Designation: D6887 – 03 (Reapproved 2013)

Standard Test Method for Testing Alkyd Compatibility with Resin or Resin Solutions[1]

This standard is issued under the fixed designation D6887; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method covers the procedure for determining the degree of compatibility of an alkyd with a specific resin or resin solution.

1.2 The most common use of this method is to test alkyd compatibility with a hydrocarbon resin or a solution of the resin in an aliphatic solvent, for lithographic ink vehicle applications.

1.3 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.4 *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:*[2]

D6038 Test Methods for Determining the Compatibility of Resin/Solvent Mixtures by Precipitation Temperature (Cloud Point)

3. Terminology

3.1 *Definitions:*

3.1.1 *compatibility, n*—resin and solvent mixture forms a clear, homogenous, and stable solution. **D6038**

3.1.2 *incompatibility, n*—resin and solvent mixture does not form a clear, homogenous, and stable solution.

4. Summary of Test Method

4.1 The required resin to alkyd ratio is mixed into a 150-mL beaker and heated to 160°C until clear and homogenous.

4.2 The solution is placed into pre-labeled jars and cooled.

4.3 Degree of compatibility is reported at 30 min and 24 h after cooling to room temperature.

5. Significance and Use

5.1 Incompatibility of the system can lead to loss of gloss, decreased color strength, rheological problems and grind issues in the flush or pigment base.

5.2 This method is used in the lithographic industry, especially in pigment wetting applications, where the alkyd may or may not be totally compatible with the resin selected for the application.

6. Apparatus

6.1 *Beakers,* 150 mL (4).

6.2 *Jars,* with lids, 4 oz (4).

6.3 *Balance,* capacity of at least 200 g, accurate to ±0.1 g.

6.4 *Hot Plate,* capable of heating to a minimum of 200°C.

6.5 *Thermometer,* 0 to 200°C, ±1°C.

6.6 *Spatula,* or stirrer rods.

7. Test Samples

7.1 Alkyd to be tested.

7.2 Resin or resin solution.

8. Procedure

8.1 Label each jar and beaker with the resin, alkyd and ratio being tested.

8.2 Weigh into the beaker the following materials:

Material	Ratio			
	2:1	3:1	4:1	5:1
Resin/Resin Solution	16.0g	18.0g	20.0g	20.0g
Alkyd	8.0g	6.0g	5.0g	4.0g

8.3 Place the beakers on the hot plate and heat to 160°C. Stir with spatula or stir rod until clear.

8.4 Pour the blend from each beaker into the appropriately labeled jar then cool to room temperature.

8.5 Wait 30 min then visually observe degree of clarity of each test sample.

[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] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

NOTE 1—Some applications may require a longer waiting time such as 24 h. If this is the case, record compatibility of the solution after 24 h.

9. Report

9.1 Report the highest ratio where the blend remained clear after 30 min or 24 h (time should be agreed upon by user of this test method and application).

9.2 If the mixtures are clear at all ratios tested, then the resin can be considered compatible to the highest ratio tested.

10. Precision and Bias[3]

10.1 An inter-laboratory study was conducted in which six laboratories tested the compatibility of two hydrocarbon resins with two alkyds. All laboratories agreed on the compatibility/incompatibility of each hydrocarbon resin with each alkyd. However, since the test is non-quantitative, it is not possible to compute repeatability, reproducibility or bias.

11. Keywords

11.1 aliphatic solvents; alkyds; compatibility; hydrocarbon resins; lithographic inks; pigment wettings; resin solutions

[3] Supporting data have been filed at ASTM International Headquarters and may be obtained by requesting Research Report RR:D01-1128.