

ANSI/ASHRAE Addendum e to
ANSI/ASHRAE Standard 34-2001



ASHRAE® STANDARD

Designation and Safety Classification of Refrigerants

Approved by the ASHRAE Standards Committee January 25, 2003; by the ASHRAE Board of Directors January 30, 2003; and by the American National Standards Institute April 3, 2003.

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REFRIGERATING AND
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ASHRAE obtains consensus through participation of its national and international members, associated societies, and public review.

ASHRAE Standards are prepared by a Project Committee appointed specifically for the purpose of writing the Standard. The Project Committee Chair and Vice-Chair must be members of ASHRAE; while other committee members may or may not be ASHRAE members, all must be technically qualified in the subject area of the Standard. Every effort is made to balance the concerned interests on all Project Committees.

The Manager of Standards of ASHRAE should be contacted for:

- a. interpretation of the contents of this Standard,
- b. participation in the next review of the Standard,
- c. offering constructive criticism for improving the Standard,
- d. permission to reprint portions of the Standard.

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ASHRAE uses its best efforts to promulgate Standards and Guidelines for the benefit of the public in light of available information and accepted industry practices. However, ASHRAE does not guarantee, certify, or assure the safety or performance of any products, components, or systems tested, installed, or operated in accordance with ASHRAE's Standards or Guidelines or that any tests conducted under its Standards or Guidelines will be nonhazardous or free from risk.

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ASHRAE Standards and Guidelines are established to assist industry and the public by offering a uniform method of testing for rating purposes, by suggesting safe practices in designing and installing equipment, by providing proper definitions of this equipment, and by providing other information that may serve to guide the industry. The creation of ASHRAE Standards and Guidelines is determined by the need for them, and conformance to them is completely voluntary.

In referring to this Standard or Guideline and in marking of equipment and in advertising, no claim shall be made, either stated or implied, that the product has been approved by ASHRAE.

(This foreword is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subject to public review or a consensus process.)

FOREWORD

This addendum further defines the method for designation of refrigerant blends. It provides additional guidance on the specification of blend compositions and composition tolerances.

Addendum e to ANSI/ASHRAE Standard 34-2001

Revise subsections 4.4, 4.4.1, and 4.4.2 as follows:

4.4 Blends. Blends ~~are~~ shall be designated by their respective refrigerant numbers and mass proportions. Refrigerants shall be named in order of increasing normal boiling points of the components. Compositions shall be specified to the nearest 0.1% m/m. No component shall be permitted at less than 0.6% m/m nominal. For example, a 10/90 ~~mass % mixture blend by mass~~ of Refrigerants 12 and 22 ~~will~~ shall be indicated as R-22/12 (90,0/10,0) or Refrigerant 22/12 (90,0/10,0). A blend of 92% m/m R-502 (the azeotrope of R-22 and R-

115) with 8% m/m R-290 (propane) ~~would~~ shall be indicated as R-290/22/115 (8,0/44,9/47,1).

4.4.1 Designation. Zeotropic blends ~~that have been commercialized~~ shall be assigned an identifying number in the 400 series. Azeotropes shall be assigned an identifying number in the 500 series. This number designates which components are in the mixture but not the amount of each. The amount of each component is designated as described in 4.4. For example, the 90/10 mass % mixture of Refrigerants 12 and 114 ~~would be R-400 (90/10).~~ To differentiate among zeotropes blends having the same components with different amounts proportions (percent by mass % m/m), an uppercase letter shall be added as a suffix in serial order of assignment. An example of a zeotrope would be R-401A, and an example of an azeotrope would be R-508A.

4.4.2 Azeotropes ~~that have been commercialized~~ shall be ~~serially~~ assigned an identifying number in the 500 series. ~~It is not necessary to cite the percentages parenthetically once a 500 series number is assigned.~~ **Composition Tolerances.** Blends shall have tolerances specified for individual components. Those tolerances shall be specified to the nearest 0.1% m/m. The maximum tolerance above or below the nominal shall not exceed 2.0% m/m. The tolerance above or below the nominal shall not be less than 0.1% m/m. The difference between the highest and the lowest tolerances shall not exceed 50% m/m of the nominal component composition.

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.