Designation: D 4963 – 99

Standard Test Method for Ignition Loss of Glass Strands and Fabrics[1]

This standard is issued under the fixed designation D 4963; 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 primarily the determination of ignition loss of glass textiles produced from E and S classification glass fiber. This method applies to glass fiber strands, twisted or untwisted, coated or uncoated; and fabrics, woven, nonwoven, knitted, coated, and uncoated. This procedure may be applied to other glass textiles where the amount of organic content obtained by ignition loss is required.

NOTE 1—This test method may be used with other glass fiber classifications, such as C or D, but a different ignition temperature and exposure time may be required. In these cases the manufacturer should be consulted for the appropriate ignition conditions.

1.2 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in nonconformance with the 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 establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*

D 123 Terminology Relating to Textiles[2]

D 578 Specification for Glass Fiber Strands[2]

D 1776 Practice for Conditioning Textiles for Testing[2]

3. Terminology

3.1 *Definitions:*

3.1.1 *ignition loss, n— in glass textiles*, the amount of organic material consumed by ignition.

3.1.2 For definitions of other textile terms used in this test method, refer to Terminology D 123. For information on the designation of construction of glass strands, refer to Specification D 578.

4. Summary of Test Method

4.1 The organic content on glass textiles is determined by weighing the specimen before and after ignition. The amount of ignition loss on a sample is reported as a percentage of the mass before ignition.

5. Significance and Use

5.1 This test method is considered satisfactory for acceptance testing of commercial shipments because current estimates of between-laboratory precision are acceptable.

5.1.1 In cases of a dispute arising from differences in reported test results when using this test method for acceptance testing of commercial shipments, the purchaser and the supplier should conduct comparative tests to determine if there is a statistical bias between their laboratories. Competent statistical assistance is recommended for the investigation of bias. As a minimum, the two parties should take a group of test specimens which are as homogeneous as possible and which are from a lot of material of the type in question. The test specimens should then be randomly assigned in equal numbers to each laboratory for testing. The average results from the two laboratories should be compared using Student's *t*-test for unpaired data and an acceptable probability level chosen by the two parties before the testing begins. If a bias is found, either its cause must be found and corrected or the purchaser and the supplier must agree to interpret future test results in the view of the known bias.

5.2 Glass textiles are provided with various sizings or coatings. These provide a protection for the individual fibers, yarns, or fabric that may compose the glass textile as well as compatibility with further finishing requirements. The amount of sizing or coating on glass textiles as determined by this procedure is used for process control.

6. Apparatus and Materials

6.1 *Reel*—A hand- or motor-driven reel having at least a 1-m (1-yd) perimeter. The reel shall be fitted with a traversing mechanism that will avoid bunching the successive wraps, and with an indicator of the length wound. A warning bell that will ring at a specified length is recommended. It is advisable that

[1] This test method is under the jurisdiction of ASTM Committee D-13 on Textiles and is the direct responsibility of Subcommittee D13.18 on Glass Fiber and Its Products.

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[2] *Annual Book of ASTM Standards*, Vol 07.01.

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