



**BSR/ASHRAE Addendum j
to ANSI/ASHRAE Standard 15-2019**

First Public Review Draft

Proposed Addendum j to Standard 15-2019, Safety Standard for Refrigeration Systems

**First Public Review (September 2020)
(Draft shows Proposed Changes to Current Standard)**

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FOREWORD

This addendum modifies ANSI/ASHRAE Standard 15 by removing language that changes the currently used term of “nonflammable” when referencing refrigerants classified as A1 or B1 by ANSI/ASHRAE Standard 34 to refer to the class instead.

Note: This addendum makes proposed changes to the current standard. These changes are indicated in the text by underlining (for additions) and ~~striketrough~~ (for deletions) except where the reviewer instructions specifically describe some other means of showing the changes. Only these changes to the current standard are open for review and comment at this time. Additional material is provided for context only and is not open for comment except as it relates to the proposed changes.

Addendum j to Standard 15-2019

Modify Section 7 as follows. The remainder of Section 7 remains unchanged.

7. RESTRICTIONS ON REFRIGERANT USE

[...]

7.4.2 ~~Nonflammable~~ Class 1 Refrigerants. ...

7.4.3 ~~Flammable~~ Class 2L, Class 2 and Class 3 Refrigerants. ...

Modify Section 9 as follows. The remainder of Section 9 remains unchanged.

9. DESIGN AND CONSTRUCTION OF EQUIPMENT AND SYSTEMS

[...]

9.14.1.1 Testing Procedure. Tests *shall* be performed with dry nitrogen or nonflammable, nonreactive, dried gas. Oxygen, air, or mixtures containing them *shall not* be used. The means used to build up the test pressure *shall* have either a *pressure limiting device* or a pressure reducing device and a gage on the outlet side. The *pressure relief device shall* be set above the test pressure but low enough to prevent permanent deformation of the system’s components.

Exceptions to 9.14.1.1:

1. Mixtures of dry nitrogen, inert gases, and nonflammable Class 1 refrigerants² are allowed for factory tests.
2. Mixtures of dry nitrogen, inert gases, or a combination of these with ~~flammable~~ Class 2L, Class 2, or Class 3 refrigerants² in concentrations not exceeding the lesser of a *refrigerant* weight fraction (mass fraction) of 5% or 25% of the LFL are allowed for factory tests.
3. Compressed air without added *refrigerant* is allowed for factory tests, provided the system is subsequently evacuated to less than 1000 μm (132 Pa) before charging with *refrigerant*. The required evacuation level is atmospheric pressure for systems using R-718 (water) or R-744 (carbon dioxide) as the *refrigerant*.

Modify Section 10 as follows. The remainder of Section 10 remains unchanged.

10. DESIGN AND CONSTRUCTION OF EQUIPMENT AND SYSTEMS

[...]

10.1.2 Testing Procedure. Tests *shall* be performed with dry nitrogen or another nonflammable, nonreactive, dried gas. Oxygen, air, or mixtures containing them *shall not* be used. The means used to build up the test pressure *shall* have either a *pressure limiting device* or a pressure reducing device and a gage on the outlet side. The *pressure relief device shall* be set above the test pressure but low enough to prevent permanent deformation of the system's components.

Exceptions to 10.1.2:

1. Mixtures of dry nitrogen, inert gases, or a combination of such with ~~nonflammable~~ *Class 1 refrigerants*² in concentrations of a *refrigerant* weight fraction (mass fraction) not exceeding 5% are allowed for tests.
2. Mixtures of dry nitrogen, inert gases, or a combination of such with ~~flammable~~ *Class 2L, Class 2, and Class 3 refrigerants*² in concentrations not exceeding the lesser of a *refrigerant* weight fraction (mass fraction) of 5% or 25% of the *LFL* are allowed for tests.
3. Compressed air without added *refrigerant* is allowed for tests, provided the system is subsequently evacuated to less than 1000 μm (132 Pa) before charging with *refrigerant*. The required evacuation level is atmospheric pressure for systems using R-718 (water) or R-744 (carbon dioxide) as the *refrigerant*.
4. Systems erected on the premises using Group A1 *refrigerant* and with copper tubing not exceeding 0.62 in. (16 mm) outside diameter shall be tested by means of the *refrigerant* charged into the system at the saturated vapor pressure of the *refrigerant* at 68°F (20°C) minimum.