Designation: D5282 – 05

Standard Test Methods for Compatibility of Construction Material with Silicone Fluid Used for Electrical Insulation[1]

This standard is issued under the fixed designation D5282; 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 These test methods cover screening for the compatibility of construction materials with silicone fluid for use in electrical equipment.

1.2 The values stated in SI units are to be regarded as the standard.

1.3 *This standard does not purport to address all of the safety problems, 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]

D92 Test Method for Flash and Fire Points by Cleveland Open Cup Tester

D445 Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and Calculation of Dynamic Viscosity)

D664 Test Method for Acid Number of Petroleum Products by Potentiometric Titration

D828 Test Method for Tensile Properties of Paper and Paperboard Using Constant-Rate-of-Elongation Apparatus[3]

D877 Test Method for Dielectric Breakdown Voltage of Insulating Liquids Using Disk Electrodes

D924 Test Method for Dissipation Factor (or Power Factor) and Relative Permittivity (Dielectric Constant) of Electrical Insulating Liquids

D974 Test Method for Acid and Base Number by Color-Indicator Titration

D1169 Test Method for Specific Resistance (Resistivity) of Electrical Insulating Liquids

D1933 Specification for Nitrogen Gas as an Electrical Insulating Material

D2129 Test Method for Color of Clear ElectricalInsulating Liquids (Platinum-Cobalt Scale)

D2225 Test Methods for Silicone Fluids Used for Electrical Insulation

D2413 Practice for Preparation of Insulating Paper and Board Impregnated with a Liquid Dielectric

D3612 Test Method for Analysis of Gases Dissolved in Electrical Insulating Oil by Gas Chromatography

D4243 Test Method for Measurement of Average Viscometric Degree of Polymerization of New and Aged Electrical Papers and Boards

D4559 Test Method for Volatile Matter in Silicone Fluid

D4652 Specification for Silicone Fluid Used for Electrical Insulation

D5837 Test Method for Furanic Compounds in Electrical Insulating Liquids by High-Performance Liquid Chromatography (HPLC)

3. Significance and Use

3.1 The magnitude of the changes in the electrical properties of the silicone fluid is of importance in determining the contamination of the fluid by the test specimen.

3.2 Physical and chemical changes in the fluid, such as color and acidity, also indicate solubility or other adverse effects of the test specimen on the fluid.

3.3 Physical changes of the test specimen, such as hardness, swelling, and discoloration, show the effect of the fluid on the test specimen and are used to determine the suitability of the material for use in silicone fluid.

3.4 A material meeting the criteria recommended does not necessarily indicate suitability for use in electrical equipment. Other properties must also be considered. Additionally, certain materials containing additives may meet the requirements of these test methods yet be unsatisfactory when subjected to longer-term evaluations.

[1] These test methods are under the jurisdiction of ASTM Committee D27 on Electrical Insulating Liquids and Gases and are the direct responsibility of Subcommittee D27.06 on Chemical Test.

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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.

[3] Withdrawn. The last approved version of this historical standard is referenced on www.astm.org.