



ADDENDA

**ANSI/ASHRAE Addendum e to
ANSI/ASHRAE Standard 147-2019**

Reducing the Release of Halogenated Refrigerants from Refrigerating and Air-Conditioning Equipment and Systems

Approved by ASHRAE and the American National Standards Institute on March 29, 2024.

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ASHRAE Standing Standard Project Committee 147

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FOREWORD

Addendum e makes additions to Section 3, "Definitions"; Section 6.2, "Factory Leak Testing"; Section 6.4, "Factory Evacuation"; and Section 11, "Normative References." These changes are necessary to harmonize Standard 147 with ASHRAE Standards 196 and 173, comply with the US AIM Act, and improve factory evacuation and testing procedures.

Informative Note: In this addendum, changes to the current standard are indicated in the text by underlining (for additions) and ~~strike through~~ (for deletions) unless the instructions specifically mention some other means of indicating the changes.

Addendum e to Standard 147-2019

Revise Section 3 Definitions as shown.

calibrated leak: a device with a defined leak rate of a given gas under defined pressure and temperature conditions. These conditions are defined upstream and downstream of the leak element. Calibrated leaks are to be traceable to a national metrology institute. (**Informative Note:** National metrology institute such as the National Institute of Standards and Technology.)

hydrofluoroolefin (HFO): an unsaturated halocarbon that contains only fluorine, carbon, and hydrogen.

Update Section 6 as shown.

6.2.1 Leak Rate Specification. All equipment types shall be leak tested by either a leak rate measurement method or a leak location method such as those described in Informative Appendix A, Section A4.3. ~~The measured leak rate shall not exceed the values established for the method selected in Table 6-1 (when tested at the conditions prescribed in ANSI/ASHRAE Standard 15-2, Section 9.14.1). The components of Equipment Types 6, 9, and 10 shall be tested as Type 1, 2, or 3 assemblies, as appropriate. The apparatus used to perform the leak test shall be qualified through the use of a NIST (or equivalent recognized agency) traceable calibrated leak. The repeatability and reproducibility of the leak test apparatus shall be determined through the use of a calibrated leak in a go/no-go attribute test per the manufacturer's requirements.~~

6.2.2 ~~The measured leak rate shall not exceed the values established for the method selected in Table 6-1 when tested at not less than the design pressure conditions as defined in ANSI/ASHRAE Standard 15.~~

6.2.3 ~~The components of Equipment Types 6, 9, and 10 shall be tested as Type 1, 2, or 3 assemblies.~~

6.2.4 ~~The apparatus used to perform the leak test shall be qualified through the use of a calibrated leak. The repeatability and reproducibility of the leak test apparatus shall be determined through the use of a calibrated leak in a go/no-go attribute test per the manufacturer's requirements.~~

6.2.5 Calibrated Leak Specification. ~~The calibrated leak shall have a certificate of calibration from an ISO 17025¹³ accredited laboratory.~~

~~**6.2.6 Leak Test Gas.** Chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFC) are prohibited by this standard for use as a leak test gas. Hydrochlorofluorocarbon (HCFC) or Hydrofluorocarbon (HFC) and hydrofluoroolefin (HFO) refrigerants and blends are prohibited by this standard for use as leak-test gases unless they are recovered. A mixture of a trace quantity of no more than 10% by mass of HFC or HFO refrigerants non-CFC halocarbon refrigerant, such as HCFC-123, with nitrogen may be used as the leak-test gas. Leak-test gas containing halocarbon refrigerants shall be recovered and reused.~~

[. . .]

6.3 Evacuation. Systems shall be evacuated to 500 microns of mercury (65 Pa) ~~1000 µg of mercury~~ or less and held long enough to remove detrimental moisture as defined by the manufacturer.

Update Section 11 as shown.

13. International Organization for Standardization. (2017) ISO 17025 General requirements for the competence of testing and calibration laboratories. Third edition. Washington, DC.

POLICY STATEMENT DEFINING ASHRAE'S CONCERN FOR THE ENVIRONMENTAL IMPACT OF ITS ACTIVITIES

ASHRAE is concerned with the impact of its members' activities on both the indoor and outdoor environment. ASHRAE's members will strive to minimize any possible deleterious effect on the indoor and outdoor environment of the systems and components in their responsibility while maximizing the beneficial effects these systems provide, consistent with accepted Standards and the practical state of the art.

ASHRAE's short-range goal is to ensure that the systems and components within its scope do not impact the indoor and outdoor environment to a greater extent than specified by the Standards and Guidelines as established by itself and other responsible bodies.

As an ongoing goal, ASHRAE will, through its Standards Committee and extensive Technical Committee structure, continue to generate up-to-date Standards and Guidelines where appropriate and adopt, recommend, and promote those new and revised Standards developed by other responsible organizations.

Through its *Handbook*, appropriate chapters will contain up-to-date Standards and design considerations as the material is systematically revised.

ASHRAE will take the lead with respect to dissemination of environmental information of its primary interest and will seek out and disseminate information from other responsible organizations that is pertinent, as guides to updating Standards and Guidelines.

The effects of the design and selection of equipment and systems will be considered within the scope of the system's intended use and expected misuse. The disposal of hazardous materials, if any, will also be considered.

ASHRAE's primary concern for environmental impact will be at the site where equipment within ASHRAE's scope operates. However, energy source selection and the possible environmental impact due to the energy source and energy transportation will be considered where possible. Recommendations concerning energy source selection should be made by its members.

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