this subpart, except as described in § 82.112.

(5) In the case of any substance designated as a class I or class II substance after February 11, 1993, the prohibitions in paragraphs (a)(1)(i), (a)(2)(i), and (a)(3)(i) of this section shall be applicable one year after the designation of such substance as a class I or class II substance unless otherwise specified in the designation.

Subpart F—Recycling and Emissions Reduction

SOURCE: 58 FR 28712, May 14, 1993, unless otherwise noted.

§ 82.150 Purpose and scope.

(a) The purpose of this subpart is to reduce emissions of class I and class II refrigerants and their substitutes to the lowest achievable level by maximizing the recapture and recycling of such refrigerants during the service, maintenance, repair, and disposal of appliances and restricting the sale of refrigerants consisting in whole or in part of a class I and class II ODS in accordance with Title VI of the Clean Air Act.

(b) This subpart applies to any person servicing, maintaining, or repairing appliances. This subpart also applies to persons disposing of appliances, including small appliances and motor vehicle air conditioners. In addition, this subpart applies to refrigerant reclaimers, technician certifying programs, appliance owners and operators, manufacturers of appliances, manufacturers of recycling and recovery equipment, approved recycling and recovery equipment testing organizations, persons selling class I or class II refrigerants or offering class I or class II refrigerants for sale, and persons purchasing class I or class II refrigerants.

[69 FR 11978, Mar. 12, 2004]

§ 82.152 Definitions.

Appliance means any device which contains and uses a refrigerant and which is used for household or commercial purposes, including any air conditioner, refrigerator, chiller, or freezer.

Apprentice means any person who is currently registered as an apprentice in service, maintenance, repair, or disposal of appliances with the U.S. Department of Labor's Bureau of Apprenticeship and Training (or a State Apprenticeship Council recognized by the Bureau of Apprenticeship and Training). If more than two years have elapsed since the person first registered as an apprentice with the Bureau of Apprenticeship and Training (or a State Apprenticeship Council recognized by the Bureau of Apprenticeship and Training), the person shall not be considered an apprentice.

Approved equipment testing organization means any organization which has applied for and received approval from the Administrator pursuant to § 82.160.

Certified refrigerant recovery or recycling equipment means equipment manufactured before November 15, 1993, that meets the standards in § 82.158(c), (e), or (g); equipment certified by an approved equipment testing organization to meet the standards in § 82.158(b), (d), or (f); or equipment certified pursuant to § 82.36(a).

Commercial refrigeration means, for the purposes of § 82.156(i), the refrigeration appliances utilized in the retail food and cold storage warehouse sectors. Retail food includes the refrigeration equipment found in supermarkets, convenience stores, restaurants and other food service establishments. Cold storage includes the equipment used to store meat, produce, dairy products, and other perishable goods. All of the equipment contains large refrigerant charges, typically over 75 pounds.

Critical component means, for the purposes of § 82.156(i), a component without which industrial process refrigeration equipment will not function, will be unsafe in its intended environment, and/or will be subject to failures that would cause the industrial process served by the refrigeration appliance to be unsafe.

Custom-built means, for the purposes of § 82.156(i), that the equipment or any of its critical components cannot be purchased and/or installed without being uniquely designed, fabricated and/or assembled to satisfy a specific set of industrial process conditions.

Disposal means the process leading to and including:

(1) The discharge, deposit, dumping or placing of any discarded appliance into or on any land or water;

(2) The disassembly of any appliance for discharge, deposit, dumping or placing of its discarded component parts into or on any land or water; or

(3) The disassembly of any appliance for reuse of its component parts.

Follow-up verification test means, for the purposes of §82.156(i), those tests that involve checking the repairs within 30 days of the appliance's returning to normal operating characteristics and conditions. Follow-up verification tests for appliances from which the refrigerant charge has been evacuated means a test conducted after the appliance or portion of the appliance has resumed operation at normal operating characteristics and conditions of temperature and pressure, except in cases where sound professional judgment dictates that these tests will be more meaningful if performed prior to the return to normal operating characteristics and conditions. A follow-up verification test with respect to repairs conducted without evacuation of the refrigerant charge means a reverification test conducted after the initial verification test and usually within 30 days of normal operating conditions. Where an appliance is not evacuated, it is only necessary to conclude any required changes in pressure, temperature or other conditions to return the appliance to normal operating characteristics and conditions.

