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EAST AFRICAN STANDARD

Toilet paper — Specification

DRAFT EAST AFRICAN STANDARD ON PUBLIC REVIEW

EAST AFRICAN COMMUNITY

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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.

In order to achieve this objective, the Community established an East African Standards Committee mandated to develop and issue East African Standards.

The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the private sectors and consumer organizations. 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 procedures of the Community.

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.

DRAFT EAST AFRICAN STANDARD ON PUBLIC REVIEW

Toilet paper — Specification

1 Scope

This draft East African Standards specifies the requirements, sampling and methods of test for toilet paper recycled or blended pulp.

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.

ISO 1924-2, Paper and board – Determination of tensile properties – Part 2: Constant rate of elongation method.

ISO 2470, Paper, board and pulps – Measurement of diffuse blue reflectance factor (ISO brightness).

ISO 12625-8:2010-Tissue paper and tissue products part -8: Water absorption time and water capacity, basket immersion test method.

ISO 12625-8:2005 Tissue paper and tissue products part -6: Determination of grammage.

ISO 287:2009 Paper and board -- Determination of moisture content of a lot -- Oven-drying method

ISO 6588-2:2012 Paper, board and pulps -- determination of pH of aqueous extracts -- Part 2: Hot extraction

ISO 12625-5:2005 Tissue paper and tissue products -- Part 5: Determination of wet tensile strength

ISO 187 Paper, board and pulps – Standard atmosphere for conditioning and testing and procedure for monitoring the atmosphere and conditioning of samples.

3 Terms and definitions

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

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**

the 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**

an area in a sheet void of fibres and having a diameter that exceeds 2 mm.

3.7**defective**

a 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**

the number of single sheets.

3.10**Virgin tissue paper**

tissue made from bleached chemical virgin pulp.

3.11**recycled tissue paper**

tissue made from recycled pulp

3.12**blended tissue paper**

tissue made from a mixture of pure and recycled pulp

3.13**embossed paper**

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

3.14 grammage

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

NOTE Grammage is expressed in grams per square metre.

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

Tissue paper shall meet the following requirements:

- a) be single ply soft, single ply strong or multiple ply soft
- b) be manufactured, packaged and handled under good hygienic practice.
- c) Chemicals used in manufacture of toilet paper shall not cause irritation of the skin
- d) the core shall be rigid enough not to collapse under normal conditions of transportation and usage.
- e) be free from deleterious defects (e.g. fibre bundles, wood splinters) and from defects that may impair its serviceability
- f) be white or coloured

4.2 Specific requirements

The toilet papers shall also comply with the requirements given in Table 1 when tested in accordance with the methods prescribed therein.

Table 1 — Specific requirements for toilet paper

Property	Requirement	Test method
Grammage g/m ² Virgin tissue blended tissue recycled tissue	17 – 21 17 – 24 21 - 24	ISO 12625-8
Tensile strength, N/m of width,min M.D C.D Average of both directions	140 for single/double ply soft and 220 for single ply strong 47 for single/double ply and 107 for single ply strong 100 for single/double ply soft and 193 for single ply strong	ISO 1924-2,
Water absorption, mm/min	20	ISO 12625-8
pH value, hot extract	4.4 – 8.5	ISO 6588-2
Moisture content, %	4.0 – 7.0	ISO 287
Softness. Nm, max Single ply soft Single ply strong Double ply soft	170 400 150	Annex A
Brightness of white paper %	73	ISO 12625-7
Number of sheets per roll (shall not be smaller than	Minimum of 100 sheets in increasing multiples of 50	Physical count

the declared nominal number by more than 1% sheet.		
Microbiological test Total plate count, cfu/g,max	300	ISO 8784-1

4.3 Dimensions

The dimensional requirements shall be as shown in table 3.

Table 3—Dimensions for toilet paper

Characteristic	Requirements mm	Tolerance mm	Test method
Internal diameter of the core	42	±5	Sub clause 6.6.1
Length of core	100	±1	
Length of each sheet	125	±3	Sub clause 6.6.2

4.4 Length of roll

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

4.5 Holes

The average number of holes permitted in the sheets of a roll shall not exceed 10 for hundred sheets

4.6 Construction

4.6.1 General

- 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.
- The width of the wound paper shall be equal to the length of the core.
- During winding, the paper shall be kept stretched to prevent formation of creases
- 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.
- The toilet roll shall be creped and may be embossed

4.6.2 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.
- (d) when a roll is tested in accordance with 9.2 each of the 10 sheets in the roll under test shall be severed along row of perforations and the tear shall be manifestly due to the perforations alone.

5 Packaging

5.1 General

Only toilet paper of the same grade, size, length and colour shall be packed together

5.2 Wrapping.

The toilet paper rolls may be group wrapped in units of multiples of, 2, upto 10 as agreed between the manufacturer and buyer

In case its intended to be sold as a single toilet paper roll, then shall be individually wrapped completely and labelled as such.

