Textiles — Polyester blended yarn — Specification
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreword</td>
<td>iv</td>
</tr>
<tr>
<td>1 Scope</td>
<td>1</td>
</tr>
<tr>
<td>2 Normative references</td>
<td>1</td>
</tr>
<tr>
<td>3 Terms and definitions</td>
<td>1</td>
</tr>
<tr>
<td>4 Classification</td>
<td>2</td>
</tr>
<tr>
<td>5 Requirements</td>
<td>3</td>
</tr>
<tr>
<td>4.1 General</td>
<td>3</td>
</tr>
<tr>
<td>4.1.1 Blend composition</td>
<td>3</td>
</tr>
<tr>
<td>4.1.2 Yarn Count</td>
<td>3</td>
</tr>
<tr>
<td>4.1.2 Yarn twist</td>
<td>3</td>
</tr>
<tr>
<td>4.1.3 Moisture regain</td>
<td>3</td>
</tr>
<tr>
<td>4.1.4 Yarn appearance</td>
<td>3</td>
</tr>
<tr>
<td>4.1.5 Freedom from defects</td>
<td>3</td>
</tr>
<tr>
<td>4.2 Ring spun single yarn</td>
<td>4</td>
</tr>
<tr>
<td>4.3 Rotor spun single yarn</td>
<td>4</td>
</tr>
<tr>
<td>4.4 Two-fold (doubled yarn)</td>
<td>5</td>
</tr>
<tr>
<td>5 Labelling</td>
<td>5</td>
</tr>
<tr>
<td>6 Packaging</td>
<td>6</td>
</tr>
<tr>
<td>7 Sampling</td>
<td>6</td>
</tr>
<tr>
<td>Annex A (normative) Calculation of count strength product (CSP)</td>
<td>7</td>
</tr>
<tr>
<td>Bibliography</td>
<td>8</td>
</tr>
</tbody>
</table>
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) and

(b) a contact point for the WHO/FAO Codex Alimentarius Commission on Food Standards, and

(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 7, Textiles, Paper and Leather Products, Subcommittee SC 1, Textiles and related products.
Textiles — Polyester blended yarn — Specification

1 Scope

This Draft Uganda standard specifies requirements of grey yarn (single and doubled) spun from a blend of polyester with cotton or viscose fibre.

2 Normative references

The following referenced 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 2, Textiles — Designation of the direction of twist in yarns and related products

US ISO 2060, Textiles — Yarn from packages — Determination of linear density (mass per unit length) by the skein method

ISO 2061, Textiles — Determination of twist in yarns — Direct counting method

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

ISO 6741-1, Textiles — Fibres and yarns — Determination of commercial mass of consignments — Part 1: Mass determination and calculations

ISO 6939, Textiles — Yarns from packages — Method of test for breaking strength of yarn by the skein method

ISO 16549, Textiles — Unevenness of textile strands — Capacitance method

ISO 17202, Textiles — Determination of twist in single spun yarns — Untwist/retwist method

ASTM D2255, Standard test method for grading spun yarns for appearance

ASTM D5647, Standard guide for measuring hairiness of yarns by the photo-electric apparatus

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

3.1 cotton count (Ne)
number of hanks (each measuring 768 m or 840 yd) in 453.6 g (or 1 lb)
3.2 count lea strength product (CSP)
product of the lea breaking load in pounds and cotton count

3.3 grey cotton yarn
yarn as it leaves the spinning frame without any bleaching, dyeing or finishing treatment

Note 1 to entry: The yarn may be waxed or unwaxed

3.4 hairiness index
total length of protruding fibres in the yarn in cm with reference to the sensing length of 1 cm yarn

3.5 lea
continuous length of yarn measuring 109.73 m (120 yd) in the form of a coil having 80 wraps wound on a reel of 1.37 m (1.5 yd) girth

3.6 breaking load
maximum load (or force) applied to a specimen in a tensile test carried to rupture

3.7 single yarn tenacity
tensile stress of a single strand at rupture expressed as force per unit linear density of the unstrained specimen expressed usually as cN/tex (gf/tex).

