



Designation: D4995 – 10 (Reapproved 2020)

# Standard Specification for Electronic and Degreasing Grades of 1,1,2–Trichloro 1,2,2,–Trifluoroethane Solvent<sup>1</sup>

This standard is issued under the fixed designation D4995; 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 establishes the requirements for three grades of trichlorotrifluoroethane solvent:

- 1.1.1 Type I electronic or ultra-clean grade,
- 1.1.2 Type II standard or vapor-degreasing grade, and
- 1.1.3 Type IIA general purpose, packaged in a pressurized container grade.

1.2 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.3 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

## 2. Referenced Documents

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

- D1078 Test Method for Distillation Range of Volatile Organic Liquids
- 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
- D3443 Test Method for Chloride in Trichlorotrifluoroethane
- D3444 Test Method for Total Acid Number of Trichlorotrifluoroethane

<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 D26.03 on Cold Cleaning.

Current edition approved April 1, 2020. Published April 2020. Originally approved in 1994. Last previous edition approved in 2015 as D4995–10(2015). DOI: 10.1520/D4995–10R20.

<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

D3448 Test Method for Specific Aqueous Conductance of Trichlorotrifluoroethane

D3844 Guide for Labeling Chlorinated Hydrocarbon Solvent Containers (Withdrawn 2013)<sup>3</sup>

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

### 2.2 Other Documents:

29 CFR 1919.1200 Department of Labor, OSHA Regulations on Hazard Communications<sup>4</sup>

40 CFR 82 Subpart E The Labeling of Products Using Ozone-Depleting Substances<sup>4</sup>

49 CFR 100 to 199 Department of Transportation Hazardous Materials Regulations<sup>4</sup>

PPP-C-2020 Federal Specification, Chemicals, Liquid, Dry and Paste: Packaging of<sup>5</sup>

STP 310A Handbook of Vapor-Degreasing<sup>6</sup>

STP 403A Cold Cleaning with Halogenated Solvents<sup>6</sup>

## 3. Classification

3.1 *Type I*—Type I solvent is intended for use in the cleaning of space vehicle components, precision assemblies, oxygen systems and electronic equipment by the processes of spraying, flushing, vapor degreasing, or ultrasonics. The solvent is especially applicable for cleaning precision parts and assemblies in clean rooms and for use as a medium in testing the cleanliness of components that are assumed to be clean.

3.2 *Types II and IIA*—Types II and IIA are typically used in vapor degreasing applications or in other processes where the requirements for purity and cleanliness are less stringent than those of a cleaning process using Type I solvent.

<sup>3</sup> The last approved version of this historical standard is referenced on [www.astm.org](http://www.astm.org).

<sup>4</sup> *Code of Federal Regulations*, available from U.S. Government Publishing Office (GPO), 732 N. Capitol St., NW, Washington, DC 20401-0001, <http://www.gpo.gov>.

<sup>5</sup> Copies of Federal Specifications are available from General Services Administration, 1800 F Street, NW Washington, DC 20405, or from General Services Administration Business Service Centers in Boston, New York, Philadelphia, Atlanta, Chicago, Kansas City, MO, Ft. Worth, Houston, Denver, San Francisco, Los Angeles, and Seattle, WA.

<sup>6</sup> Available from ASTM International Headquarters, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959.