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## Standard Specification for HFC Blend B (CH<sub>2</sub>FCF<sub>3</sub>, CHF<sub>2</sub>CF<sub>3</sub>, and CO<sub>2</sub>)<sup>1</sup>

This standard is issued under the fixed designation D7327; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 This specification covers requirements for HFC Blend B as a fire-fighting medium.

1.2 This specification does not address the fire-fighting equipment or hardware that employs HFC Blend B 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 HFC Blend B. Storage, handling, and transportation issues are addressed in Practice D7326.

1.4 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are for information only.

### 2. Referenced Documents

2.1 *ASTM Standards*:<sup>2</sup>

D7326 Practice for Handling, Transportation, and Storage of HFC Blend B (CH<sub>2</sub>FCF<sub>3</sub>, CHF<sub>2</sub>CF<sub>3</sub>, and CO<sub>2</sub>)

D2109 Test Methods for Nonvolatile Matter in Halogenated Organic Solvents and Their Admixtures

D3401 Test Methods for Water in Halogenated Organic Solvents and Their Admixtures

D3444 Test Method for Total Acid Number of Trichlorotrifluoroethane

D6806 Practice for Analysis of Halogenated Organic Solvents and Their Admixtures by Gas Chromatography

2.2 *ISO Standards*:<sup>3</sup>

ISO 3363 Fluorochlorinated Hydrocarbons for Industrial Use—Determination of Acidity—Titrimetric Method

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

<sup>1</sup> 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.

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<sup>2</sup> 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.

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

ISO 5789 Fluorinated Hydrocarbons for Industrial Use—Determination of Nonvolatile Residue

2.3 *ASHRAE Standard*:<sup>4</sup>

ASHRAE 34 Designation and Safety Classification of Refrigerants

2.4 *U.S. Government Standards*:<sup>5</sup>

CFR Title 49, Part 172, Subpart D, U.S. Department of Transportation (DOT), Marking Requirements of Packaging for Transportation

### 3. Terminology

3.1 *Definitions of Terms Specific to This Standard*:

3.1.1 *HFC*—hydrofluorocarbon; a chemical compound in which the compound molecule is comprised exclusively of hydrogen, chlorine, fluorine and carbon atoms.

3.1.2 *HFC Blend B*—tertiary blend comprised of HFC-134a (1,1,1,2-tetrafluoroethane), HFC-125 (pentafluoroethane), and carbon dioxide (CO<sub>2</sub>); a compound used to inert, extinguish, or suppress a fire or explosion hazard.

3.1.2.1 *Discussion*—The terminology system for fluorine-containing compounds (described in detail in ASHRAE Standard 34) provides a convenient means to reference the structure of individual compounds. By definition, the first digit of the numbering system represents one less than the number of carbon atoms in the compound molecule; the second digit, one more than the number of hydrogen atoms in the compound molecule; and the third digit, the number of fluorine atoms in the compound molecule. Unaccounted for valence requirements are assumed to be chlorine atoms. For example, the designation HFC-123 indicates two carbon atoms (1 + 1), two hydrogen atoms (3-1), and four fluorine atoms (4). The “a” designation at the end of the naming convention relates to the symmetry of the molecule.

Example: CH<sub>2</sub>FCF<sub>3</sub> = HFC-134a

### 4. Material Requirements

4.1 The fill density of HFC Blend B within a container should not exceed that needed to achieve complete filling of the

<sup>4</sup> Available from American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc. (ASHRAE), 1791 Tullie Circle, NE, Atlanta, GA 30329.

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