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## National Standard of the People's Republic of China

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(Replacing GB 9994-1988)

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## Conventional Moisture Regains of Textiles

(For approval)

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and Quarantine of the People's Republic of China

## Foreword

Chapter IV of this Standard contains compulsory provisions.

This Standard replaces GB 9994-1988 *Conventional Moisture Regains of Textiles* .

The main differences between this Standard and GB 9994-1988 include:

1. Revised applicable scope;
2. Increased number of fibre names and references used to introduce methods for measuring moisture regains;
3. Addition of 3 technical terms, namely moisture regains, standard moisture regains and conventional quality, deletion of commercial weight terms and calculative formats;
4. Addition of conventional moisture regains for cashmere wool and fabrics, wool and knitting fabrics, mohair, alpaca, Modal fibre, tri-acetate fibre, polyethylene fibre, aramid fibre, rubber, polylactic fibre, fluorocarbon fibre, glass fibre and metal fibre;
5. Conversion of the notes in the conventional moisture regain provisions for blended fibre materials to footnotes;
6. Deletion of notes in the previous Chapter V;
7. Addition of fibres with unknown conventional moisture regains and the moisture regains of the products thereof in Chapter V;
8. Addition of calculation for conventional quality in Chapter VII;
9. Deletion of the previous Appendix A.

This Standard has been proposed by the China National Textile & Apparel Council;

This Standard is under the jurisdiction of the Basic Standards Subcommittee of the National Technical Committee on Textile Standardization (SAC/TC209/SC1);

Bodies responsible for drafting this Standard: Textile Industry Standardization Institute and Textile Industry Science Development Centre;

This Standard was drafted by Zheng Yuying and Dou Ruzhen.

This is the first revision of this Standard.

# Conventional Moisture Regains of Textiles

## 1. Scope

This Standard specifies the conventional moisture regains of major textiles.

This Standard applies to textiles and can be used to calculate conventional textile quality, yarn density, unit mass of fabrics and fibre content in blended textile product quantitative analysis.

Note: Blended textile products include wrapped yarn, interlacing fabric and other multi-component products.

## 2. Normative reference documents

The following documents contain provisions which, through reference in this Standard, constitute provisions of this Standard. With regard to dated references, subsequent amendments (not to include corrections) or revisions to any of these publications shall not be applicable, however, all parties which reach an agreement with regard to this Standard are encouraged to investigate whether the latest edition of these documents can be applied. With regard to undated references, the latest edition of the document referred to shall apply.

GB/T 4146 Textile terms (chemical fibre section)

GB/T 9995 Measurement of moisture content and moisture regains for textiles Oven drying method

GB/T 11951 Textiles Natural fibre Terminology

## 3. Terms and definitions

Terms and definitions established in GB/T 4146 and GB/T 11951, as well as the following terms and definitions are applicable to this Standard.

### 3.1 Textiles

General name for raw materials, semi-finished products to be processed into textiles and finished products, including all of the fibres, textile slivers, yarns and fabrics therein.

### 3.2 Moisture regain

The percentage of the mass of water which exists in any form in the textiles measured using the regulated method to the dry mass of the measured material.

### 3.3 Conventional moisture regain

The agreed conventional moisture regain value for textiles.

### 3.4 Moisture regain in standard atmosphere

The moisture regain after a textile is pre-conditioned and reaches its moisture balance in standard atmosphere.

### 3.5 Conventional mass

The textile mass of the dried mass plus the mass corresponding to the conventional mass.

## 4 Conventional moisture regains of textiles

The conventional moisture regains of textiles are listed in Table 1.

Table 1

Fibre type	Textile	Conventional moisture regain (%)
Cotton	Cotton fibre	8.5
	Cotton yarn	8.5
	Cotton sewing thread	8.5
	Cotton fabric	8.0
Wool <sup>a</sup>	Wool	
	Scoured wool <sup>b</sup> (heterogeneous fleece)	15.0
	Scoured wool <sup>b</sup> (homogeneous fleece)	16.0
	Comber noil	16.0
	Reused wool	17.0
	Dry combed top	18.25
	Oil combed top	19.0
	Worsted yarn	16.0
	Woollen yarn	15.0
	Wool fabric	14.0
	Wool and knitting yarn	15.0
	Wool and knitting fabric	15.0
	High pile fabric	16.0
	Cashmere	
	Dehaired cashmere	17.0
	Cashmere slice	15.0
	Cashmere yarn	15.0
	Cashmere fabric	15.0
	Rabbit hair	15.0
	Camel hair	15.0
	Yak hair	15.0
	Alpaca hair	15.0
Mohair	14.0	
Linen <sup>c</sup>	Ramie	12.0
	Flax	12.0
	Jute	14.0
	Hemp	12.0
	Kender	12.0
	Sisal	12.0
Silk <sup>d</sup>	Mulberry silk	11.0
	Tussah silk	11.0
Other natural fibres <sup>c</sup>	Ceiba fibre	10.9
	Coconut fibre	13.0
Chemical fibres <sup>e</sup>	Viscose fibre	13.0
	Polynosic fibre	13.0
	Modal fibre	11.0
	Lyocell fibre	10.0
	Acetate fibre	7.0
	Tri-acetate fibre	3.5
	Cupro fibre	13.0
	Polyamid fibre (nylon)	4.5
	Polyester fibre (terylene)	0.4
	Polyacrylonitrile fibre (PVN)	2.0
	Polyvinyl alcohol fibre (vinylon)	5.0
	Polypropylene fibre (PE-PP)	0.0
	Polyethylene fibre (PE)	0.0

