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## Pillows for domestic use — Specification — Part 2: Plumage filled

PUBLIC REVIEW DRAFT



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## Foreword

Uganda National Bureau of Standards (UNBS) is a parastatal under the Ministry of Tourism, Trade and Industry established under Cap 327, of the Laws of Uganda. UNBS is mandated to co-ordinate the elaboration of standards and is

- (a) a member of International Organisation for Standardisation (ISO) and
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- (c) the National Enquiry Point on TBT/SPS Agreements 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 representatives of consumers, traders, academicians, manufacturers, government and other stakeholders.

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.

This standard has been developed by the Textiles and textile products' Technical Committee UNBS/TC 7.

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# Pillows for domestic use — Specification — Part 2: Plumage filled

## 1 Scope

This draft Uganda Standard specifies the requirements and methods of testing for plumage filled pillows for domestic use.

## 2 Normative references

The following referenced documents are indispensable for the application 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.

FDUS ISO 139 Textiles -- Standard atmospheres for conditioning and testing

US ISO 3758, Textiles -- Care labelling code using symbols

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 105-D01, Textiles — Tests for colour fastness — Part D01: Colour fastness to dry cleaning using perchloroethylene solvent

US ISO 105-B02, Textiles — Tests for colour fastness — Part B02: Colour fastness to artificial light

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

US ISO 13934-1, Textile — Tensile properties of fabrics — Part 1: Determination of maximum force and elongation at maximum force using the strip method

US ISO 1833-1 Textiles — Quantitative chemical analysis

US ISO 4915, Textiles — Stitch types — Classification and Terminology

US ISO 4916, Textiles — Seam types — Classification and Terminology

## 3 Terms and definitions

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

### 3.1

#### **casing**

the textile fabric envelope that contains the filling

### 3.2

#### **filling filler**

the insulating material within the casing of a pillow

### 3.3

#### **gauge (stitch-bond fabric)**

the number of row of stitches per 25 mm width of fabric

### 3.4

#### **outer cover**

a textile fabric envelop that contains a pillow and that is easily removable for cleaning purposes

## 4 Requirements for pillows

### 4.1 General

Pillows shall be —

- a) Cut and made with first-class workmanship throughout.
- b) Free from defects that could affect their appearance or their serviceability (or both).
- c) Made such that all seams are smooth and all sewing is free from twists, pleats and puckers and sufficiently extensible to prevent seam-cracking and undue shrinkage in use.
- d) Made such that all ends of sewing have been trimmed and loose threads removed.
- e) Made such that ends of sewing that are not secured in seams or in other sewing are adequately backstitched.
- f) Made of uniform colour and finish.
- g) Capable of being cleaned in accordance with the care instructions, without giving rise to any defect, such as puckering, lumpiness, tears, etc.
- h) Delivered in a clean and commercially dry condition.

### 4.2 Materials and components

#### 4.2.1 Casing fabric

The casing fabric shall be a woven fabric that complies with the appropriate requirements given in Table 1.

#### 4.2.2 Plumage fillings

The plumage shall, when tested in accordance with Annex D consist entirely of clean, crimped continuous filaments or staple synthetic fibres. The length of staple fibres shall be at least 30 mm (A.3). The fibres shall be thermo-bonded or resin-bonded and the blend of melting fibres shall not exceed 30%.

#### 4.2.3 Sewing thread

The sewing thread shall have a minimum breaking strength of 8 N.



Table 1 — Casing fabric requirements

1	2	3
Property	Requirements	Test methods
Fibre composition, %	Shall comply with the stated composition <sup>a)</sup>	US ISO 1833-1
Breaking strength N, min. Warp Weft	350 200	US ISO 13934-1
Resistance to opening at seams N, min.	65	Annex C
Colour fastness to:		
a) light, rating, min.	4	US ISO 105-B02
b) Dry-cleaning <sup>b)</sup>		
• Change in colour, rating, min.	4	US ISO 105-D01
• Staining of transfer cloths, rating, min.	4	
c) Washing		US ISO 105-C10
• Change in colour, rating, min.	4	
• Staining of transfer cloths, rating, min.	4	
d) Rubbing		US ISO 105-X12
• Dry rating, min.	4	
• Wet, rating, min.	3	
e) Perspiration		US ISO 105-E04
• Acid, rating, min.	4	
• Alkali, rating, min	4	
<p><sup>a)</sup> As stated on the label (see 5.2.1 c)), subject to tolerance of <math>\pm 3\%</math> of the indicated value in the case of blended fabrics.</p> <p><sup>b)</sup> Applicable only as indicated by the care instructions (see 5.2.1d)).</p>		

### 4.3 Finished dimensions

Unless otherwise specified, the dimensions of the made-up pillow shall be one of the combinations given in the table below, Columns 2 and 3.

