



Standard Terminology Relating to Moisture in Textiles¹

This standard is issued under the fixed designation D4920; 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 terminology is a compilation of definitions of technical terms related to moisture in textiles. Terms that are generally understood or adequately defined in other readily available sources are not included.

1.2 For other ASTM defined conditioning terms, refer to Terminology E 41. For other terms associated with textiles, refer to Terminology D 123, Relating to Textiles.

2. Referenced Documents

2.1 *ASTM Standards:*

D 123 Terminology Relating to Textiles²

E 41 Terminology Relating to Conditioning³

3. Terminology

3.1 Definitions:

absolute humidity, *n*—the mass of water vapor present in a unit volume of air.

DISCUSSION—Common units of measure for absolute humidity are grams per cubic metre or grains per cubic foot. The amount of water vapor is also reported in terms of mass per unit mass of dry air, for example, grams per kilogram, or grains per pound, of dry air. This value differs from values calculated on a volume basis and should not be referred to as **absolute humidity**. It is designated as humidity ratio, specific humidity, or **moisture pick-up**.

absorption, *n*—a process in which one material (the absorbent) takes in or absorbs another (the absorbate); as the absorption of moisture by fibers. (See also **adsorption**, and **moisture equilibrium for testing**. Compare **desorption** and **resorption**.) **D 4772**

adsorption, *n*—a process in which the surface of a solid takes on or adsorbs in an extremely thin layer molecules of gases, of dissolved substances, or of liquids with which it is in contact. (See also **absorption** and **moisture equilibrium for testing**. Compare **desorption** and **resorption**.)

atmosphere for testing, *n*—air at ambient conditions of relative humidity and temperature in which tests or experiments are conducted. (See also **standard atmosphere for testing**.)

DISCUSSION—In the hierarchy of terms, *atmosphere* is the generic term where the air is ambient with conditions “controlled” by local weather and therefore variable. **Atmosphere for testing** is a delimited term in which the use of the atmosphere is restricted for a certain purpose. In a **standard atmosphere for testing**, the conditions are specified (standardized) and controlled for routine testing and for testing reproducibility. On this basis, there is no real reason for not referring to the specified atmospheres that have been traditionally used for testing glass textiles or tire cords, etc., as **standard atmospheres for testing** those materials.

commercial allowance (CA), *n*—an arbitrary value, equal to the commercial moisture regain, plus a specified allowance for finish, used with the mass of scoured, oven-dried yarn, to compute (1) yarn linear density, (2) the commercial or legal mass of a shipment or delivery of any specific textile material (see also *commercial moisture regain*), or (3) the mass of a specific component in the analysis of fiber blends.

D 1907, D 2494, D 3887

commercial mass, *n*—billed mass as determined by a generally accepted method or as agreed upon between the purchaser and seller. **D 2494**

commercial moisture content, *n*—*in wool*, the moisture calculated as a percentage of the mass of the wool, top, noils, yarn, fabric, etc., in the “as-is” condition; that is, containing whatever moisture, oil, grease, or other extraneous matter that may be present. **D 2118**

commercial moisture regain (CMR), *n*—a formally adopted, arbitrary value, to be used with the oven-dried mass of textile fibers, when calculating the commercial mass of a shipment or delivery.

DISCUSSION—The assigned commercial moisture regain value is usually higher than the experimental moisture regain value for the same material.

condition, *v*—to bring a material to moisture equilibrium with a specified atmosphere.

desorption, *n*—a process in which a sorbed material is released from another material, as the desorption of moisture from fibers; the reverse of absorption, adsorption, or both.

¹ This terminology is under the jurisdiction of ASTM Committee D13 on Textiles and is the direct responsibility of Subcommittee D13.51 on Chemical Conditioning and Performance.

Current edition approved Oct. 10, 1996. Published February 1997. Originally published as D 4920 – 89. Last previous edition D 4920 – 96b.

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

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