Full charge means the amount of refrigerant required for normal operating characteristics and conditions of the appliance as determined by using one or a combination of the following four methods:

(1) Use the equipment manufacturer's determination of the correct full charge for the equipment;

(2) Determine the full charge by making appropriate calculations based on component sizes, density of refrigerant, volume of piping, and other relevant considerations;

(3) Use actual measurements of the amount of refrigerant added or evacuated from the appliance; and/or

(4) Use an established range based on the best available data regarding the normal operating characteristics and conditions for the appliance, where the midpoint of the range will serve as the full charge, and where records are maintained in accordance with §82.166(q).

High-pressure appliance means an appliance that uses a refrigerant with a liquid phase saturation pressure between 170 psia and 355 psia at 104 °F. This definition includes but is not limited to appliances using R–401A, R–409A, R–401B, R–411A, R–22, R–411B, R–502, R–402B, R–408A, and R–402A.

Industrial process refrigeration means, for the purposes of §82.156(i), complex customized appliances used in the chemical, pharmaceutical, petrochemical and manufacturing industries. These appliances are directly linked to the industrial process. This sector also includes industrial ice machines, appliances used directly in the generation of electricity, and ice rinks. Where one appliance is used for both industrial process refrigeration and other applications, it will be considered industrial process refrigeration equipment if 50 percent or more of its operating capacity is used for industrial process refrigeration.

Industrial process shutdown means, for the purposes of §82.156(i), that an industrial process or facility temporarily ceases to operate or manufacture whatever is being produced at that facility.

Initial verification test means, for the purposes of §82.156(i), those leak tests that are conducted as soon as practicable after the repair is completed. An initial verification test, with regard to the leak repairs that require the evacuation of the appliance or portion of the appliance, means a test conducted prior to the replacement of the full refrigerant charge and before the appliance or portion of the appliance has reached operation at normal operating characteristics and conditions of temperature and pressure. An initial verification test with regard to repairs conducted without the evacuation of the refrigerant charge means a test conducted as soon as practicable after the conclusion of the repair work.

Leak rate means the rate at which an appliance is losing refrigerant, measured between refrigerant charges. The leak rate is expressed in terms of the percentage of the appliance's full

charge that would be lost over a 12-month period if the current rate of loss were to continue over that period. The rate is calculated using only one of the following methods for all appliances located at an operating facility.

(1) Method 1. (i) Step 1. Take the number of pounds of refrigerant added to the appliance to return it to a full charge and divide it by the number of pounds of refrigerant the appliance normally contains at full charge;

(ii) Step 2. Take the shorter of the number of days that have passed since the last day refrigerant was added or 365 days and divide that number by 365 days;

(iii) Step 3. Take the number calculated in Step 1. and divide it by the number calculated in Step 2.; and

(iv) Step 4. Multiply the number calculated in Step 3. by 100 to calculate a percentage. This method is summarized in the following formula:

$$\text{Leak rate (\% per year)} = \frac{\text{pounds of refrigerant added}}{\text{pounds of refrigerant in full charge}} \times \frac{\text{365 days/year}}{\text{shorter of: \# days since refrigerant last added or 365 days}} \times 100\%$$

(2) Method 2. (i) Step 1. Take the sum of the quantity of refrigerant added to the appliance over the previous 365-day period (or over the period that has passed since leaks in the appliance were last repaired, if that period is less than one year),

(ii) Step 2. Divide the result of Step 1. by the quantity (*e.g.*, pounds) of refrigerant the appliance normally contains at full charge, and

(iii) Step 3. Multiply the result of Step 2. by 100 to obtain a percentage. This method is summarized in the following formula:

$$\text{Leak rate (\% per year)} = \frac{\text{pounds of refrigerant added over past 365 days (or since leaks were last repaired, if that period is less than one year)}}{\text{pounds of refrigerant in full charge}} \times 100\%$$

Low-loss fitting means any device that is intended to establish a connection between hoses, appliances, or recovery or recycling machines and that is designed to close automatically or to be closed manually when disconnected, minimizing the release of refrigerant from hoses, appliances, and recovery or recycling machines.

