

# DRAFT UGANDA STANDARD

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## Textiles — Garments — Part 9: Athletic



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## Foreword

Uganda National Bureau of Standards (UNBS) is a parastatal under the Ministry of Trade, Industry and Cooperatives established under Cap 327, of the Laws of Uganda, as amended. UNBS is mandated to coordinate the elaboration of standards and is

- (a) a member of International Organisation for Standardisation (ISO);
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- (c) the National Enquiry Point on TBT Agreement of the World Trade Organisation (WTO).

The work of preparing Uganda Standards is carried out through Technical Committees. A Technical Committee is established to deliberate on standards in a given field or area and consists of key stakeholders including government, academia, consumer groups, private sector and other interested parties.

Draft Uganda Standards adopted by the Technical Committee are widely circulated to stakeholders and the general public for comments. The committee reviews the comments before recommending the draft standards for approval and declaration as Uganda Standards by the National Standards Council.

The committee responsible for this document is Technical Committee UNBS/TC 315, *Textiles and related products*.

## Introduction

Socks are an essential component of footwear for the athlete. Previously considered a commodity item, athletic socks are now designed to provide significant functional and protective benefits for the active person.

Athletic socks are constructed depending on the sports application; an over-the-calf design is used for skiing, baseball, soccer and endurance running. A crew length sock is a standard athletic sock with universal applications while a roll top sock ends at the topline of the shoe and is popular in golf. (See Figure 1)

One of the primary differentiating features of athletic socks, compared to dress/casual hosiery socks is the utilization of high-tech fibres and yarns that provide better comfort and protection for the feet of the active athlete.

The sum total of moisture potentially collecting in the shoe of the athlete during exercise will quickly exceed the absorptive capacity of any sock. Therefore, in order to keep moisture content at a minimal level on the surface of the foot during exercise, a sock needs to “move” moisture away to the shoe upper, in a process known as wicking, for evaporation.



# Textiles — Garments — Part 9: Athletic socks

## 1 Scope

This Draft Uganda Standard specifies requirements, sampling and test methods for athletic socks also known as sports socks.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 14362-1, *Textiles — Methods for determination of certain aromatic amines derived from azo colorants — Part 1: Detection of the use of certain azo colorants accessible with and without extracting the fibres*

ISO 14362-3, *Textiles — Methods for determination of certain aromatic amines derived from azo colorants — Part 3: Detection of the use of certain azo colorants, which may release 4-aminoazobenzene*

ISO 16373-1, *Textiles — Dyestuffs — Part 1: General principles of testing coloured textiles for dyestuff identification*

ISO 16373-2, *Textiles — Dyestuffs — Part 2: General method for the determination of extractable dyestuffs including allergenic and carcinogenic dyestuffs (method using pyridine-water)*

ISO 16373-3, *Textiles — Dyestuffs — Part 3: Method for determination of certain carcinogenic dyestuffs (method using triethylamine/methanol)*

US ISO 105-B02, *Textiles — Tests for colour fastness — Part B02: Colour fastness to artificial light: Xenon arc fading lamp test*

US ISO 105-C10, *Textiles — Tests for colour fastness — Part C10: Colour fastness to washing with soap or soap and soda*

US ISO 105-E04, *Textiles — Tests for colour fastness — Part E04: Colour fastness to perspiration*

US ISO 105-X12, *Textiles — Tests for colour fastness — Part X12: Colour fastness to rubbing*

US ISO 139, *Textiles — Standard atmospheres for conditioning and testing*

US ISO 1833 (all parts), *Textiles — Binary fibre mixtures — Quantitative chemical analysis*

ISO 105-N02, *Textiles — Tests for colour fastness — Part N02: Colour fastness to bleaching: Peroxide*

ISO 2062, *Textiles — Yarns from packages — Determination of single-end breaking force and elongation at break using constant rate of extension (CRE) tester*

ISO 2859-1, *Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

US ISO 7211-5, *Textiles — Methods for analysis of woven fabrics construction — Part 5: Determination of linear density of yarn removed from fabric*

### **3 Terms and definitions**

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <http://www.iso.org/obp>

### **4 Requirements**

#### **4.1 General requirements**

##### **4.1.1 Properties of athletic socks**

Athletic socks should be made of fibres with the following properties:

