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## Toilet paper — Specification

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## Foreword

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- (a) a member of International Organisation for Standardisation (ISO) and
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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 ###, *[name of committee]*, Subcommittee SC ##, *[name of subcommittee]*.

This *second/third/...* edition cancels and replaces the *first/second/...* edition (US nnn-n:yyyy), which has been technically revised.

US nnn consists of the following parts, under the general title *Introductory element — Main element*:

- — *Part n: Part title*
- — *Part [n+1]: Part title*
- — *Part [n+2]: Part title*

# Toilet paper — Specification

## 1 Scope

This draft Uganda standard specifies the requirements, sampling and test methods for toilet paper made from virgin, blended or recycled pulp.

## 2 Normative references

The following referenced documents 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 187, *Paper, board and pulps — Standard atmosphere for conditioning and testing and procedure for monitoring the atmosphere and conditioning of samples*

ISO 287, *Paper and board — Determination of moisture content of a lot — Oven-drying method*

ISO 6588-1, *Paper, board and pulps — Determination of pH of aqueous extracts — Part 1: Cold extraction*

ISO 11093-7, *Paper and board — Testing of core — Part 7: Determination of flexural modulus by the three-point method*

ISO 12625-1, *Tissue paper and tissue products — Part 1: General guidance on terms*

ISO 12625-4, *Tissue paper and tissue products — Part 4: Determination of tensile strength, stretch at break and tensile energy absorption*

ISO 12625-6, *Tissue paper and tissue products — Part -6: Determination of grammage*

ISO 12625-7, *Tissue paper and tissue products — Part 7: Determination of optical properties — Measurement of brightness and colour with D65/10 ° (outdoor daylight)*

ISO 12625-8, *Tissue paper and tissue products — Part 8: Water-absorption time and water-capacity, basket-immersion test method*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12625-1 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

#### **creped paper**

paper that has been subjected to creping

**3.2**

**creping**

operation of crinkling in order to increase its stretch and softness

**3.3**

**cross-direction (CD)**

direction in the plane of a paper perpendicular to the machine direction

**3.4**

**machine direction (MD)**

direction in a paper or a board parallel to the direction of travel of the web on the paper or board machine

**3.5**

**sheet**

portion of toilet paper between consecutive rows of perforations on a roll irrespective of whether the toilet paper is single-ply or multi-ply

**3.6**

**hole**

area in the sheet void of fibres and having a specified diameter

**3.7**

**defective**

roll of toilet paper, or a group of rolls of toilet paper whose average property has been determined, that fails in one or more respects to comply with the relevant requirements of this standard

**3.8**

**lot**

rolls of toilet paper of the same grade and colour which have been manufactured from the same base material and under essentially the same conditions

**3.9**

**ply**

layer of single sheet

**3.10**

**virgin tissue paper**

tissue made from virgin pulp

**3.11**

**recycled tissue paper**

tissue made from recycled pulp

**3.12**

**blended tissue paper**

tissue made from a mixture of virgin and recycled pulp

**3.13**

**embossed paper**

paper of which raised or depressed design has been produced generally by pressure from engraved roll or plate

**3.14**

**grammage**

mass of a unit area of paper or board determined by the standard test method

**3.15****tissue paper**

wet- or dry-crêped or uncrêped (single ply) sheet material, manufactured on any kind of tissue paper machine, mainly based on cellulosic fibre pulps

**3.16****tissue product**

tissue paper in its converted form, single or multi-ply, embossed or not embossed, laminated or not laminated as required for its intended use

**4 Requirements****4.1 General requirements**

**4.1.1** Toilet paper shall be made from processed virgin pulp, blended or recycled pulp. Chemicals used in manufacture of toilet paper shall not be harmful and cause irritation to human beings when used for its intended purpose.

**4.1.2** Toilet paper shall meet the following requirements:

- a) be manufactured, packaged and handled under good hygienic practice.
- b) the core shall be rigid enough not to collapse under normal conditions of transportation and usage.
- c) be free from paper defects (for example, fibre bundles, wood splinters) that may impair its serviceability.
- d) be white or coloured.

