BSR/ASHRAE Addendum v
to ANSI/ASHRAE Standard 15-2019

First Public Review Draft

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

First Public Review (June 2022)
(Draft shows Proposed Changes to Current Standard)

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ASHRAE, 180 Technology Parkway NW, Peachtree Corners, GA 30092

(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. Unresolved objectors on informative material are not offered the right to appeal at ASHRAE or ANSI.)

FOREWORD

A continuous maintenance proposal was submitted to clean up the definitions of brazed and soldered joints. This is in part due to an existing gap in the current definitions that exists between 800°F (426.5°C) and 1000°F (537.7°C). This proposed change harmonizes with definitions found in both ISO 4063:2009 and ANSI/AWS A3.0MM/A3.0:2020. No change is proposed to the definition of mechanical joint; it is provided solely for reference.

From a historical perspective, editions of Standard 15 from 1978 through 1992 used 800°F (426.5°C) in the definition of brazed joint. As a result of a change proposal, that temperature threshold was revised for editions of Standard 15 from 1994 through 2019 to be 1000°F (537.7°C or 537°C, depending on the edition). Retired members of SSPC 15 were consulted, but no clear reason for the change from 800°F (426.5°C) to 1000°F (537.7°C) was found; it was suspected that the intention was to harmonize with a U.S. regional building code of the time, rather than a technical basis or scientific definition.

Other useful information on the history of the ANSI/AWS A3.0 values: A nominal value (2 significant figures) was selected to be between the melting temperature of zinc and aluminum. While the U.S. initially selected 800°F (426.5°C) as that nominal value (AWS Brazing Manual, dated 1955), later efforts to harmonize internationally led the AWS to revise the nominal value to 840°F (450°C).

Significant figures (significant digits): Use of more than 2 significant figures is not warranted and an exact conversion between Fahrenheit and Celsius to a precision of 0.1 is not appropriate. Compliance would be determined by reporting the liquidus temperature (melting temperature) to 2 significant figures, and then applying the resultant value to determine whether the alloy would meet the brazed joint or the soldered joint definition.

Note: This addendum makes proposed changes to the current standard. These changes are indicated in the text by underlining (for additions) and ~~strikethrough~~ (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 v to Standard 15-2019

Modify Section 3 as follows. The remainder of Section 3 remains unchanged.

3. DEFINITIONS

3.1 Defined Terms

[…]

brazed joint: a gas-tight joint obtained by the joining of metal parts with metallic mixtures or alloys that melt at liquidus temperatures above 840°F (450°C) ~~1000°F (537°C)~~ but less than the melting solidus temperatures of the joined parts.

[…]

mechanical joint: a gas-tight joint obtained by joining metal parts with a positive-holding mechanical construction such as flanged, screwed, or flared joints or compression fittings.

[…]

soldered joint: a gas-tight joint formed by joining metal parts with alloys that melt at liquidus temperatures not exceeding 840°F (450°C) ~~800°F (426.5°C)~~ and above 400°F (205°C~~204.5°C~~).

[…]