



Standard Test Method for Fluid and Grease Resistance of Thermoset Encapsulating Compounds Used in Electronic and Microelectronic Applications¹

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1. Scope

1.1 This test method determines the resistance of encapsulating compounds to fluids or greases by measuring changes in weight (Note 1) and volume under defined conditions of time and temperature.

NOTE 1—To provide consistency with the usage in other ASTM test methods concerned with determining the properties of plastic materials, the terms “weight” and “weigh” are used in this test method although the units of measurement are those of mass.

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.* See 9.1.

1.3 The values stated in SI units are standard. The values in parentheses are for information only.

2. Referenced Documents

2.1 ASTM Standards:

D 1193 Specification for Reagent Water²

D 1711 Terminology Relating to Electrical Insulation³

D 5423 Specification for Forced-Convection Laboratory Ovens for Evaluation of Electrical Insulation⁴

D 6054 Practice for Conditioning Electrical Insulating Materials for Testing⁴

3. Terminology

3.1 See Terminology D 1711 for definitions of terms relating to electrical insulation.

4. Summary of Test Method

4.1 Specimens of encapsulating compound are immersed in fluids or greases for specified conditions of temperature and

time. The weight and volume of each specimen is measured before and after immersion and percent change is reported.

4.2 The fluids and greases to be used as test media (8.3) are not specified by the test method and shall be agreed to by the parties to the test.

5. Significance and Use

5.1 Fluids and greases in contact with encapsulating compounds may adversely modify the encapsulant properties with resulting damage or loss of protection to components in electronic applications.

5.2 This test method provides a means for measuring the effect of fluids and greases on various encapsulants.

5.3 This test method is intended for use in research and evaluation.

6. Interferences

6.1 Test results obtained with molded or cast specimens of filled encapsulating compounds will differ from those obtained with cut or machined specimens (because of exposed fillers in the latter).

6.2 Lack of complete contact between the test medium and the surfaces of the specimen may seriously affect the results of the test.

6.3 Some encapsulants may be affected by the reagents specified for use in removing the test media from the specimens. Alternative reagents may be required, as agreed upon by the parties to the test.

7. Apparatus

7.1 *Analytical Balance*, capable of determining weight to the nearest 0.001 g.

7.2 *Oven*, forced-convection type meeting the requirements of Specification D 5423, Type I.

7.3 *Glass Dishes*, of sufficient diameter for specimens to be exposed horizontally, and of sufficient height for specimens to be completely covered by the test medium. A loose-fitting glass cover shall be provided for each dish (see 13.3).

8. Reagents and Materials

8.1 Use the following materials:

8.1.1 *Acetone*.

¹ This test method is under the jurisdiction of ASTM Committee D-9 on Electrical and Electronic Insulating Materials and is the direct responsibility of Subcommittee D09.01 on Electrical Insulating Varnishes, Powders, and Encapsulating Compounds.

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² *Annual Book of ASTM Standards*, Vol 11.01.

³ *Annual Book of ASTM Standards*, Vol 10.01.

⁴ *Annual Book of ASTM Standards*, Vol 10.02.