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## Standard Specification for Reclaimed 1,1,2-Trichloro 1,2,2-Trifluoroethane<sup>1</sup>

This standard is issued under the fixed designation D 5248; 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.

<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 D26.02 on Vapor Degreasing.

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### 1. Scope

1.1 This specification covers the three grades of 1,1,2-trichloro 1,2,2-trifluoroethane<sup>2</sup> typically needed in various industries. It may be used as a reference document by purchasers or by persons establishing in-house, 1,1,2-trichloro 1,2,2-trifluoroethane recovery programs.

### 2. Referenced Documents

#### 2.1 ASTM Standards:<sup>3</sup>

- D 1064 Test Methods for Iron in Rosin Tall Oil Fatty Acids and Other Related Products
- D 2108 Test Method for Color of Halogenated Organic Solvents and Their Admixtures (Platinum-Cobalt Scale)
- D 2109 Test Methods for Nonvolatile Matter in Halogenated Organic Solvents and Their Admixtures
- D 2111 Test Methods for Specific Gravity of Halogenated Organic Solvents and Their Admixtures
- D 3401 Test Methods for Water in Halogenated Organic Solvents and Their Admixtures
- D 3443 Test Method for Chloride in Trichlorotrifluoroethane
- D 3444 Test Method for Total Acid Number of Trichlorotrifluoroethane
- D 3447 ~~41~~ Test Method for Appearance of Admixtures Containing Halogenated Organic Solvents
- D 3741 ~~Test Method 6806 Practice for Appearance Analysis of Admixtures Containing Halogenated Organic Solvents and Their Admixtures by Gas Chromatography~~

### 3. Classification

- 3.1 *Type I*—Generally recognized for use in precision applications.
- 3.2 *Type II*—Use for less demanding precision applications.

<sup>2</sup> 1,1,2-trichloro 1,2,2-trifluoroethane: CAS No. 76-13-1.

<sup>3</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*, Vol 06.03, volume information, refer to the standard's Document Summary page on the ASTM website.

TABLE 1 Physical Properties Type I

Property	Specification	Test Method
Specific Gravity, 20/20	1.54 to 1.57	D 2111
Chloride, ppm, max	0.1	D 3443
Acid number	0.003	D 3444
Non-volatile residue, ppm, max	10	D 2109
Water, ppm, max	25	D 3401 or D1064
<del>1,1,2-trichloro 1,2,2-trifluoroethane content, wt %, min</del>	<del>99.5</del>	<del>D 3447</del>
<del>1,1,2-trichloro 1,2,2-trifluoroethane content, wt %, min</del>	<del>99.5</del>	<del>D 6806</del>
<del>1,1,1-trichloroethane content, wt %, max</del>	<del>0.02</del>	<del>D 3447</del>
<del>1,1,1-trichloroethane content, wt %, max</del>	<del>0.02</del>	<del>D 6806</del>
Color, Pt-Co	10	D 2108
Appearance	clear and free from suspended matter	D 3741

**TABLE 2 Physical Properties Type II**

Property	Specification	Test Method
Specific Gravity, 20/20	1.53 to 1.57	D 2111
Chloride, ppm, max	0.2	D 3443
Acid number	not tested	D 3444
Non-volatile residue, ppm, max	20	D 2109
Water, ppm, max	50	D 3401 or D1064
1,1,2-trichloro 1,2,2-trifluoroethane content, wt %, min	99.0	<del>D 3447</del>
1,1,2-trichloro 1,2,2-trifluoroethane content, wt %, min	99.0	D 6806
1,1,1-trichloroethane content, wt %, max	0.05	<del>D 3447</del>
1,1,1-trichloroethane content, wt %, max	0.05	D 6806
Color, Pt-Co, max	10	D 2108
Appearance	clear and free from suspended matter	D 3741

**TABLE 3 Physical Properties Type III**

Property	Specification	Test Method
Specific Gravity, 20/20	1.52 to 1.57	D 2111
Chloride, ppm, max	0.2	D 3443
Acid number	not tested	D 3444
Non-volatile residue, ppm, max	25	D 2109
Water, ppm, max	100	D 3401 or D1064
1,1,2-trichloro 1,2,2-trifluoroethane content, wt %, min	98.0	<del>D 3447</del>
1,1,2-trichloro 1,2,2-trifluoroethane content, wt %, min	98.0	D 6806
1,1,1-trichloroethane content, wt %, max	0.1	<del>D 3447</del>
1,1,1-trichloroethane content, wt %, max	0.1	D 6806
Color, Pt-Co, max	25	D 2108
Appearance	clear and free from suspended matter	D 3741

### 3.3 Type III—General-purpose technical grade.

## 4. Properties

- 4.1 Reclaimed 1,1,2-trichloro 1,2,2-trifluoroethane Type I shall meet the requirements prescribed in Table 1.
- 4.2 Reclaimed 1,1,2-trichloro 1,2,2-trifluoroethane Type II shall meet the requirements prescribed in Table 2.
- 4.3 Reclaimed 1,1,2-trichloro 1,2,2-trifluoroethane Type III shall meet the requirements prescribed in Table 3.

## 5. Keywords

- 5.1 1,1,2-trichloro 1,2,2-trifluoroethane; CFC 113; Type I; Type II; Type III

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