



Standard Test Method for Resin Solution Dilutability by Volumetric/Gravimetric Determination¹

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1. Scope

1.1 This test method covers both volumetric and gravimetric determination of resin solution dilutability which gives a numerical value for the overall solubility of the resin expressed as percent dilutability.

1.2 This test method is applicable only if the test solution is of sufficient clarity to allow accurate visual judgement of the end point and of low enough viscosity for efficient mixing to take place.

1.3 This test method is primarily for, but not limited to, resins used in the printing ink industry.

1.4 The percent solvent tolerance of a resin can be determined using this test method if the solvent in the resin solution and the dilution solvent are the same.

1.5 *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 1725 Test Method for Viscosity of Resin Solutions²

E 1 Specification for ASTM Thermometers³

3. Terminology

3.1 Definition of Term Specific to This Standard:

3.1.1 *resin solution dilutability*—the maximum amount of diluent tolerated to reach a defined degree of turbidity; beyond this point, resin precipitation will occur.

4. Summary of Test Method

4.1 A sample of resin solution is weighed into a glass beaker that is placed over a piece of 10 point print (standard newspaper print).

4.2 The dilution solvent is added slowly from a buret until

the newsprint can no longer be read (cloud point) when viewed from the top of the beaker.

4.3 The solvent dilutability is calculated by weight, or volume.

5. Significance and Use

5.1 This test method provides a means for resin producers and users as well as solvent and varnish manufacturers to rate various types of resins for solubility by assigning a numerical dilutability value. This percent dilutability value can be used to differentiate resin types for end users and can be utilized as a quality control tool by resin manufacturers.

5.2 When running a series of these tests the same lot or batch of dilution solvent must be used throughout to ensure reproducible results.

6. Apparatus

6.1 *Glass Beaker*, 150-mL (51-mm diameter, 79-mm height).

6.2 *Graduated Buret*, 50 mL.

6.3 *Constant Temperature Water Bath* at 25°C.

6.4 *Thermometer*, 0 to 40°C range with subdivisions of 0.5°C conforming to Specification E 1.

6.5 *Magnetic Stirring Bar and Stirring Plate or Stirring Rod*.

6.6 *Sheet of Newsprint*, with 10-point (Note), No. 31 old-style type, lower case letters 1.5-mm high with normal spacing, upper and lower case with no italicized or bold letters.

NOTE 1—The term point is derived from the American Point System. 72 points = 1 in.

7. Reagents and Materials

7.1 *Resin Solution*—A resin solution prepared in such a way as to provide an accurate percent solids and to have sufficient clarity to allow accurate visual judgment of the cloud point. The solution must also have low enough viscosity at 25°C to allow efficient mixing during the addition of the dilution solvent.

7.2 *Dilution Solvent*—The dilution solvent for this test is typically, but not limited to, a hydrocarbon. The dilution solvent should have minimal loss by evaporation at room temperature, and be agreed upon between the purchaser and the supplier.

¹ This test method is under the jurisdiction of ASTM Committee D01 on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee D01.37 on Ink Vehicles.

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² *Annual Book of ASTM Standards*, Vol 06.03.

³ *Annual Book of ASTM Standards*, Vol 14.03.