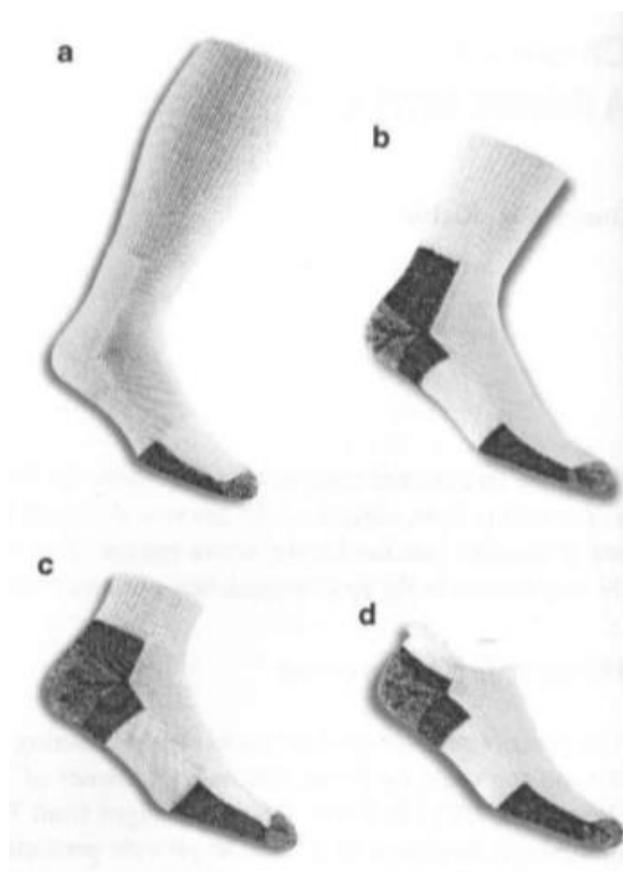
- a) good water resistance and moisture-wicking;
- b) light weight;
- c) breathable;
- d) anti-microbial resistance;
- e) good cushion and resiliency;
- f) good insulation;
- g) ability to maintain their shape when wet; and
- h) odour resistant and ability to dry quickly.

##### **4.1.2 Socks construction**

**4.1.2.1** Socks shall be constructed through a knitting process. These may be plain, rib, fancy, terry knitted structures or their combinations..

**4.1.2.2** Socks should have an elastic arch lock that keeps the socks from shifting out of place.

**4.1.2.3** The socks shall be designed to be moulded to the contours of the feet to avoid chaffing and blisters. They may be with seam-free toes to reduce the risk of blisters. (see Figure 1)



Where:

a: Over-the-calf

b: Crew

c: Mini-crew

d: Roll top

**Figure 1 — Example of athletic sock designs**

**4.1.2.4** Socks shall be grouped in three categories, i.e. men, women and children.

#### **4.1.3 Freedom from defects**

Socks and stockings shall be free from manufacturing defects, such as large mends, irregular ladders, dropped stitches, irregular holes, improper splicing, dyeing defects, blueing agents (if white) and filling materials.

## **4.2 Specific requirements**

### **4.2.1 Fibre composition**

**4.2.1.1** Athletic socks shall be composed of hydrophobic fibres. These may be hydrophobic by nature such as synthetic fibres or treated to contain hydrophobic properties. Common fibres used in the manufacture of athletic socks are Merino wool, acrylic, polyester and propylene.

NOTE 1 Cotton fibers are hydrophilic and absorb three times the moisture as acrylic fibres, which are commonly used in athletic hosiery. Once wet, cotton socks retain moisture and have a ten-fold greater drying time compared to synthetic fibre socks. However, a blend of cotton and wool can be used.

NOTE 2 Synthetic fibers are known to keep the feet drier, cushion the feet better and provide better performance than traditional cotton fibers.

4.2.1.2 The fibre composition of socks shall be as declared on the label, subject to a tolerance of  $\pm 3\%$  when tested in accordance with a relevant part(s) of US ISO 1833.

4.2.2 Yarn

4.2.2.1 Breaking tenacity and elongation

The yarn used in knitting, linking and splicing socks shall comply with the breaking tenacity and elongation requirements in Tabel 1 when tested in accordance with the test methods specified therein.