Table 1 (continued)

Fibre type	Textile	Conventional moisture regains (%)
Chemical fibres <sup>c</sup>	Chlorofibre	
	PVC	0.0
	PVDC	0.0
	Polypropylene	1.3
	Fluorofibre	0.0
	Aromatic polyamide fibre (Aramid fibre)	
	Ordinary	7.0
	High modulus fibre	3.5
	Polyactic fibre (PLA)	0.5
	Elastoliene fibre (rubber)	0.0
Other fibres <sup>c</sup>	Fluorocarbon fibre	0.0
	Glass fibre	0.0
	Metal fibre	0.0
a Besides wool and cashmere, other animal hair fibres all contain fibres, yarns and fabrics. b Scoured wool contains carbonized wool. c Contains fibre, yarn and fabric. d D contains raw silk, doupion silk, spun silk, noil silk and bleached, printed and dyed fabric.		

**5. Fibre with unknown moisture regains and the moisture regains of its products**

5.1 For other new-type fibres and the products thereof, or those with unknown moisture regains, the fibre-state moisture regain in standard atmosphere can be substituted for conventional moisture regain.

5.2 The conventional moisture regains shall be measured in accordance with the requirements of GB/T 9995.

Note: A corresponding note shall be made where the moisture regain in standard atmosphere is used to substitute for conventional moisture regain.

**6. The moisture regains of blended textile products**

6.1 The conventional moisture regains of blended textile products shall be calculated by comparing the weight average value of the conventional moisture regains of each of its component raw materials with the blended textile, and rounded up to the nearest decimal point.

6.2 The conventional moisture regains of blended textile products can be calculated using the blending proportion by dry mass or the blending proportion by conventional mass, see Formulae (1) and (2).

Note: To facilitate the calculation, the blending proportion by conventional mass is usually converted into the blending proportion by dry mass, after which the calculation can be done using Formula (1).

a) The conventional moisture regain (R) is calculated by blending proportion by dry mass and expressed as a percentage:

$$R = \frac{A_1R_1 + A_2R_2 + \dots + A_nR_n}{100} \dots\dots\dots (1)$$

b) The conventional moisture regain (R) is calculated by the blending proportion by conventional mass and expressed as a percentage:

$$R = \frac{\frac{B_1 R_1}{1 + \frac{R_1}{100}} + \frac{B_2 R_2}{1 + \frac{R_2}{100}} + \dots + \frac{B_n R_n}{1 + \frac{R_n}{100}}}{\frac{B_1}{1 + \frac{R_1}{100}} + \frac{B_2}{1 + \frac{R_2}{100}} + \dots + \frac{B_n}{1 + \frac{R_n}{100}}} \dots\dots\dots (2)$$

Where,

$A_1, A_2, \dots, A_n$  – Blending proportion by dry weights of fibre components in %;

$B_1, B_2, \dots, B_n$  – Blending proportion by conventional mass of fibre components in %;

$R_1, R_2, \dots, R_n$  – Conventional moisture regain of each fibre components in %.

### 7. Calculation of conventional mass

7.1 The conventional mass ( $M_r$ ) of a single fibre is calculated using Formula (3).

$$M_r = \frac{M_d (100+R)}{100} \dots\dots\dots (3)$$

Where,  $M_d$  – Dry mass with the same unit as conventional mass;

$R$  – Conventional moisture regain in %.

7.2 The conventional mass ( $M_r$ ) of blended products is calculated using Formula (4).

$$M_r = \frac{M_{d1} (100+R_1) + M_{d2} (100+R_2) + \dots + M_{dn} (100+R_n)}{100} \dots\dots\dots (4)$$

Where,

$M_{d1}, M_{d2}, \dots, M_{dn}$  – Dry mass of each fibre component of a blended product with the same unit as the conventional mass;

$R_1, R_2, \dots, R_n$  - Conventional moisture regain of each component in %.