



Designation: D 6242 – 98

Standard Test Method for Mass Unit Area of Nonwoven Fabrics¹

This standard is issued under the fixed designation D 6242; 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 determination of mass/unit area of all nonwoven fabrics.

1.2 The values stated in SI units or inch-pound units shall be regarded separately as the standard. The values stated in each system may not be exact equivalents; therefore, each system must be used independently of the other, without combining values in any way.

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 Textiles²](#)

[D 1776 Practice for Conditioning Textiles for Testing²](#)

[E 177 Practice for Use of the Terms Precisions and Bias in ASTM Test Methods³](#)

[E 691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method³](#)

3. Terminology

3.1 *Definitions:* For definitions of other textile terms used in this test method, refer to Terminology D 123.[D 123](#)

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *nonwoven fabric, n*—a textile structure produced by bonding or interlocking of fibers, or both, accomplished by mechanical, chemical, thermal, or solvent means or by a combination thereof.

4. Summary of Test Method

4.1 A specimen of specified area is weighed and the mass/unit area calculated.

5. Significance and Use

5.1 This test method determines the ratio of mass/unit area of any nonwoven fabric. Many properties of nonwovens, including strength, thickness, porosity, tearing strength, and others are influenced by changes in mass/unit area. For this reason, many nonwovens specifications include targets and limits for this property, which may be verified using this procedure. Also, it is a useful procedure to use in controlling production of nonwovens and verifying the property of the material being delivered to the customer.

5.2 The procedure in this test method may be used for acceptance testing of commercial shipments, but caution is advised since information about between-laboratory precision is incomplete. Comparative tests in accordance with [5.2.1](#) are advisable.

5.2.1 In case of a dispute arising from differences in reported test results when using the procedures in this test method for acceptance testing of commercial shipments, the purchaser and the manufacturer 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 that are as homogeneous as possible and which are from a lot of material of the type in question. The test specimen then should be randomly assigned in equal numbers to each laboratory for testing. The average results from the two laboratories should be compared using the appropriate Student's *t*-test and an acceptable probability level chosen by the two parties before testing is begun. If a bias is found, either its cause must be found and corrected or the purchaser and the manufacturer must agree to interpret future test results with consideration to the known bias.

6. Apparatus

6.1 *Balance*, having a weighing accuracy of ± 0.0002 g.

6.2 *Steel Rule*, at least 30 cm (12 in.) in length, with subdivisions of 0.5 mm (0.02 in.).

NOTE 1—The use of cutting dies of known dimensions is recommended for cutting the test specimens required in [7.3](#).

¹ This test method is under the jurisdiction of ASTM Committee D 13 on Textiles and is the direct responsibility of Subcommittee D13.64 on Non-Woven Fabric. Current edition approved April 10, 1998. Published September 1998.

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

³ *Annual Book of ASTM Standards*, Vol 14.02.