**4.2 Specific requirements**

**4.2.1** Toilet paper shall comply with the requirements given in Table 1 when tested in accordance with the methods prescribed therein.

Table 1 — Specific requirements for single ply and double ply toilet paper

S/No.	Property		Requirement	Test method	
I	Grammage, g/m <sup>2</sup> per ply		Virgin tissue	16 – 21	ISO 12625-6
			Blended tissue	16 – 24	
			Recycled tissue	17 – 24	
li	Tensile strength, N/m of width, min.	MD	Virgin tissue	140-220	ISO 12625-4
			Blended tissue	140 to 220	
			Recycled tissue	140 to 220	
		CD	Virgin tissue	47 to 107	
			Blended tissue	47 to 107	
			Recycled tissue	47 to 107	
		Average of both directions	Virgin tissue	93 to 164	
			Blended tissue	93 to 164	
			Recycled tissue	93 to 164	
lii	Water absorptiveness, g/m <sup>2</sup> , min.		20	ISO 12625-8	
lv	pH value		4.4 – 8.5	ISO 6588-1	
v	Moisture content, %		4.0 – 7.0	ISO 287	
vi	Softness, Nm, max.			Annex A	
	• Virgin		170		
	• Blended		400		
	• Recycled		150		
vii	Brightness of white paper, %, min.		80	ISO 12625-7	
Viii	Number of sheets per roll <sup>a</sup>		Minimum of 100 sheets in increasing multiples of 50	Physical count	
<sup>a</sup> The tolerance for the number of sheets shall not be less than the nominal declared number by 1% sheet					



Table 3 — Specific requirements for toilet paper of three ply and above

S/ No	Property		Requirement	Test method	
I	Grammage, g/m <sup>2</sup> per ply	Virgin tissue	13-19	ISO 12625-6	
		Blended tissue	15-19		
		Recycled tissue	15-19		
ii	Tensile strength, N/m of width, min.	D	Virgin tissue	120-275	ISO 12625-4
			Blended tissue	100 to 250	
			Recycled tissue	100 to 250	
		CD	Virgin tissue	40 to 100	
			Blended tissue	30 to 80	
			Recycled tissue	30 to 80	
		Average of both directions	Virgin tissue	80 to 175	
			Blended tissue	65 to 165	
			Recycled tissue	65 to 165	
iii	Water absorptiveness, g/m <sup>2</sup> , min.		20	ISO 12625-8	
iv	pH value		4.4 – 8.5	ISO 6588-1	
v	Moisture content, %		4.0 – 7.0	ISO 287	
vi	Softness, Nm, max.		-	Annex A	
	• Virgin		170		
	• Blended		400		
	• Recycled		150		
vii	Brightness of white paper, %, min.		80	ISO 12625-7	
viii	Number of sheets per roll <sup>a</sup>		Minimum of 100 sheets in increasing multiples of 50	Physical count	
<sup>a</sup> The tolerance for the number of sheets shall not be less than the nominal declared number by 1% sheet					

**4.2.2** Toilet paper shall comply with microbiological requirements in Table 3 when tested in accordance with the method specified therein.

Table 3 — Microbiological limits for toilet paper

S/No.	Characteristic	Limit	Test method
i	Total plate count, cfu/g max.	300	ISO 8784-1
ii	<i>Pseudomonas aeruginosa</i> , cfu/g		

iii	<i>Staphylococcus aureus</i> , cfu/g	Not detectable in 1 g of the product	
iv	<i>Candida albicans</i> , cfu/g		
v	<i>Escherichia coli</i> , cfu/g		

4.2.3 The dimensional requirements shall be as shown in Table 4 when tested in accordance with the method specified therein.

**Table 4 — Requirements for dimensions**

S/No.	Characteristic	Requirement, mm	Tolerance, mm	Test method
i	Internal diameter of the core	40	± 5	ISO 11093-7
ii	Length of core	100	± 1	
iii	Length of each sheet	125	± 3	

4.2.4 The minimum length of the roll of toilet paper with 100,150 and 200 shall be 12 m, 18 m or 24 m respectively for the corresponding number of sheets.

