



Standard Guide for Testing Poly(Vinyl Chloride) Resins¹

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ε¹ NOTE—Keywords were added editorially in October 1996.

1. Scope

1.1 This guide covers test methods for poly(vinyl chloride) resins and vinyl chloride copolymers for use in coatings applications. The test methods listed in Table 1 were tested by interlaboratory participation in accordance with ASTM guidelines. Also included are methods useful to test the suitability of resins for use in fluid nonaqueous vinyl dispersions.

1.2 *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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

- D 1243 Test Method for Dilute Solution Viscosity of Vinyl Chloride Polymers²
- D 1705 Test Method for Particle Size Analysis of Powdered Polymers and Copolymers of Vinyl Chloride²
- D 1755 Specification for Poly(Vinyl Chloride) Resins²
- D 1823 Test Method for Apparent Viscosity of Plastisols and Organosols at High Shear Rates by Extrusion Viscometer²
- D 1824 Test Method for Apparent Viscosity of Plastisols and Organosols at Low Shear Rates by Brookfield Viscometer²
- D 1895 Test Methods for Apparent Density, Bulk Factor, and Pourability of Plastic Materials²
- D 1921 Test Method for Particle Size (Sieve Analysis) of Plastic Materials²
- D 2196 Test Methods for Rheological Properties of Non-Newtonian Materials by Rotational (Brookfield) Viscometer³
- D 2222 Test Method for Methanol Extract of Vinyl Chloride Resins²
- D 3030 Test Method for Volatile Matter (Including Water)

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² Annual Book of ASTM Standards, Vol 08.01.

³ Annual Book of ASTM Standards, Vol 06.01.

TABLE 1 Test Methods for Vinyl Chloride Resins

Method	Section	ASTM Designation
Viscosity, dilute solution	5	D 1243
Particle size (sieve analysis)	11	D 1705
Poly(vinyl chloride) resins, specification	6	D 1755
Viscosity, vinyl dispersions, high shear		6D 1823
Viscosity vinyl dispersions, low shear	6	D 1824
Apparent density	10	D 1895
Particle size (sieve analysis)	11	D 1921
Methanol extract	7	D 2222
Volatile content	8	D 3030
Residual VC1 monomer-solution technique	9	D 3680
Residual VC1 monomer-head space technique	9	D 3749
Viscosity, high shear, cone and plate	6	D 4287
Total chlorine content	4	E 442

of Vinyl Chloride Resins⁴

D 3205 Test Method for Viscosity of Asphalt with Cone and Plate Viscometer⁵

D 3680 Test Method for Residual Vinyl Chloride Monomer Content of Poly(Vinyl Chloride) Resins, Compounds, and Copolymers by Solution Injection Technique⁶

D 3749 Test Method for Residual Vinyl Chloride Monomer in Poly(Vinyl Chloride) Homopolymer Resins by Gas Chromatographic Head Space Technique⁴

D 4287 Test Method for High-Shear Viscosity Using the ICI Cone/Plate Viscometer³

E 442 Test Method for Chlorine, Bromine, or Iodine in Organic Compounds by Oxygen Flask Combustion⁷

3. Significance and Use

3.1 The test methods listed and discussed in this guide are used to determine the purity and physical properties of poly(vinyl chloride) and vinyl chloride copolymers. This information is useful to polymer producers and coatings manufacturers.

4. Total Chlorine Content

4.1 The determination of the total chlorine in vinyl chloride homopolymers and copolymers is useful for the compositional

⁴ Annual Book of ASTM Standards, Vol 08.02.

⁵ Annual Book of ASTM Standards, Vol 04.03.

⁶ Annual Book of ASTM Standards, Vol 06.03.

⁷ Annual Book of ASTM Standards, Vol 03.05.