



Standard Specification for Halon 1301, Bromotrifluoromethane (CF₃Br)¹

This standard is issued under the fixed designation D5632/D5632M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the U.S. Department of Defense.

^{ε1} NOTE—Designation was corrected editorially in October 2013.

1. Scope

1.1 This specification covers the requirements for Halon 1301 as a fire-fighting medium.

1.2 This specification does not address the fire-fighting equipment or hardware that employs Halon 1301 or the conditions of employing such equipment (for example, handhelds, fixed installations, etc.).

1.3 This specification does not address the storage or transportation of Halon 1301. Storage, handling, and transportation issues are addressed in Practice D5631.

1.4 The values stated in both inch-pound and SI units are to be regarded separately as the standard. The values given in parentheses are mathematical conversions that are provided for information only.

1.5 The following safety hazards caveat pertains only to the test methods portion, Section 6, of this specification: *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* Specific hazards statements are given in 4.5.

2. Referenced Documents

2.1 ASTM Standards:²

D5631 Practice for Handling, Transportation, and Storage of Halon 1301, Bromotrifluoromethane (CF₃Br)

2.2 ISO Standards:³

ISO 3427 Gaseous Halogenated Hydrocarbons (Liquefied Gases)—Taking of a Sample

¹ This specification is under the jurisdiction of ASTM Committee D26 on Halogenated Organic Solvents and Fire Extinguishing Agents, and is the direct responsibility of Subcommittee D26.09 on Fire Extinguishing Agents.

Current edition approved March 1, 2012. Published April 2012. Originally approved in 1994. Last previous edition approved in 2008 as D5632 - 08. DOI: 10.1520/D5632-12E01.

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.

2.3 AHRI Standards:⁴

2008 Appendix C for Analytical Procedures for AHRI Standard 700-2006

2.4 U.S. Government Standards:⁵

CFR Title 49, Part 172.101 Tables of Hazardous Materials and Special Provisions

CFR Title 49, Part 172 Subpart D Marking Requirements of Packaging for Transportation

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *Halon 1301* — The halogenated hydrocarbon compound Bromotrifluoromethane used as a fire extinguishing medium.

3.1.1.1 *Discussion*—The halon terminology system provides a convenient means to reference halogenated hydrocarbon fire extinguishants. Halogenated hydrocarbons are acyclic saturated hydrocarbons in which one or more of the hydrogen atoms have been replaced by atoms from the halogen series (that is, fluorine, chlorine, bromine, and iodine). By definition, the first digit of the halon numbering system represents the number of carbon atoms in the compound molecule; the second digit, the number of fluorine atoms; the third digit, the number of chlorine atoms; the fourth digit, the number of bromine atoms; and the fifth digit, the number of iodine atoms. Trailing zeros are not expressed. Unaccounted for valence requirements are assumed to be hydrogen atoms.

$$\text{number of hydrogen atoms} = \quad (1)$$

$$[(\text{number of carbon atoms} \times 2) + 2] - (\text{sum of halogen atoms})]$$

$$\text{For example,} \quad (2)$$

bromotrifluoromethane — CF₃Br — Halon 1301

3.1.2 *non-condensable gases* — non-condensable gases consist primarily of air (nitrogen, oxygen) accumulated in the

⁴ Available from Air-Conditioning, Heating, and Refrigeration Institute, 2111 Wilson Blvd, Suite 500, Arlington, VA 22201.

⁵ Available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20036.