



**BSR/ASHRAE Addendum b
to ANSI/ASHRAE Standard 15-2022**

Second Public Review Draft

Proposed Addendum b to Standard 15-2022, Safety Standard for Refrigeration Systems

**Second Public Review (February 2024)
(Draft shows Proposed Independent Substantive
Changes to Previous Public Review Draft)**

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FOREWORD

This proposed addendum revises Section 9.7.5 to clarify intent, clarify requirements, and makes editorial changes on pressure relief devices that were issued in Addendum a to ANSI/ASHRAE Standard 15-2019. This second public review draft corrects the determination of relieving pressure for fusible plugs.

Note: This public review draft of Addendum b makes independent substantive changes to the previous public review draft. These substantive changes to the previous public review draft and related changes to Standard 15-2022 are indicated by **blue-colored text** with **underlining** (for additions) and **red-colored text** with **strikethrough** (for deletions) except where the reviewer instructions specifically describe some other means of showing the changes. Only these changes to the current standard shown in **blue** or **red** text 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 substantive changes.

Addendum b to Standard 15-2022

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

9. DESIGN AND CONSTRUCTION OF EQUIPMENT AND SYSTEMS

[...]

9.6 Marking of Relief Devices and Fusible Plugs

[...]

9.6.3 *Fusible plugs shall be marked with the melting temperatures in Fahrenheit or Celsius.*

[...]

9.7 Pressure Vessel Protection

[...]

9.7.5.2.3 *For fusible plugs, the relieving pressure shall be determined using Equation 9-5.*

$$~~P_r = P_{bp} \times 1.1~~ \tag{9-5}$$

$$P_r = (P_{bp} - 14.70) \times 1.1 \tag{9-5 [I-P]}$$

$$P_r = (P_{bp} - 101.3) \times 1.1 \tag{9-5 [SI]}$$

where

P_{bp} = bubble point **absolute** pressure corresponding to the stamped **melting** temperature on the fusible plug for the **applicable** refrigerant **designation** ~~used~~, ~~psi~~ ~~psig~~ [kPa ~~gage~~]

P_r = relieving pressure, psig [kPa gage]

1.1 = allowed *overpressure*

[...]

9.7.7 The rated discharge capacity of a *rupture member* or *fusible plug* discharging to the atmosphere under critical flow conditions in lb of air/min (kg of air/s) shall be determined using Equation 9-6a or 9-6b:

$$\begin{aligned} C &= 0.64P_1d^2 \\ d &= 1.25(C/P_1)^{0.5} \end{aligned} \quad (9-6a \text{ [I-P]})$$

$$\begin{aligned} C &= 1.09 \times 10^{-6}P_1d^2 \\ d &= 958.7(C/P_1)^{0.5} \end{aligned} \quad (9-6b \text{ [SI]})$$

where

C = rated discharge capacity expressed as mass flow of air, lb/min (kg/s)

d = smallest of the internal diameter of the inlet pipe, retaining flanges, *fusible plug*, and *rupture member*, in. (mm)

where for *rupture members*,

$$P_1 = (\text{rated pressure psig [kPa gage]} \times 1.1) + 14.70 \text{ (101.33)}$$

where for *fusible plugs*,

P_1 = absolute *saturation pressure* corresponding to the stamped melting temperature ~~melting point~~ of the *fusible plug* or the *critical pressure* of the applicable refrigerant designation-used, whichever is smaller, psia (kPa)

[...]

9.7.9 Relief Discharge Piping

[...]

9.7.9.3.2 Unless the maximum allowable *back pressure* (P_0) is *specified* by the relief valve *manufacturer*, the following maximum allowable *back pressure* values shall be used for P_0 , where P is the *set pressure* and P_a is atmospheric pressure at the nominal elevation of the installation (Informative Table 9-7):

[...]

For *fusible plugs*, P shall be the ~~saturated absolute pressure~~ absolute saturation pressure ~~for the corresponding to the~~ stamped melting temperature ~~melting point~~ of the *fusible plug* or the *critical pressure* of the applicable refrigerant designation-used, whichever is smaller, psia (kPa).

[...]