



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

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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>

[D1064 Test Methods for Iron in Rosin Tall Oil Fatty Acids and Other Related Products](#) (Withdrawn 2002)<sup>4</sup>

[D2108 Test Method for Color of Halogenated Organic Solvents and Their Admixtures \(Platinum-Cobalt Scale\)](#)

[D2109 Test Methods for Nonvolatile Matter in Halogenated Organic Solvents and Their Admixtures](#)

[D2111 Test Methods for Specific Gravity and Density of Halogenated Organic Solvents and Their Admixtures](#)

<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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<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* volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>4</sup> The last approved version of this historical standard is referenced on [www.astm.org](http://www.astm.org).

[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](#)

[D3741 Test Methods for Appearance of Admixtures Containing Halogenated Organic Solvents](#)

[D6806 Practice for Analysis of 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.

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

**TABLE 1 Physical Properties Type I**

| Property   | Specification                        | Test Method    |
|--|--------------------------------------|----------------|
| Specific Gravity, 20/20                                  | 1.54 to 1.57                         | D2111          |
| Chloride, ppm, max                                       | 0.1                                  | D3443          |
| Acid number  | 0.003                                | D3444          |
| Non-volatile residue, ppm, max                           | 10                                   | D2109          |
| Water, ppm, max  | 25                                   | D3401 or D1064 |
| 1,1,2-trichloro 1,2,2-trifluoroethane content, wt %, min | 99.5                                 | D6806          |
| 1,1,1-trichloroethane content, wt %, max                 | 0.02                                 | D6806          |
| Color, Pt-Co, max  | 10                                   | D2108          |
| Appearance   | clear and free from suspended matter | D3741          |

**TABLE 2 Physical Properties Type II**

| Property   | Specification                        | Test Method    |
|--|--------------------------------------|----------------|
| Specific Gravity, 20/20                                  | 1.53 to 1.57                         | D2111          |
| Chloride, ppm, max                                       | 0.2                                  | D3443          |
| Acid number  | not tested                           | D3444          |
| Non-volatile residue, ppm, max                           | 20                                   | D2109          |
| Water, ppm, max  | 50                                   | D3401 or D1064 |
| 1,1,2-trichloro 1,2,2-trifluoroethane content, wt %, min | 99.0                                 | D6806          |
| 1,1,1-trichloroethane content, wt %, max                 | 0.05                                 | D6806          |
| Color, Pt-Co, max  | 10                                   | D2108          |
| Appearance   | clear and free from suspended matter | D3741          |

**TABLE 3 Physical Properties Type III**

| Property   | Specification                        | Test Method    |
|--|--------------------------------------|----------------|
| Specific Gravity, 20/20                                  | 1.52 to 1.57                         | D2111          |
| Chloride, ppm, max                                       | 0.2                                  | D3443          |
| Acid number  | not tested                           | D3444          |
| Non-volatile residue, ppm, max                           | 25                                   | D2109          |
| Water, ppm, max  | 100                                  | D3401 or D1064 |
| 1,1,2-trichloro 1,2,2-trifluoroethane content, wt %, min | 98.0                                 | D6806          |
| 1,1,1-trichloroethane content, wt %, max                 | 0.1                                  | D6806          |
| Color, Pt-Co, max  | 25                                   | D2108          |
| Appearance   | clear and free from suspended matter | D3741          |

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