Low-pressure appliance means an appliance that uses a refrigerant with a liquid phase saturation pressure below 45 psia at 104 °F. This definition includes but is not limited to appliances using R–11, R–123, and R–113.

Major maintenance, service, or repair means any maintenance, service, or repair that involves the removal of any or all of the following appliance components: compressor, condenser, evaporator, or auxiliary heat exchange coil; or any maintenance, service, or repair that involves uncovering an opening of more than four (4) square inches of ''flow area'' for more than 15 minutes.

Medium-pressure appliance means an appliance that uses a refrigerant with a liquid phase saturation pressure between 45 psia and 170 psia at 104 °F. This definition includes but is not limited to appliances using R–114, R–124, R–12, R–401C, R–406A, and R–500.

Motor vehicle air conditioner (MVAC) means any appliance that is a motor vehicle air conditioner as defined in 40 CFR part 82, subpart B.

MVAC-like appliance means mechanical vapor compression, open-drive compressor appliances with a normal charge of 20 pounds or less of refrigerant used to cool the driver's or passenger's compartment of an off-road

motor vehicle. This includes the air-conditioning equipment found on agricultural or construction vehicles. This definition is not intended to cover appliances using R–22 refrigerant.

Normal operating characteristics or conditions means, for the purposes of §82.156(i), temperatures, pressures, fluid flows, speeds and other characteristics that would normally be expected for a given process load and ambient condition during operation. Normal operating characteristics and conditions are marked by the absence of atypical conditions affecting the operation of the refrigeration appliance.

Normally containing a quantity of refrigerant means containing the quantity of refrigerant within the appliance or appliance component when the appliance is operating with a full charge of refrigerant.

One-time expansion device means an appliance that relies on the one-time release of its refrigerant charge to the environment in order to provide a cooling effect.

Opening an appliance means any service, maintenance, repair, or disposal of an appliance that would release refrigerant from the appliance to the atmosphere unless the refrigerant was recovered previously from the appliance. Connecting and disconnecting hoses and gauges to and from the appliance to measure pressures within the appliance and to add refrigerant to or recover refrigerant from the appliance shall not be considered ''opening.''

Parent company means an individual, corporation, partnership, association, joint-stock company, or an unincorporated organization that can direct or cause the direction of management and policies of another entity, through the ownership of shares or otherwise.

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

Process stub means a length of tubing that provides access to the refrigerant inside a small appliance or room air conditioner and that can be resealed at the conclusion of repair or service.

Reclaim refrigerant means to reprocess refrigerant to all of the specifications in appendix A to 40 CFR part 82, subpart F (based on ARI Standard 700–1995, Specification for Fluorocarbons and Other Refrigerants) that are applicable to that refrigerant and to verify that the refrigerant meets these specifications using the analytical methodology prescribed in section 5 of appendix A of 40 CFR part 82, subpart F.

Recover refrigerant means to remove refrigerant in any condition from an appliance and to store it in an external container without necessarily testing or processing it in any way.

Recovery efficiency means the percentage of refrigerant in an appliance that is recovered by a piece of recycling or recovery equipment.

Recycle refrigerant means to extract refrigerant from an appliance and clean refrigerant for reuse without meeting all of the requirements for reclamation. In general, recycled refrigerant is refrigerant that is cleaned using oil separation and single or multiple passes through devices, such as replaceable core filter-driers, which reduce moisture, acidity, and particulate matter. These procedures are usually implemented at the field job site.

