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Standard Specification for Reclaimed Trichloroethylene[1]

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1. Scope

1.1 This specification covers the grades of trichloroethylene[2] typically needed in various industries for noncritical applications such as in metal cleaning formulations. It may be used as a reference document by purchasers or persons establishing in-house trichloroethylene recovery programs.

2. Referenced Documents

2.1 *ASTM Standards:*

D 1064 Test Method for Water in Organic Liquids by Coulometric Karl Fischer Titration[3]

D 2108 Test Method for Color of Halogenated Organic Solvents and Their Admixtures (Platinum-Cobalt Scale)[4]

D 2109 Test Methods for Nonvolatile Matter in Halogenated Organic Solvents and Their Admixtures[4]

D 2111 Test Methods for Specific Gravity of Halogenated Organic Solvents and Their Admixtures[4]

D 2942 Test Method for Total Acid Acceptance of Halogenated Organic Solvents (Nonreflux Methods)[4]

D 2989 Test Method for Acidity-Alkalinity of Halogenated Organic Solvents and Their Admixtures[4]

D 3401 Test Methods for Water in Halogenated Organic Solvents and Their Admixtures[4]

D 3447 Test Method for Purity of Halogenated Organic Solvents[4]

D 3741 Test Method for Appearance of Admixtures Containing Halogenated Organic Solvents[4]

D 5320 Test Methods for Determination of 1,1,1-Trichloroethane and Methylene Chloride Content in Stabilized Trichloroethylene and Tetrachloroethylene[4]

2.2 *Code of Federal Regulations:*[5]

29 CFR 1910.1200 Department of Labor, OSHA Regulations, Hazard Communication

49 CFR Parts 100 to 199 Department of Transportation Hazardous Materials Regulations

TABLE 1 Properties, Type I

Property	Specification	Test Method
Specific gravity, 25/25	1.45 to 1.46	D 2111
Nonvolatile residue, ppm, max	50	D 2109
Water, ppm, max	100	D 3401 or D 1064
Assay, wt %	99.5	D 3447
1,1,1 trichloroethane content, wt %, max	0.02	D 5320
Color, Pt-Co, max	20	D 2108
Appearance	clear and free from suspended matter	D 3741
Acid acceptance, as NaOH, wt %, min	0.16	D 2942
Acidity, as HCl, ppm, max	1.0	D 2989

3. Classification

3.1 *Type I*—Generally recognized for use in precision applications.

TABLE 2 Properties, Type II

Property	Specification	Test Method
Specific gravity, 25/25	1.44 to 1.47	D 2111
Nonvolatile residue, ppm, max	50	D 2109
Water, ppm, max	100	D 3401 or D 1064
Assay, wt %	99.0	D 3447
1,1,1 trichloroethane content, wt %, max	0.05	D 5320
Color, Pt-Co, max	20	D 2108
Appearance	clear and free from suspended matter	D 3741
Acid acceptance, as NaOH, wt %, 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	1.43 to 1.48	D 2111
Nonvolatile residue, ppm, max	50	D 2109
Water, ppm, max	150	D 3401 or D 1064
Assay, wt %	97.0	D 3447
1,1,1 trichloroethane content, wt %, max	0.5	D 5320
Color, Pt-Co, max	35	D 2108
Appearance	clear and free from suspended matter	D 3741
Acid acceptance, as NaOH, wt %, min	0.20	D 2942
Acidity, as HCl, ppm, max	1.0	D 2989

[1] 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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[2] Trichloroethylene: CAS No. 79-01-6.

[3] *Annual Book of ASTM Standards*, Vol 06.03.

[4] *Annual Book of ASTM Standards*, Vol 15.05.

[5] Available from the Superintendent of Documents, U. S. Government Printing Office, Washington, DC 20402.

3.2 *Type II*—Use for less-demanding precision applications.

3.3 *Type III*—May not be suitable for all applications.

4. Properties

4.1 Type I reclaimed trichloroethylene shall meet the requirements of Table 1.

4.2 Type II reclaimed trichloroethylene shall meet the requirements of Table 2.

4.3 Type III reclaimed trichloroethylene shall meet the requirements of Table 3.

5. Packaging

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; reclaimed; TCE; tri; trichloroethylene—Types I, II, and III