Table 1 — Breaking tenacity and elongation requirements of yarns used to knit socks

Parameter	Type of fibre	Requirement	Test method
<sup>a</sup> Breaking tenacity, g/tex, min.	Nylon	35.0	ISO 2062
	Polyester	32.0	
	Wool and wool blends	28.0	
	Acrylic	25.0	
<sup>b</sup> Elongation, %, min	Nylon	30.0	
	Polyester	27.0	
	Wool and wool blends	20.0	
	Acrylic	17.0	
<sup>a</sup> The minimum tenacity and elongation at break of blended yarn used to make socks, shall not be less than the values of the fibre component in the blend whose yarn has a lower rating in accordance with Table 1 i.e. in a nylon/wool or polyester/wool blend, the minimum tenacity and elongation at break of the yarn shall not be less than that of the woollen yarn. <sup>b</sup> The elongation of elastic yarn for the top portion of the socks (if available) shall be greater than 450 %.			

4.2.2.2 Linear density

The linear density of the yarns used to knit socks shall be as declared on the label, subject to a tolerance of  $\pm 10\%$  when tested in accordance with US ISO 7211-5.

4.2.3 Pairing

Socks shall be matched and paired according to their type of knitted structure, size and shade. A tolerance of  $\pm 1.25$  cm in the leg length and  $\pm 0.5$  cm in the foot length of socks shall, however, be permissible while pairing.

4.2.4 Colourfastness

Dyed socks shall comply with the colourfastness requirements specified in Table 2.

**Table 2 — Colourfastness requirements of socks**

Colourfastness to		Rating, min.	Test method
Washing	Colour change	4	ISO 105-C10
	Staining	4	
Perspiration	Acid	3	ISO 105-E04
	Alkali	3	
Light		5	US ISO 105-B02
Rubbing	Dry	4	US ISO 105-X12
	Wet	4	
Peroxide washing		4	ISO 105-N02

#### 4.2.5 Restricted colourants

Socks shall be free from listed restricted colourants when tested in accordance with ISO 14362-1, ISO 14362-3, ISO 16373-2 and ISO 16373-3.

Colourants on textiles shall be identified and classified in accordance with ISO 16373-1.

#### 4.2.6 Size

The dimensions of the socks (foot length and leg length) shall be as declared on the label, subject to a tolerance of  $\pm 2\%$  when tested in accordance with Annex A.

## 5 Packaging

Each pair of socks shall be packaged in such a way so as to avoid soiling and damage during transportation, handling and storage.

A batch of pairs of socks or several batches shall be placed in a suitable packaging material that shall be secured properly.

## 6 Labelling

### 6.1 Labelling on a pair of socks

Each pair of socks shall be labelled with the following information:

- a) manufacturer's name/trade mark and physical address;
- b) product name such as "Athletic socks", "sport socks";
- c) fibre composition;
- d) linear density of the yarn;
- e) dimensions in mm;
- f) care instructions; and

- g) country of origin.

## **6.2 Labelling on bulk package**

Each package containing a batch of socks or several batches shall have the following information which shall be legibly and indelibly indicated on the bulk package:

- a) manufacturer's name/trade mark and physical address;
- b) number of pairs in each batch;
- c) total number of batches in the package;
- d) fibre composition; and
- e) country of origin

## **7 Sampling and criteria for conformity**

Sampling shall be done in accordance with ISO 2859-1

## **Annex A** (normative)

### **Measurement of socks dimensions**

#### **A.1 Conditioning of socks**

Before foot length and/or leg length dimensions are taken, the socks shall be conditioned in accordance with US ISO 139.

#### **A.2 Sample sock preparation**

With the aid of a metre rule, take the conditioned sample sock to be measured. Lay it flat on a smooth table. Remove by hand all creases and wrinkles without stretching the sock.

#### **A.3 Measurements**

Take the dimensions of both the foot length and leg length as defined in Figure A.1, both measurements to be taken correct to the nearest 5 mm.

## Bibliography

Douglas H. Richie, Athletic Socks, May 2017. A Chapter in book: Athletic Footwear and Orthoses in Sports Medicine (pp. 91 – 105)

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## Certification marking

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