3.8 tex
number of grams per kilometre of yarn

3.9 ring spun yarn
yarn spun on a system employing flat top cards and roller drafting assemblies with or without aprons on drawing, roving and ring frames

3.10 rotor spun yarn
yarn spun on an open-end spinning machine wherein the individualization and assembling of fibres are done and the real twist is effected by a rotor

3.11 doubled yarn
yarn in which two or more single yarns are twisted together in one or two operations.

4 Classification
The ring spun polyester blended yarn shall be classified as below:

a) PB 45 The polyester content in the blended yarn between 40 to 55 percent.

b) PB 65 The polyester content in the blended yarn between 55 to 70 percent.

c) PB 80 The polyester content in the blended yarn above 70 percent
5 Requirements

4.1 General

4.1.1 Blend composition

The blend composition of polyester with cotton or viscose fibre shall be as agreed to between the purchaser and the manufacturer. However, a tolerance of ±3 on blend percentage of the major fibre component shall be permissible (see also US 426).

4.1.2 Yarn Count

4.1.1.1 The average resultant count of yarn shall be as agreed upon between the purchaser and manufacturer.

4.1.1.2 The coefficient of variation of yarn count shall not exceed 3.5 percent.

4.1.1.4 Yarn count shall be determined in accordance with US ISO 2060.

4.1.2 Yarn twist

4.1.2.1 The number of turns per unit length shall be determined in accordance with ISO 2061 or ISO 17202. The direction for twist shall be indicated by the capital letter “S” or “Z” as specified in ISO 2.

4.1.2.2 The average twist shall be within ±10 percent and ±5 percent of the specified value for single spun yarn and doubled yarn respectively.

4.1.3 Moisture regain

Unless otherwise agreed to between the purchaser and manufacturer, the moisture regain shall not exceed 8.5 percent when determined in accordance with ISO 6741-1.

4.1.4 Yarn appearance

When determined in accordance with ASTM D2255, the average black board appearance (5 boards) shall be at least of Grade D. In case of yarn counts coarser than 98 tex (6s), this shall be as agreed to between the purchaser and the manufacturer.

4.1.5 Freedom from defects

The yarn on cones/cheeses shall be free from the following defects:

a) stitches of more than 2.5 cm in length at the base;

b) excessive stitches at the nose;

c) soft cones or cheeses;

d) prominent stains inclusive of chalk and other markings;

e) cut threads;

f) absence of tail end where it is required and the length of the tail-end should not be less than 30 cm;

g) entanglement;

h) presence of hard waste;
4.2 Ring spun single yarn

4.2.1 The ring spun single grey yarn shall comply with the requirements given in Table 1.

4.2.2 When determined in accordance with ISO 6939, the coefficient of variation of lea breaking load shall not exceed 10.0 percent.

**Table 1 — Performance requirements of ring spun polyester blended yarn**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Requirement</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>≥ 25 tex (≤ 24s)</td>
<td>16 – 25 tex (24s – 36s)</td>
</tr>
<tr>
<td>CSP for polyester/Cotton blends, Min.</td>
<td>PB 45 2 300</td>
<td>2 300</td>
</tr>
<tr>
<td></td>
<td>PB 65 2 500</td>
<td>2 500</td>
</tr>
<tr>
<td></td>
<td>PB 80 -</td>
<td>-</td>
</tr>
<tr>
<td>CSP for polyester/Viscose blends, Min.</td>
<td>PB 45 2 500</td>
<td>2 500</td>
</tr>
<tr>
<td></td>
<td>PB 65 2 650</td>
<td>2 650</td>
</tr>
<tr>
<td></td>
<td>PB 80 -</td>
<td>-</td>
</tr>
<tr>
<td>Unevenness, %, Max</td>
<td>14.5</td>
<td>14.5</td>
</tr>
<tr>
<td>Imperfections/Km</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thin</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>Thick</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Neps</td>
<td>130</td>
<td>130</td>
</tr>
<tr>
<td>Total</td>
<td>405</td>
<td>405</td>
</tr>
</tbody>
</table>

**NOTE** The unevenness percentage (U %) and the imperfections per Km of the yarn on packages shall not exceed the values given in Table 2 when tested at a speed of 50 m/min and at sensitivity of -50%, +30% and +30% for thin places, thick places and neps respectively.

4.3 Rotor spun single yarn

The rotor spun single grey yarn shall comply with the requirements given in Table 2.