5.3 Package

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

5.4 Labelling

The following information shall appear in clear and indelible marking on each wrapper:

- a) the name and physical address of the manufacturer/importer/distributor and/or trade mark
- b) the name of the material (words) "Toilet paper";
- c) the grade of the paper and if the wrapper is opaque the colour(s) of the paper
- d) the type of paper" virgin toilet paper", recycled tissue paper/logo ,or "blended tissue paper"
- e) Indicate if single or double ply
- f) the length of the roll;
- g) batch number or code number.
- h) number of sheets of sheets of each roll
- i) Country of origin
- j) Incase of group wrapping the pack shall be marked with the statement not be sold individually

6 Sampling and compliance with the standard

6.1 Sampling

The following procedure shall be applied 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

6.2 Sample for inspection of core and roll

Samples shall be taken at random take sample size for inspection depending on the lot size as shown in table 4 below.

Table 4— Sampling of Bulk containers/ packages

Lot Size	Sample Size
5 – 99	5
100 – 399	5% of the lot
400 or more	20

6.3 Sample for inspection of dimensions and holes

After inspection of the rolls for core characteristics, a sub-sample of five rolls shall be randomly selected from the sample of 6.2 for testing for diameter of core and roll, length and width of sheet, length of roll and freedom from holes.

6.4 Sample for performing other physical tests

Another sub-sample of five rolls shall be randomly selected from the sample of 6.3 for testing for perforations, tensile strength, softness, brightness (where applicable), water absorption, pH and grammage.

6.5 Conditioning of test specimens

Condition test samples in accordance to ISO 187. The requirement of this clause do not apply to the test of moisture content.

6.6 Test Dimensions

6.6.1 Diameter of core

Measure the core diameter at two locations at right angles to each other and calculate the mean of the two measurements the inside diameter of the core of each roll taken in accordance with 6.2. The mean shall agree with the requirements.

Measure and record to the nearest 1 mm, the outside diameter of each roll taken in accordance with 6.2

6.6.2 Length and width of sheets

Measure to the nearest 1 mm, the length and width of each two sheets in each roll taken in accordance with 6.2 and record the average value for each dimension.

6.6.3 Length of roll

Measure to the nearest 1 mm, each of 10 sheets taken at random on each roll selected in accordance with 6.2 Record the average and multiply by the number of sheets in each roll

6.6.4 Freedom from holes

While carrying out 6.6.3, check for compliance with 4.5

6.7 Assessment of perforations

Use the five rolls taken in accordance with 6.4 at a position chosen at random on the roll under test, detach a sheet by holding it between thumb and forefinger at its perforated end and exerting a steady pull at an angle of about 10° to the edge of the roll, and check the tear for compliance with 4.6.2d). Carry out the test on 10 consecutive sheets of the roll, and then repeat the test on the remaining four rolls. Record (separately) the number of defective (i.e. perforations which do not tear satisfactorily) found in the 10 tests on each roll.

6.8 Tensile strength

6.8.1 From the rolls taken in accordance with 6.4 and observing the precautions given in ISO 1924 for preparing specimens for test cut at random 10 specimens in the machine direction and 10 specimens in the cross direction of the paper, each specimen being at least 100 mm long and 50 mm \pm 0.1 mm wide.

6.8.2 Use the apparatus and procedure given in ISO 1924 but

- a) use an initial distance of 65 mm between the clamps
- b) use a rate of loading such that the specimens break within \pm 5 s.

6.8.3 Calculate and report to three significant figures the average breaking strength in Newton's per metre of width for each direction of the paper and also the average of that strength in the two directions.

6.9 Softness

6.9.1 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.

6.9.2 From the rolls taken in accordance with 8.4 cut at random 20 test specimens (i.e. 10 pairs) each of size 100 X 100 mm with the adjacent edges parallel to the machine and cross directions respectively.

6.9.3 Calibrate the instrument according to the manufacturer's instructions. Place a pair of specimens next to each other and centrally over the slot with their cross directions parallel to the slot. 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. Repeat the procedure on the remaining nine pairs of specimens ensuring that an equal number of tests are performed on each side of the paper. Calculate and report to three significant figures the average of all reading in milli newtons as the softness of the paper.

7 Conditions of acceptance

The lot is acceptable if the aggregate percentage failure for all the requirements does not exceed 5 %

ANNEX A (normative)

DETERMINATION OF SOFTNESS

FA.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 6.4, cut at random 20 test specimens (i.e.10 pairs) each of size 100mm × 100mm with the adjacent edges parallel to the machine and cross directions respectively.

A.3 Procedure

- (a) Place a pair of the specimens next to each other and centrally over the slot with their cross directions parallel to the slot.
- (b) 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.
- (c) Repeat the procedure on the remaining nine pairs of specimens ensuring that equal number of tests are performed on each side of the paper.
- (d) Calculate and report to three significant figures the average of all readings in mN as the softness of the paper

Bibliography

- [1] MS 12, Mauritian Standard for Toilet paper
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