/A, "not applicable."</p> <p>2 Mandatory rating for equipment tested for multiple refrigerants.</p> <p>3 Mandatory rating if multiple refrigerants, oil separation or non-condensable purge are rated.</p>				

Table 3. Contaminants				
Contaminant/Type of Equipment	Recovery	Recovery/ Recycle	Recycle	System Dependent Equipment
Moisture Content	*	x	x	N/A
Chloride Ions	*	x	x	N/A
Acidity	*	x	x	N/A
High Boiling Residue	*	x	x	N/A
Particulates	*	x	x	N/A
Non-Condensables	*	x	x	N/A
* For recovery equipment, these parameters are optional. If not rated, use N/A, "not applicable."				
x Mandatory rating.				

Attachment 1 to Appendix B References

Listed here are all Standards, handbooks, and other publications essential to the formation and implementation of the standard. All references in this appendix are considered as part of this standard.

- ANSI/UL Standard 1963, Refrigerant Recovery/Recycling Equipment, First Edition, 1989, American National Standards Institute/Underwriters Laboratories, Inc.

- ARI Standard 110-90, Air-Conditioning and Refrigerating Equipment Nameplate Voltages, Air-Conditioning and Refrigeration Institute

- ARI Standard 700-93, Specifications for Fluorocarbon and Other Refrigerants, Air-Conditioning and Refrigeration Institute

- ASHRAE Terminology of Heating, Ventilation, Air Conditioning, Refrigeration, & Refrigeration, American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc., 1991

- IEC Standard Publication 38, IEC Standard Voltages, International Electrotechnical Commission, 1983

Attachment 2 to Appendix B. Particulate Used in Standard Contaminated Refrigerant Sample

B1 *Particulate Specification.*

B1.1 The particulate material (pm) will be a blend of 50% coarse air cleaner dust as received, and 50% retained on a 200-mesh screen. The coarse air cleaner dust is available from: AC Spark Plug Division, General Motors Corporation, Flint, Michigan.

B1.2 *Preparation of Particulate Materials.* To prepare the blend of

contaminant, first wet screen a quantity of coarse air cleaner dust on a 200-mesh screen (particle retention 74 pm).

This is done by placing a portion of the dust on a 200-mesh screen and running water through the screen while stirring the dust with the fingers. The fine contaminant particles passing through the screen are discarded. The +200-mesh particles collected on the screen are removed and dried for one hour at 110EC. The blend of standard contaminant is prepared by mixing 50% by weight of coarse air cleaner dust as received (after drying for one hour at 110EC) with 50% by weight of the +200-mesh screened dust.

B1.3 *Particle Size Analysis.* The coarse air cleaner dust as received and the blend used as the standard contaminant have the following approximate particle size analysis:

WT. % IN VARIOUS SIZE RANGES, PM

Size range	As received	Blend
0-5	12	6
5-10	12	6
10-20	14	7
20-40	23	11
40-80	30	32
80-200	9	38

12. Appendix D to Subpart F is amended by revising section g to read as follows:

Appendix D to Subpart F—Standards for Becoming a Certifying Program for Technician

* * * * *

g. Recordkeeping and Reporting Requirements

Certifying programs must maintain records for at least three years which include, but are not limited to, the names and addresses of all individuals taking the tests, the scores of all certification tests administered, and the dates and locations of all testing administered.

EPA must receive an activity report from all approved certifying programs by every January 30 and June 30, the first to be submitted following the first full six-month period for which the program has been approved by EPA. This report will include the pass/fail rate and testing schedules. This will allow the Agency to determine the relative progress and success of these programs. If the certifying program believes a test bank question needs to be modified, information about that question should also be included.

Approved certifying programs will receive a letter of approval from EPA. Each testing center must display a copy of that letter.

Approved technician certification programs that intend to stop providing the certification test must forward all records required by this Appendix, § 82.161 and § 82.166 to a program currently approved by EPA in accordance with this Appendix and with § 82.161.

Approved Technician Certification Programs that receive records of certified technicians from a program that no longer offers the certification test must inform EPA in writing at the address listed in § 82.160 within 30 of receiving these records.

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