



## Standard Table of Commercial Moisture Regains for Textile Fibers<sup>1</sup>

This standard is issued under the fixed designation D 1909; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 This table lists the commercial moisture regains commonly used for a number of textile fibers. Such moisture regain values are intended primarily for determining the commercial weight of a specific fiber when the fiber is bought or sold on this basis. These regain values also are used in calculating the linear density of yarn in procedures employing such factors and in the quantitative analysis of fiber blends.

### 2. Referenced Documents

#### 2.1 *ASTM Standards*:<sup>2</sup>

D 123 Terminology Relating to Textiles

D 2118 Practice for Assigning a Standard Commercial Moisture Content for Wool and Its Products

D 2720 Practice for Calculation of Commercial Weight and Yield of Scoured Wool, Top, and Noil for Various Commercial Compositions

---

<sup>1</sup> This table is under the jurisdiction of ASTM Committee D13 on Textiles and is the direct responsibility of Subcommittee D13.51 on Chemical Conditioning and Performance Test Methods.

Current edition approved March 1, 2004. Published March 2004. Originally approved in 1961. Last previous edition approved in 2001 as D 1909 – 96(2001).

<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document summary page on the ASTM website.

### 3. Terminology

#### 3.1 *Definitions*:

3.1.1 *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.

3.1.2 For definitions of other textile terms used, refer to Terminology D 123.

### 4. Significance and Use

4.1 The value listed for the commercial moisture regain of a specific fiber type is not an experimentally determined quantity but a purely arbitrary value arrived at for commercial purposes by interested parties. The actual moisture regain values of textile materials, when in moisture equilibrium with the standard atmosphere for testing, bear no consistent relation to the commercial moisture regain values listed herein. Equilibrium moisture regain values depend upon the previous history of the material.

### 5. Table of Commercial Moisture Regain Values

5.1 Commercial moisture regain values for specified fibers are listed in Table 1.

### 6. Keywords

6.1 moisture regain; textile fiber

**TABLE 1 Commercial Moisture Regain Values**

Fiber	Regain, %	Fiber	Regain, %
Acetate (secondary)	6.5	Modacrylic <sup>G</sup>	
Acrylic	1.5	Class I	0.4
Aramid, for	<sup>A</sup>	Class II	2.0
High Modulus Yarn	3.5		
Standard Yarn	7.0	Class III	3.0
		Nylon (polyamide)	4.5
		Olefin	0.0
		Polyester	0.4
Azlon	10.0	Ramie	
Cotton		Raw	7.6
Raw cotton	<sup>B</sup>	Scoured	7.8
Natural cotton yarn	7.0 <sup>C</sup>	Rayon (regenerated cellulose)	11.0
Dyed cotton yarn	8.0 <sup>C</sup>	Rubber	0.0
Mercerized cotton yarn	8.5 <sup>C</sup>	Saran	0.0
Flax (raw)	12.0 <sup>D</sup>	Silk	11.0
Flax (linen)	8.75	Spandex	1.3
Fluorocarbon	0.0	Triacetate (primary)	3.5
Glass	0.0	Vinal	4.5
Hemp	12.0 <sup>D</sup>	Vinyon	0.0
Jute	13.75 <sup>D</sup>	Wool (all forms)	13.6 <sup>E,F</sup>
Metallic	0.0		

<sup>A</sup> Aramid polymers are manufactured for specific but diverse end uses and have nominal regains that vary in the range 1.5 to 7.0 %. The values listed in the table are the commercial regains of fibers currently produced.

<sup>B</sup> There is no commercial regain value for raw cotton in U.S. trade. The value specified in Rule 15 of the Egyptian sales contracts and in Rule 105 of the Liverpool sales contract for Egyptian and Syrian cotton is 8.5. The value 8.5 is also used customarily for the cotton component of blends containing cotton in the process of performing quantitative analysis.

<sup>C</sup> Commercial Standard CS11-63, which is issued by the National Bureau of Standards, recommends these values to be used for cotton yarns by dyers and finishers.

<sup>D</sup> These values are the official commercial moisture regains listed in British Standards Handbook 11, Methods of Test for Textiles, Section 1, 1963.

<sup>E</sup> A moisture content of 12.0 %, which is equal to a moisture regain of 13.6 %, has been recommended for all wool yarns in Practice D 2118. However, certain other regain values are commonly used. Other values, which should perhaps be classified as commercial allowance values, are listed below for information only.

Woolen yarn	13.0
Woolen hand knitting yarn	11.1
Worsted yarn (dry spun)	15.0
Worsted yarn (oil spun)	13.0

<sup>F</sup> For the commercial moisture contents of wools to which various specific commercial designations are applied, see Practice D 2720.

<sup>G</sup> Class III modacrylic fibers include such fibers as Verel modacrylic fiber. Class II includes such fibers as SEF modacrylic fiber. Class I modacrylic fibers includes all other modacrylic fibers.

*ASTM International takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this standard. Users of this standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, are entirely their own responsibility.*

*This standard is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reapproved or withdrawn. Your comments are invited either for revision of this standard or for additional standards and should be addressed to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing you should make your views known to the ASTM Committee on Standards, at the address shown below.*

*This standard is copyrighted by ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, United States. Individual reprints (single or multiple copies) of this standard may be obtained by contacting ASTM at the above address or at 610-832-9585 (phone), 610-832-9555 (fax), or service@astm.org (e-mail); or through the ASTM website (www.astm.org).*