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Standard Test Method for Moisture in Cotton by Oven-Drying[1]

This standard is issued under the fixed designation D 2495; 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.

ε[1] NOTE—Editorial changes were made throughout March 1993.

1. Scope

1.1 This test method covers the determination of the amount of moisture in cotton by oven-drying and is applicable to raw cotton, cotton stock in process, and cotton waste.

1.2 This test method may also, by agreement, be used for determining moisture in blends of cotton with other fibers.

1.3 This test method offers alternative procedures for weighing the dried specimens, one procedure using an oven balance (12.3) and the other using a desiccator (12.4).

NOTE 1—For other methods of determination of moisture in textile materials refer to Test Method D 2654, which includes two options based on drying in an oven, and one option based on distillation with an immiscible solvent: Methods D 885, Test Method D 1576, Test Method D 2462.

1.4 The values stated in SI units are to be regarded as the standard.

1.5 *This standard does not purport to address all of the safety problems, 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 885 Methods of Testing Tire Cords, Tire Cord Fabrics, and Industrial Filament Yarns Made from Man-Made Organic-Base Fibers[2]

D 1576 Test Method for Moisture in Wool by OvenDrying[2]

D 2462 Test Method for Moisture in Wool by Distillation with Toluene[2]

D 2654 Test Methods for Moisture in Textiles[2]

3. Terminology

3.1 *Definitions:*

3.1.1 *cotton waste*, *n*—material removed from seed cotton, ginned lint, or stock in process by any cleaning or processing machinery and usually consisting of undesirable fibers or of a mixture of cotton fibers with foreign matter.

3.1.2 *ginned lint (cotton)*, *n*—cotton fibers that have been separated from their seeds by ginning but not subjected to any further processing after ginning.

3.1.2.1 *Discussion*—"Ginned lint" and "raw cotton" are synonymous; the same material that is called "ginned lint" at the ginnery (to distinguish it from seed cotton) is called "raw cotton" when it is received at a textile mill. "Lint cotton" may be either raw or processed.

3.1.3 *lint cotton*, *n*—loose cotton fibers in any form, either raw or processed, free of seeds and not bound together in yarn or fabric.

3.1.4 *moisture content*, *n*—the amount of water in a material determined under prescribed conditions and expressed as a percentage of the mass of the moist material; that is, the original mass comprising the dry substance plus any water present.

3.1.4.1 *Discussion*—The word "water" as used in these definitions refers to the compound technically defined as H_2O. The terms "water" and "moisture" are frequently used interchangeably in the literature and in the trade, but the term "moisture" is sometimes considered to include other volatile materials. Moisture content is also referred to as moisture on the "as is," "as received," or "wet" basis.

3.1.5 *moisture-free*, *adj*—the condition of a material that has been exposed in an atmosphere of desiccated air until there is no further significant change in its mass.

3.1.6 *moisture regain*, *n*—the amount of water in a material determined under prescribed conditions and expressed as a percentage of the mass of the water-free specimen. (see also *moisture content*)

3.1.6.1 *Discussion*—Equivalent expressions are "regain," moisture on the "moisture-free" or moisture on the "dry" basis, also moisture on the "oven-dry" basis. Moisture regain calculations are commonly based on the mass of a specimen which has been dried by heating in an oven. If the air in the oven contains moisture, the oven-dried specimen will contain some moisture even when it no longer undergoes a significant change in mass following additional drying under the same atmospheric conditions. In order to ensure that the specimen is moisture-free, it must be exposed to desiccated air until it shows no significant change in its mass; this procedure can be found in Test Method D 2654.

3.1.7 *oven-dry*, *adj*—the condition of a material that has

[1] This test method is under the jurisdiction of ASTM Committee D-13 on Textiles, and is the direct responsibility of Subcommittee D13.11 on Cotton Fibers.

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

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