Designation: D4283 – 98 (Reapproved 2015)

Standard Test Method for Viscosity of Silicone Fluids[1]

This standard is issued under the fixed designation D4283; 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 measurement of the kinematic viscosity of silicone fluids for polish applications.

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

1.3 *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 consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

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

3. Significance and Use

3.1 The viscosity of silicone fluids is typically measured by kinematic viscosity. Test Method D445 describes the basics and background for this measurement. The purpose of this test method is to set forth specific conditions and recommend apparatus for measuring viscosity of silicone fluids.

4. Apparatus

4.1 *Viscometer Recommendations:*

4.1.1 *Ostwald Viscometer*—up to 5000 cSt.

4.1.2 *Ubbelohde Viscometer*—up to 100 000 cSt.

4.1.3 *Cannon Fenski*—up to 5000 cSt.

4.2 *Constant Temperature Bath,* of 25 ± 0.2 °C.

4.3 *Cleaning Solution for Viscometers,* such as toluene, alcoholic KOH.

4.4 *Fluid Standards,* for calibrating viscometers.

4.5 *Stopwatch.*

5. Preparation of Sample

5.1 After charging the fluid to the selected viscometer and placing it in the constant temperature bath, keep in bath for a minimum of 15 min to reach the proper temperature level.

6. Calibration and Standardization

6.1 *Viscometer Constant (F)*—Consult the manufacturer's instructions for calibrating individual viscometers.

7. Procedure

7.1 Follow manufacturer's directions for using their viscometers.

8. Calculation

8.1 Calculate the viscosity of silicone fluids as follows:

$$\text{Efflux Time (s)} \times \text{Viscometer Constant (F)} = \text{Viscosity (cSt)}$$

9. Precision and Bias

9.1 *Precision*—Duplicate results by the same operator shall not be considered suspect unless the differ by more than ±5 %.

9.2 *Bias*—This test has no bias because the values produced are defined only in terms of this test method.

10. Keywords

10.1 Ostwald viscometer; polish; silicone fluids; silicone oil; viscosity

[1] This test method is under the jurisdiction of ASTM Committee D21 on Polishes and is the direct responsibility of Subcommittee D21.02 on Raw Materials.

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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.