1	2	3
<b>Pillow size</b>	<b>Dimensions, cm <math>\pm</math> 3%</b>	
	<b>Width</b>	<b>Length</b>
Medium	45	70
Large	80	80

### 4.4 Construction

A pillow shall consist of a casing made from one piece of fabric (or from two equally sized pieces of fabric) enclosing a plumage filling. The mass of a down filling shall be at least 1 450 g/m<sup>2</sup> and that of a feather filling at least 3 200 g/m<sup>2</sup> determined in accordance with Annex B.

### 4.5 Stitches and seams

#### 4.5.1 Stitches

Stitches shall comply with the following requirements according to US ISO 4915

- a) Stitch type:
  - 1) binding: stitch type 301 or 401;
  - 2) edge-overlocking: stitch type 505 or 502; and
  - 3) all other stitching: stitch type 301; and
- b) number of stitches per 10 cm: at least 24 per 10 cm.

#### 4.5.2 Seams

Seams shall comply with the following requirements according to US ISO 4916

- a) General: Edge-over locked closing seams of seam type SSn-1 shall be of width of at least 4 mm. All other seams shall be of width at least 8 mm.
- b) Seam type: Seam types shall be as follows;
  - 1) Closing seams: Seam type SSc-a, BSc-1, SSa-1, SSav-2 or SSn-1.
  - 2) Wall seams: Seam type SSc-1.

## 5 Packing and marking

### 5.1 Packing

Pillows shall be wrapped individually in a wrapper and then packed in a suitable bulk container. Unless the quantities ordered are such that packing of the same colour of casing and dimensions is not justified, only

pillows of the same colour of casing and dimensions and that contain the same type of filling shall be packed together in a bulk container.

## **5.2 Marking**

### **5.2.1 Pillows**

The following information shall appear in legible and indelible marking on label securely attached to an edge of, or on top (near one of the corners) of each pillow:

- a) the manufacturer's name or trademark or both;
- b) the dimensions, in centimetres;
- c) the composition of the casing fabric and of the filling;
- d) care instruction shall be in accordance to US ISO 3758;
- e) country of origin

### **5.2.2 Bulk containers**

The following information shall appear in legible and indelible marking on the outside of each bulk container.

- a) the information required in 5.2.1;
- b) a description of the contents;
- c) the quantity of pillows.

# Annex A (normative)

## Inspection

### A.1 Pillows

After checking for compliance with the relevant requirements given in Clause 4, visually examine each pillow in the sample for compliance with the requirements of clause 5.2.1

### A.2 Conditioning

The fabric should be conditioned according to FDUS ISO 139.

#### A.2.1 Pillows

After carrying out the test given in Clause A.3, cut from the samples the test specimens required for the test given in Annex B In the case of the casing fabric, cut from the sample (see Note Clause A.4) the test specimens required for the test given in Clause A.4

### A.3 Finished dimensions

**A.3.1** Lay the pillow flat on a plain surface. Gently pat the pillow (without subjecting it to tension) with the hands until it is free from all storage folds and wrinkles.

**A.3.2** Use an accurately graduated steel tape of length greater than the length of the pillow to determine, to the nearest 1cm, at approximately three equal intervals in each direction, the width and the length of the pillow.

**A.3.3** Calculate the arithmetic mean of each set of measurements and record the results as the width and the length, respectively, of the pillow.

**A.3.4** Check for compliance with 3.3

### A.4 Properties of casing fabrics

**NOTE:** Testing for compliance with the fabric requirements given in Table 1 requires a length of at least 1 m, full width, of the casing fabric.

#### A.4.1 Composition

Determine the composition of casing fabrics by chemical analysis in accordance to US ISO 1833-1.

## Annex B (normative)

### Mass per unit area of plumage filling

#### B.1 Apparatus

##### B.1.1 Table

That has a smooth flat surface and is of a size that exceeds that of the fabric to be measured.

##### B.1.2 Pair of scissors or suitable cutter

That is capable of cutting a square or circular specimen of area 0.01 m<sup>2</sup> to an accuracy of 1 % or better.