Refrigerant means, for purposes of this subpart, any substance consisting in part or whole of a class I or class II ozone-depleting substance that is used for heat transfer purposes and provides a cooling effect.

Refrigerant circuit means the parts of an appliance that are normally connected to each other (or are separated only by internal valves) and are designed to contain refrigerant.

Self-contained recovery equipment means refrigerant recovery or recycling equipment that is capable of removing the refrigerant from an appliance without the assistance of components contained in the appliance.

Small appliance means any appliance that is fully manufactured, charged, and hermetically sealed in a factory with five (5) pounds or less of a class I or class II substance used as a refrigerant, including, but not limited to, refrigerators and freezers (designed for home, commercial, or consumer use),

medical or industrial research refrigeration equipment, 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.

Substitute means any chemical or product, whether existing or new, that is used by any person as an EPA approved replacement for a class I or II ozone-depleting substance in a given refrigeration or air-conditioning end-use.

Suitable replacement refrigerant means, for the purposes of §82.156(i)(7)(i), a refrigerant that is acceptable under section 612(c) of the Clean Air Act Amendments of 1990 and all regulations promulgated under that section, compatible with other materials with which it may come into contact, and able to achieve the temperatures required for the affected industrial process in a technically feasible manner.

System-dependent recovery equipment means refrigerant recovery equipment that requires the assistance of components contained in an appliance to remove the refrigerant from the appliance.

System mothballing means the intentional shutting down of a refrigeration appliance undertaken for an extended period of time by the owners or operators of that facility, where the refrigerant has been evacuated from the appliance or the affected isolated section of the appliance, at least to atmospheric pressure.

Technician means any person who performs maintenance, service, or repair, that could be reasonably expected to release refrigerants from appliances, except for MVACs, into the atmosphere. Technician also means any person who performs disposal of appliances, except for small appliances, MVACs, and MVAC-like appliances, that could be reasonably expected to release refrigerants from the appliances into the atmosphere. Performing maintenance, service, repair, or disposal could be reasonably expected to release refrigerants only if the activity is reasonably expected to violate the integrity of the refrigerant circuit. Activities reasonably expected to violate the integrity of the refrigerant circuit include activities such as attaching and detaching hoses and gauges to and from the appliance to add or remove refrigerant or to measure pressure and adding refrigerant to and removing refrigerant from the appliance. Activities such as painting the appliance, rewiring an external electrical circuit, replacing insulation on a length of pipe, or tightening nuts and bolts on the appliance are not reasonably expected to violate the integrity of the refrigerant circuit. Performing maintenance, service, repair, or disposal of appliances that have been evacuated pursuant to §82.156 could not be reasonably expected to release refrigerants from the appliance unless the maintenance, service, or repair consists of adding refrigerant to the appliance. Technician includes but is not limited to installers, contractor employees, in-house service personnel, and in some cases owners and/or operators.

Very high-pressure appliance means an appliance that uses a refrigerant with a critical temperature below 104 °F or with a liquid phase saturation pressure above 355 psia at 104 °F. This definition includes but is not limited to appliances using R–13 or R–503.

Voluntary certification program means a technician testing program operated by a person before that person obtained approval of a technician certification program pursuant to §82.161(c).

[58 FR 28712, May 14, 1993, as amended at 59 FR 42956, Aug. 19, 1994; 59 FR 55925, Nov. 9, 1994; 60 FR 40439, Aug. 8, 1995; 68 FR 43806, July 24, 2003; 69 FR 11978, Mar. 12, 2004; 70 FR 1991, Jan. 11, 2005; 70 FR 19278, Apr. 13, 2005]

§82.154 Prohibitions.

(a)(1) Effective June 13, 2005, no person maintaining, servicing, repairing, or disposing of appliances may knowingly vent or otherwise release into the environment any refrigerant or substitute from such appliances, with the exception of the following substitutes in the following end-uses:

(i) Ammonia in commercial or industrial process refrigeration or in absorption units;

(ii) Hydrocarbons in industrial process refrigeration (processing of hydrocarbons);