Designation: D 6797 – 02

Standard Test Method for Bursting Strength of Fabrics Constant-Rate-of-Extension (CRE) Ball Burst Test[1]

This standard is issued under the fixed designation D 6797; 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 describes the measurement for bursting strength of woven and knitted textiles taken from rolls of fabric or fabric taken from garments.

NOTE 1—For the measurement of bursting strength with a hydraulic testing machine, refer to Test Method D 3786.

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.*

2. Referenced Documents

2.1 *ASTM Standards:*

D 76 Specification for Tensile Testing Machines for Textiles[2]

D 123 Terminology Relating to Textiles[2]

D 1776 Practice for Conditioning Textiles for Testing[2]

D 3786 Test Method for Hydraulic Bursting Strength of Knitted Goods and Nonwoven Fabrics—Diaphragm Bursting Strength Tester Method[3]

D 3787 Test Method for Bursting Strength of Knitted Goods—Constant Rate of Traverse (CRT) Ball Burst Test[3]

3. Terminology

3.1 *Definitions:*

3.1.1 *bursting strength*, *n*—the force or pressure required to rupture a textile by distending it with a force, applied at right angles to the plane of the fabric, under specified conditions.

3.1.1.1 *Discussion*—The angle of application of force, and the area of the fabric upon which the force is applied varies continuously as the fabric stretches when it is tested as directed in this method.

3.1.2 *constant-rate-of-extension tensile testing machine (CRE)*, *n*—a testing machine in which the rate of increase of the specimen length is uniform with time.

3.1.3 *fabric*, *n*—in textiles, planar structure consisting of yarns or fibers.

3.2 For definitions of other textile terms used in this method refer to Terminology D 123.

4. Summary of Test Method

4.1 Setup the tensile tester for performing the ball burst test in accordance with the manufacture's instructions. A specimen of the fabric is securely clamped to the CRE machine without tension to the ball burst attachment. A force is exerted against the specimen by a polished, hardened steel ball until rupture occurs.

5. Significance and Use

5.1 This method is used to determine the force required to rupture textile fabric by forcing a steel ball through the fabric with a constant-rate-of-extension tensile tester.

5.2 This is a new method and therefore the history of data is very small, however the agreement of within- laboratory data suggest this method may be considered for acceptance testing of commercial shipments with caution.

5.2.1 If there are differences of practical significance between reported test results for two laboratories (or more), comparative test should be performed to determine if there is a statistical bias between them, using competent statistical assistance. As a minimum, samples used for such comparative test should be as homogeneous as possible, drawn from the same lot of material as the samples that resulted in disparate results during initial testing, and randomly assigned in equal numbers to each laboratory. Other fabrics with established test values may also be used for these comparative test. The test results from the laboratories involved should be compared using a statistical test for unpaired data, at a probability level chosen prior to the testing series. If bias is found, either its cause must be found and corrected, or future test results for that fabric must be adjusted in consideration of the known bias.

[1] This test method is under the jurisdiction of ASTM Committee D13 on Textiles and is the direct responsibility of Subcommittee D13.59 on Fabric Test Methods, General.

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

[3] *Annual Book of ASTM Standards*, Vol 07.02.