4.2.5 The average number of holes less than 2 mm in diameter in sheets shall not exceed 10 per sheet.

## 5 Construction

### 5.1 General

5.1.1 The toilet paper in rolls shall comprise a long, single or multi-ply toilet paper evenly and firmly wound on a stiff cylindrical tubular core.

5.1.2 The width of the wound paper shall be equal to the length of the core.

5.1.3 During winding, the paper shall be kept stretched to prevent formation of creases.

5.1.4 The toilet roll shall be perforated across the full width along the length of the roll. The perforation shall be such that they are in line for both plies and each sheet could be readily torn off along the perforations without causing damage to itself or to the neighbouring sheet.

5.1.5 The toilet roll may be plain, creped or embossed.

### 5.2 Rolls

Rolls of paper shall be constructed in a manner that

- a) paper shall be evenly and firmly wound on cylindrical core,
- b) the number of malformed sheets at the core end of a roll shall not exceed five,
- c) the sides of each roll shall be neatly cut, and
- d) the sheet shall be severed along row of perforations and the tear shall be manifestly due to the perforations alone.

## 6.2 Wrapping

### 6.2.1 Individually wrapped toilet paper

The toilet paper rolls shall be individually wrapped.

### 6.2.2 Group wrapped toilet paper

A maximum of 4 rolls shall be contained. Wrapping of more than 4 rolls, the rolls shall be individually wrapped.

## 6.3 Package

Rolls shall be packed in suitable packages that should not affect the quality of the toilet paper during handling, transportation and storage.

## 6.4 Labelling

6.4.1 The following information shall be marked legibly and indelibly on each wrapper:

- a) name and physical address of the manufacturer/importer/distributor and/or trade mark
- b) name of the product shall appear as "Toilet paper";
- c) colour(s) of the toilet paper;
- d) description of fibre composition shall appear as "virgin", "blended" or "recycled";
- e) indicate number of ply;
- f) length of the roll;
- g) batch number/code (optional);
- h) number of sheets of each roll;
- i) country of origin/manufacture;

## 7 Sampling

### 7.1 General

The sampling shall be done in accordance with the procedure in 7.2 in determining whether a lot complies with the relevant requirements of the specification. The samples so taken shall be deemed to represent the lot for the respective properties.

### 7.2 Sample for toilet paper

Samples shall be drawn at random as indicated in Table 5 and tested for compliance with the requirements of this standard.

**Table 5 — Sampling of bulk packages**

<b>Lot size</b>	<b>Sample size</b> <b>Number of rolls</b>
5 – 99	5
100 – 399	10
400 or more	20

### **7.3 Conditioning of test specimens**

Test samples shall be conditioned in accordance to ISO 187.

NOTE The requirement of this clause does not apply to the test of moisture content.

## **Annex A** (normative)

### **Determination of softness**

#### **A.1 Apparatus**

An instrument that measures the combination of resistance due to surface friction and flexural rigidity of sheet material when forced by a blade through a slot that has parallel edges and a width of 6.35 mm

#### **A.2 Test specimens**

From the rolls taken in accordance with Table 4 of 7.2, cut at random 20 test specimens (that is, 10 pairs) each of size 100 mm × 100 mm with the adjacent edges parallel to the machine and cross directions respectively.

#### **A.3 Procedure**

**A.3.1** Place a pair of the specimens next to each other and centrally over the slot with their cross directions parallel to the slot.

**A.3.2** Start the blade mechanism and record the maximum reading. Turn the two specimens through 90° so that their machine directions: are parallel to the slot. Again record the maximum reading.

**A.3.3** Repeat the procedure on the remaining nine pairs of specimens ensuring that equal number of tests are performed on each side of the paper.

**A.3.4** Calculate and report to three significant figures the average of all readings in milliNewtons as the softness of the paper.

## Bibliography

- [1] EAS 355: 2004, *Toilet paper — Specification (1<sup>st</sup> Edition)*

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