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DRAFT EAST AFRICAN STANDARD

Toilet paper — Specification — Part 1 — Regular toilet tissue paper

EAST AFRICAN COMMUNITY

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Second Edition

Copyright notice

Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

The Community has established an East African Standards Committee (EASC) mandated to develop and issue East African Standards (EAS). The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the public and private sector organizations in the community.

East African Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the Principles and procedures for development of East African Standards.

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

The committee responsible for this document is Technical Committee EASC/TC 065, *Paper and paper products*.

Attention is drawn to the possibility that some of the elements of this document may be subject of patent rights. EAC shall not be held responsible for identifying any or all such patent rights.

This second edition cancels and replaces the first edition (EAS 355:2004), which has been technically revised

Toilet paper — Specification — Part 1 — Regular toilet tissue paper

1 Scope

This Draft East African Standard specifies requirements, sampling and test methods for regular toilet tissue paper made from virgin, blended or recycled pulp.

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 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 8784-1, Pulp, paper and board — Microbiological examination — Part 1: Enumeration of bacteria and bacterial spores based on disintegration

ISO 11093-4, *Paper and board — Testing of core — Part 4:* Measurement of dimensions

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*

ISO 18416, *Cosmetics — Microbiology — Detection of Candida albicans*

ISO 21150, *Cosmetics — Microbiology — Detection of Escherichia coli*

ISO 22717, *Cosmetics — Microbiology — Detection of Pseudomonas aeruginosa*

ISO 22718, *Cosmetics — Microbiology — Detection of Staphylococcus aureus*

3 Terms and definitions

For the purposes of this standard, the terms and definitions given in ISO 12625-1 and the following shall 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 General 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 nor 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) be free from paper defects (for example, fibre bundles, wood splinters) that may impair its serviceability.

c) be white, coloured or printed

d) the toilet roll may be plain, creped or embossed.

4.1.3 Toilet paper in rolls shall meet the following requirements

a) The core shall be rigid enough not to collapse under normal conditions of transportation, storage and usage

b) 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.

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

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

e) 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.

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.

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^2 per ply		Virgin tissue	15 – 21	ISO 12625-6
			Blended tissue	15 – 24	
			Recycled tissue	15 – 24	
ii	Dry Tensile streng th, per ply N/m of width, min.	MD	Virgin tissue	120	ISO 12625-4
			Blended tissue	100	
			Recycled tissue	80	
		CD	Virgin tissue	40	
			Blended tissue	30	
			Recycled tissue	30	
iii	Water absorption rate, mm/min, min.			20	Annex B
iv	pH value			4.0-10.0	ISO 6588-1
v	Moisture content, %			4.0 – 10.0	ISO 287
vi	Softness, Nm, max. Virgin Blended Recycled			- 170 160 150	Annex A
vii	Brightness of white paper, %, min. • Virgin • Blended			73 63 56	ISO 12625-7

	• Recycled		
viii	Number of sheets per roll[a]	Minimum of 100 sheets in increasing multiples of 50	Physical count
[a] The tolerance for the number of sheets shall not be less than the nominal declared number by ± 2 sheets			

Table 2 — Specific requirements for toilet paper of three ply and above

S/ No.	Property			Requirement	Test method
i	Grammage, g/m^2	Virgin tissue		13-19	ISO 12625-6
		Blended tissue		15-19	
		Recycled tissue		15-19	
ii	Dry Tensile strength per ply, N/m of width, min.	MD	Virgin tissue	120	ISO 12625-4
			Blended tissue	100	
			Recycled tissue	80	
		CD	Virgin tissue	40	
			Blended tissue	30	
			Recycled tissue	30	
iii	Water absorption rate, mm/min, min.			20	Annex B
iv	pH value			4.0 – 10.0	ISO 6588-1
v	Moisture content, %			4.0 – 10.0	ISO 287
vi	Softness, mN, max. • Virgin • Blended • Recycled			- 170 160 150	Annex A
vii	Brightness of white paper, %, min. • Virgin • Blended • Recycled			 73 63 56	ISO 12625-7
viii	Number of sheets per roll[a]			Minimum of 100 sheets in increasing multiples of 50	Physical count
[a] The tolerance for the number of sheets shall not be less than the nominal declared number by ± 2 sheets.					

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 viable count, cfu/g max.	1000	ISO 8784-1
ii	*Pseudomonas aeruginosa*, cfu/g	Not detectable in 1 g of the product	ISO 22717
iii	*Staphylococcus aureus,* cfu/g		ISO 22718
iv	*Candida albicans,* cfu/g		ISO 18416
v	*Escherichia coli,* cfu/g		ISO 21150

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 11093-4
ii	Length of core	100	± 2	
iii	Length of each sheet	125	± 3	

4.2.4 Regular toilet tissue paper sheets shall comply with the dimensional requirements given in Table 5 when tested in accordance with the test methods specified therein.

Table 5 — Dimensional requirements for regular toilet tissue paper in sheet form

S/N	Parameter	Requirement	Tolerance on declared value	Test method
i.	Sheet size, mm, min.	100 x 200	±3	[ISO 11093-4]
ii.	Number of sheets per pack, min.	200 in multiples of 50	±2	By physical count

4.2.5 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.

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

6 Packaging

6.1 General

Toilet paper of the same fibre composition, size, length and colour shall be packed together.

6.2 Wrapping

6.2.1 Toilet paper shall be individually wrapped for those meant to be sold individually

6.2.2 Where toilet paper pieces are individually unwrapped, they shall be sold group-wrapped, to a maximum of 10 pieces and clearly labelled “not to be sold individually”

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; and

6.4.2 In case of group wrapping the pack shall be marked with the statement “not be sold individually”.

7 Sampling

Sampling shall be done in accordance with ISO 186.

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.

Annex B
(normative)

Determination of water absorption

B.1 Apparatus

The Beadle-Stevens Bibliometer.

If this is not available the apparatus required is a burette stand or similar clamping device, a small developing basin, stop watch, millimetre scale and distilled water at 20 ± 1.5 °C.

B.2 Test specimens

Cut the specimens into strips 20 m wide and more than 120 m long.

B.3 Procedure

B.3.1 If the Beadle-Stevens Bibliometer is used the strip is inserted so that 10 m of its immersed and the height of rise read off on the scale after exactly 1 minute.

B.3.2 If this instrument is not available the strip and the millimeter scale can both be clamped in the burette stand side by side and bith immersed 10m into the water and the height of rise read off after 1 minute. This method is only successful if the millimeter scale is small enough not to disturb the surface of the water appreciably, or the last cm off the scale may be filed off into a point, the paper clamped so that the projection of 1 cm below the bottom point of the scale just touches the surface of the water and the rise read off in mm after exactly 1 min.

B.3.3 If no suitable scale is available for the methods described in C.3.1 and C.3.2 then the following is the way to carry out the test.

A line is drawn across the strip 10 m from the lower end. The strip is fixed in the stand so that when the stand is put in position the lower end of the strip will be immersed 10m just up to the line. At the same instant the stopwatch is started. After 1 min exactly the spot or line to which the moisture on the strip has risen is marked. The strip is then measured from the starting line to the mark.

B.4 The average of five tests in each direction in mm shall be recorded.

Bibliography

EAS 355: 2004, *Toilet paper — Specification* (1st Edition)

KS 24-1: 2003, *Tissue paper and tissue products*