



Standard Specification for Reclaimed Perchloroethylene^{1,2}

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1. Scope

1.1 This specification covers the grade of perchloroethylene typically needed in various industries for noncritical applications, such as in metal cleaning formulations. It is not recommended for dry cleaning applications (see Specification D 4081). It may be used as a reference document by purchasers or by persons establishing in-house perchloroethylene recovery programs.

2. Referenced Documents

2.1 ASTM Standards:

- D 2108 Test Method for Color of Halogenated Organic Solvents and Their Admixtures (Platinum-Cobalt Scale)³
- D 2109 Test Methods for Nonvolatile Matter in Halogenated Organic Solvents and Their Admixtures³
- D 2111 Test Methods for Specific Gravity of Halogenated Organic Solvents and Their Admixtures³
- D 2942 Test Method for Total Acid Acceptance of Halogenated Organic Solvents (Nonreflux Methods)³
- D 2988 Test Method for Water-Soluble Halide Ion in Halogenated Organic Solvents and Their Admixtures³
- D 2989 Test Method for Acidity-Alkalinity of Halogenated Organic Solvents and Their Admixtures³
- D 3401 Test Methods for Water in Halogenated Organic Solvents and Their Admixtures³
- D 3447 Test Method for Purity of Halogenated Organic Solvents³
- D 3741 Test Method for Appearance of Admixtures Containing Halogenated Organic Solvents³
- D 4081 Specification for Drycleaning-Grade Perchloroethylene³

D 5320 Test Methods for Determination of 1,1,1,-Trichloroethane and Methylene Chloride Content in Stabilized Trichloroethylene and Tetrachloroethylene³

E 1064 Test Method for Water in Organic Liquids by Coulometric Karl Fischer Titration³

2.2 Other Documents:

- 29 CFR 1910.1200 Department of Labor, OSHA Regulations, Hazard Communication⁴
- 49 CFR 100 to 199 Department of Transportation Hazardous Materials Regulations⁴

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 perchloroethylene, Type I, shall meet the requirements of Table 1.

4.2 Reclaimed perchloroethylene, Type II, shall meet the requirements of Table 2.

4.3 Reclaimed perchloroethylene, Type III, shall meet the requirements of Table 3.

5. Packaging and Package Marking

5.1 Industrial or commercial quantities shall be packaged and labeled in accordance with DOT regulations as found in 49 CFR 100 to 199, in accordance with state and local regulations, and in accordance with OSHA regulations found in 29 CFR 1919.1200.

6. Keywords

6.1 halogenated solvent; perchlor.; perchloroethylene, Types I, II, and III; perk; reclaimed

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² Tetrachloroethylene: CAS #127-18-4.

³ *Annual Book of ASTM Standards*, Vol 15.05.

⁴ *Code of Federal Regulations*, available from the Superintendent of Documents, Government Printing Office, Washington, DC 20402.

TABLE 1 Properties, Type I

Property	Specification	Test Method
Specific gravity, 25/25	1.60 to 1.62	D 2111
Chloride, ppm, max	1.0	D 2988
Nonvolatile residue, ppm, max	10	D 2109
Water, ppm, max	25	D 3401 or E 1064
Assay, weight %	99.5	D 3447
1,1,1-Trichloroethane content, weight %, max	0.02	D 5320
Color, Pt-Co, max	10	D 2108
Appearance	clear and free from suspended matter	D 3741
Acid acceptance, as NaOH, weight %, min	0.16	D 2942
Acidity, as HCl, ppm, max	1.0	D 2989

TABLE 2 Properties, Type II

Property	Specification	Test Method
Specific gravity, 25/25	1.60 to 1.62	D 2111
Chloride, ppm, max	1.0	D 2988
Nonvolatile residue, ppm, max	20	D 2109
Water, ppm, max	50	D 3401 or E 1064
Assay, weight %	99.0	D 3447
1,1,1-Trichloroethane content, weight %, max	0.05	D 5320
Color, Pt-Co, max	10	D 2108
Appearance	clear and free from suspended matter	D 3741
Acid acceptance, as NaOH, weight %, min	0.16	D 2942
Acidity, as HCl, ppm, max	1.0	D 2989

TABLE 3 Properties, Type III

Property	Specification	Test Method
Specific gravity, 25/25	1.59 to 1.62	D 2111
Chloride, ppm, max	1.0	D 2988
Nonvolatile residue, ppm, max	25	D 2109
Water, ppm, max	100	D 3401 or E 1064
Assay, weight %	97.0	D 3447
1,1,1-Trichloroethane content, weight %, max	0.5	D 5320
Color, Pt-Co, max	25	D 2108
Appearance	clear and free from suspended matter	D 3741
Acid acceptance, as NaOH, weight %, min	0.16	D 2942
Acidity, as HCl, ppm, max	1.0	D 2989

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