##### B.1.3 Metal plate

That is 5 mm smaller than the cutter and that has a thickness of 10 mm.

##### B.1.4 Balance

That is capable of determining the mass of the specimen to accuracy of 0.2 % or in the case of 0.01 m<sup>2</sup> specimens, to an accuracy of 0.001 g

#### B.2 Procedure

**B.2.1** Ensure that the fabric, which should preferably be selected from the middle of a piece, is not less than 0.5 m and not more than 4 m long, and lay it flat, and without tension, on the table. Cut at both ends, across the full width of the sample, along parallel lines at right angles to the selvedge. If the mass per unit area of a selvedge on a full-width piece appears to deviate appreciably from the mass per unit area of the body of the fabric, or if so agreed upon between the parties concerned, trim off the selvedge along the outermost threads of the body of the fabric and use only the body of the fabric for the determination of the mass per unit area. Measure the width and length of the specimen.

**B.2.2** Use the balance to determine the mass of the specimen.

#### B.3 Calculation

Calculate the mass per unit area of the plumage filling ( $M_f$ ), in grams per square metre, using the following formula.

$$M_f = A - 2B$$

where

$A$  is the mass per unit area of the pillow, in grams per square metre,

$B$  is the mass per unit area of the casing fabric, in grams per square metre.

## Annex C (normative)

### Determination of resistance to opening at seams

#### D.1 Apparatus and materials

##### D.1.1 Sewing thread

Core-spun with a polyester core and cotton sheath of ticket No. 80 and ticket No. 50 (see Table D.1)

Table D.1 — Requirements for stitching

1	2	3	4
Mass per area of test specimen g/m <sup>2</sup>	Sewing thread ticket No.	Sewing machine needle size Metric (imperial)	Stitch rating Number of stitches per 10cm
< 250	80	90 (No. 14)	50 ± 2
≥ 250	50	100 (No. 16)	40 ± 2

D.1.2 Sewing machine needles of size 90 (No. 14) and size 100 (No. 16)

Examine the points of the sewing machine needle for signs of damage.

##### D.1.3 Sewing machine

Electrically operated, single-needle, lock-stitch, capable of producing stitch type 301 and provided with the appropriate throat-plate(s) and feed-dog(s) for use with the sewing threads

##### D.1.4 CRE tensile-strength testing machine

That is capable of constant rate of extension of 100mm/min, fitted with jaws.

D.1.4.1 Of a type that will not weaken the test specimen during test and such that each jaw has a front face of size 25 mm x 25 mm and a back face of size at least 25 mm x 40 mm. the longer dimension being at right angles to the direction of the applied load.

##### D.1.5 Transparent template

Of size approximately 125 mm x 30 mm ruled with three lengthways and parallel lines, the clear distance between adjacent lines being 3 mm ± 0.05 mm.

#### D.2 Sampling and preparation of test specimens

D.2.1 Take a laboratory sample as specified in the relevant product specification.

D.2.2 From the conditioned laboratory sample cut 10 test specimens, each of approximately 200 mm x 75 mm, so that in five the test specimens the longitudinal yarns are warp yarns and in the other five test specimens the longitudinal yarns are weft yarns.

**D.2.4** Cut the two sets of test specimens so that their longitudinal yarns all represent different threads and, if possible different portions of the warp and the weft respectively. Do not cut any warp-direction test specimen close to a selvedge than 8 mm.

**D.2.5** Select the sewing thread and the sewing machine needle size appropriate to the mass per area of the test specimen (see Table D.1) and fit the corresponding throat-plate and feed dog to the sewing machine.

**D.2.6** Fold each test specimen in half by placing the two shorter ends together and while maintaining a constantly sewing speed, sew a row of stitches parallel to and at a distance of 15 mm from the fold at the stitch rating (see Table D.1) appropriate the mass per area of the test specimen.

**D.2.7** Cut each test specimen on the fold and parallel to the line of stitching so as to provide a seam of width approximately 1 mm.

### **D.3 Procedure**

**D.3.1** Clamp a test specimen symmetrically in the jaws of the CRE tensile-strength testing machine with the seam midway between and parallel to the edges of the jaws so that the free distance between the jaws at the start of the test is 75 mm.

**D.3.2** Hold the transparent template in front of the clamped test specimen so that its centre line is parallel to the line of stitching at the seam of the clamped test specimen and set the CRE tensile-strength testing machine in motion.

