Designation: D 6054 – 97

An American National Standard

Standard Practice for Conditioning Electrical Insulating Materials for Testing[1]

This standard is issued under the fixed designation D 6054; 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 practice covers procedures for conditioning electrical insulating materials (although not necessarily to equilibrium) prior to testing and the conditions under which they shall be tested. In general the physical and electrical properties of electrical insulating materials are influenced by temperature and relative humidity in a manner that materially affects test results. In order that reliable comparisons may be made of different materials and between different laboratories, it is necessary to standardize the humidity and temperature conditions to which specimens of these materials are subjected prior to and during testing.

1.2 This practice is similar to Practice D 618.

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

2. Referenced Documents

2.1 *ASTM Standards:*

D 618 Practice for Conditioning Plastics for Testing[2]

D 709 Specification for Laminated Thermosetting Materials[3]

D 1711 Terminology Relating to Electrical Insulation[3]

D 5032 Practice for Maintaining Constant Relative Humidity by Means of Aqueous Glycerin Solutions[4]

3. Terminology

3.1 *Definitions:*

3.1.1 *room temperature*, *n*—a temperature in the range from 20 to 30°C.

3.1.2 *standard laboratory atmosphere*, *n*— an atmosphere having a temperature of 23 ± 2°C and a relative humidity of 50 ± 5 %.

3.1.2.1 *Discussion*—Where closer tolerances on atmospheric conditions are required, ± 1°C on temperature or ±2 % on relative humidity, or both, may be specified.

3.1.3 *standard laboratory temperature*, *n*— a temperature of 23 ± 2°C.

3.1.4 For definitions of other terms relating to electrical insulating materials, refer to Terminology D 1711.

4. Significance and Use

4.1 Conditioning of specimens may be undertaken: (*1*) for the purpose of bringing the material into equilibrium with normal or average room conditions; (*2*) simply to obtain reproducible results; or (*3*) to subject the material to abnormal conditions of temperature or humidity in order to predict its service behavior. However, it is not within the scope of this practice to define procedures for determining aging characteristics of electrical insulating materials.

4.2 The conditioning procedures prescribed in this practice are designed to obtain reproducible results and may give values somewhat different from values under equilibrium at normal conditions, depending upon the particular material and test. To ensure substantial equilibrium under normal conditions of humidity and temperature, however, may require many days or weeks depending upon thickness and type of material and its previous history. Consequently, conditioning for reproducibility must of necessity be used for general purchase and product control tests.

4.3 Any reference to this practice must include the information needed for designating the conditioning procedure (and testing procedure, if applicable), as defined in Section 7, or one of the standard conditioning procedures to be followed, as defined in Section 8.

5. Sampling

5.1 Sample in accordance with the ASTM or other test method or specification for the specific properties to be determined.

6. Test Specimens

6.1 Prepare test specimens of the quantity and type specified in the referencing standard for the properties to be determined.

[1] This practice is under the jurisdiction of ASTM Committee D-9 on Electrical and Electronic Insulating Materials and is the direct responsibility of Subcommittee D09.12 on Electrical Tests .

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[2] *Annual Book of ASTM Standards*, Vol 08.01.

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

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