**Table 2 — Performance requirements of rotor spun polyester blended yarn**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Requirement</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Polyester viscose (48%/52%)</td>
<td>Polyester cotton (67%/33%)</td>
</tr>
<tr>
<td>Rkm, g/tex, min.</td>
<td>15s</td>
<td>20s</td>
</tr>
<tr>
<td>10.5</td>
<td>14.0</td>
<td>17.0</td>
</tr>
</tbody>
</table>
4.4 Doubled yarn

4.4.1 The single yarn used for producing doubled yarn shall satisfy the requirements specified in 4.1 and either 4.2 or 4.3.

4.4.2 The count lea strength product (CSP) of doubled yarn shall not be less than the value calculated by the following relationship:

\[
\text{CSP of doubled yarn} = 1.10 \times \text{CSP of corresponding single fold yarn given in either Table 1 or Table 2}
\]

4.4.3 The coefficient of variation of the lea count shall not exceed 2.0 percent.

4.4.4 The coefficient of variation of the lea breaking load shall not exceed 7.0 percent.

5 Labelling

5.1 Each cone or cheese of yarn shall be marked with the following:

a) blend composition;

b) count of yarn in ‘Ne’ or ‘tex;’

c) lot number;

d) manufacturer’s name, trademark or other means of identification;

e) spinning method used, e.g. ring or rotor;

f) individual package size/mass;

g) end use of yarn, e.g. weaving or knitting;

h) whether waxed or unwaxed;

i) packaging and storage conditions.

5.2 Each case containing cones or cheeses shall be marked with the following:

a) blend composition;

b) count of yarn in ‘Ne’ or ‘tex;’

c) lot number;
d) manufacturer's name, trademark or other means of identification;

e) gross mass of bale or case;

f) net mass of bale or case;

g) packaging and storage conditions; and

h) country of origin

6 Packaging

Cones or cheeses of yarn shall be packaged in suitable packaging materials which shall protect the product from damage during transportation, handling and storage. Cones or cheeses shall be packaged in unit packages and thereafter into bulk cases.

7 Sampling

7.1 In any consignment, the cases containing yarn of the same type and of the same nominal count shall constitute a lot.

7.2 Samples shall be drawn from each lot to determine its conformance with the requirements of the standard.

7.3 Unless otherwise agreed to between the buyer and the seller, the number of cases to be selected from a lot shall be in accordance with Table 3. The bales or cases shall be selected at random.

7.4 In case two or less cases are selected in the sample, at least 10 cones or cheeses shall be drawn at random from each of the selected case. However, in case three or more cases are selected in the sample, at least five cones or cheeses shall be drawn at random from each of the selected case.

<table>
<thead>
<tr>
<th>Lot Size</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 3</td>
<td>1</td>
</tr>
<tr>
<td>4 – 10</td>
<td>2</td>
</tr>
<tr>
<td>11 – 30</td>
<td>3</td>
</tr>
<tr>
<td>31 – 50</td>
<td>5</td>
</tr>
<tr>
<td>Over 50</td>
<td>8</td>
</tr>
</tbody>
</table>
Annex A

(normative)
Calculation of count strength product (CSP)

CSP is obtained by the following relationship:

\[ CSP = \text{Breaking load of a lea in Kg} \times 2.2046 \times \text{cotton count (Ne)} \]

Where;

The breaking load is determined in accordance with ISO 6939

Cotton count (Ne) is determined in accordance with US ISO 2060
Bibliography


Certification marking

Products that conform to Uganda standards may be marked with Uganda National Bureau of Standards (UNBS) Certification Mark shown in the figure below.

The use of the UNBS Certification Mark is governed by the Standards Act, and the Regulations made thereunder. This mark can be used only by those licensed under the certification mark scheme operated by the Uganda National Bureau of Standards and in conjunction with the relevant Uganda Standard. The presence of this mark on a product or in relation to a product is an assurance that the goods comply with the requirements of that standard under a system of supervision, control and testing in accordance with the certification mark scheme of the Uganda National Bureau of Standards. UNBS marked products are continually checked by UNBS for conformity to that standard.

Further particulars of the terms and conditions of licensing may be obtained from the Director, Uganda National Bureau of Standards.