**D.3.3** Stop the CRE tensile-strength testing machine and record the load, in newtons, when;

**D.3.3.1** Any part of the opening of the seam reaches a width of 6 mm (reduced to 32 mm in the case of test specimens that have warp threads and weft threads of contrasting colours), or

**D.3.3.2** A failure owing to the breakdown of the fabric or sewing thread occurs, whichever occurs first.

**D.4** Repeat D 3.1 to D. 3.3 (inclusive) until all 10 test specimens have been tested.

## **Annex D (normative)**

### **Determination of composition of plumage filling**

#### **J.1 Apparatus**

##### **J.1.1 Sample box**

A box that has a solid base and wire gauze sides and top, and that is size such that a sample, of mass approximately 200 g, of the plumage under test will not occupy more than 75 % of the volume of the box.

**NOTE:** A wire gauze with an aperture size not exceeding 600  $\mu\text{m}$  is recommended.

##### **J.1.2 Beakers**

Twenty beakers (glass or polyethylene) of size such that a 10 g portion of the laboratory sample will not occupy more than approximately 75 % of the volume of a beaker.

##### **J.1.3 Weighing bottle**

A tared stoppered bottle (glass or polyethylene) capable of holding a test specimen, of mass approximately 5 g, of the plumage under test

##### **J.1.4 Balance**

An analytical balance with a resolution of 0,001 g or better

##### **J.1.5 Sorting box**

A box of the shape and dimensions shown in Figure J.1 and that has a hinged clearglass lid and two openings in the front panel.

##### **J.1.6 Sorting bottle**

Tared stoppered weighing bottles of diameter approximately 40 mm and of height approximately 75mm, and on each of which the mass of the bottle is marked.

##### **J.1.7 Tweezers**

two suitable pairs of tweezers.

#### **J.2 Preparation of laboratory**

From widely scattered positions in the filling or, when relevant, in the plumage-filled article under test, take enough increments, of approximately equal size, to provide a laboratory sample of plumage of mass approximately 150 g.

Mix the laboratory sample thoroughly by hand twice a day during conditioning, ensuring that there is little loss of the plumage as possible.



### J.3 Preparation of test specimen

Divide the laboratory sample in the sample box into 20 portions of approximately equal bulk, and place one portion in each of the beakers.

From each of the beakers in turn, take a small portion of plumage and transfer it into the weighing bottle. Continue this procedure until the mass of the test specimen so obtained is approximately 5 g. Determine and record the mass of the test specimen to the nearest 0.001 g. When obtaining the test specimen, ensure that each portion of plumage obtained from the beakers includes a proportional amount, by mass, of the feather fibre, down fibre, and residual matter present in the laboratory sample.

### J.4 Procedure

**J.4.1** Transfer the weighing bottle into the sorting box, and arrange, at the back of the box, enough sorting bottles to provide a separate sorting bottle for each of the constituents (i.e. fibres and residual matter) present (using the same sorting bottle for feather fibre and down fibre), and close the lid of the box.

**J.4.2** Operating through the hand-holes in the front of the box, use the tweezers to separate the plumage in the weighing bottle into its constituents, collecting each constituent in the appropriate sorting bottle.

**J.4.3** After the whole of the test specimen has been separated into its constituents, replace the stoppers of the sorting bottles, remove the sorting bottles from the sorting box, and determine, to the nearest 0.001 g, the mass of each constituent.

### J.5 Calculations

**J.5.1** Determine the percentage of the mass fraction of the fibre (F) as follows:

$$F = \frac{m_2}{m_1} \times 100$$

where

$m_2$  is the mass of the fibre, in g;

$m_1$  is the mass of the test specimen, in g.

**J.5.2** Determine the percentage of the mass fraction of the residual matter (R) as follows:

$$R = \frac{m_3}{m_1} \times 100$$

where

$m_3$  is the mass of the residual matter, in grams:

$m_1$  the mass of the test specimen, in grams

**J.5.3** Determine the percentage of the mass fraction of the composition of the plumage filling (C) (free from fibre and residual matter) by calculating the percentage content of each constituent (for example down feathers, goose down, duck down and waterfowl feathers) as follows:

$$C = \frac{m_4}{m_1 - (m_2 + m_3)} \times 100$$

where

$m_4$  is the mass of the constituent, in grams;

$m_1$  is the mass of the test specimen, in grams;

$m_2$  is the mass of the fibre, in grams;

$m_3$  is the mass of the residual matter, in grams

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