

DRAFT UGANDA STANDARD

DUS DEAS 1058

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Thermal-sensitive paper roll for printers — Specification



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National foreword

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This Draft Uganda Standard, DUS DEAS 1058:2021, *Thermal-sensitive paper roll for printers — Specification*, is identical with and is being reproduced from a Draft East African Standard, DEAS 1058:2021, *Thermal-sensitive paper roll for printers — Specification*, and is proposed for adoption as a Uganda Standard.

The committee responsible for this document is Technical Committee UNBS/TC 306, *Paper and paper products*.

Wherever the words, "East African Standard " appear, they should be replaced by "Uganda Standard."



DEAS 1058:2021

ICS 85.080.01

DRAFT EAST AFRICAN STANDARD

Thermal-sensitive paper roll for printers —Specification

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.

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.

Introduction

Thermal Printing Technology provides for instant printing on command. This is very important at points of sale (POS) such as restaurants, kiosk, hotels, gas stations, supermarkets, and for labels, gaming, ticket & tags and other applications of similar nature

The use of roll paper can also reduce the amount of paper used and improve performance by printing a page equal to the length necessary to present the printed information.

Choosing the right thermal paper is very important given that they have different thermal sensitivities and constructions.

Thermal-sensitive paper roll for printers — Specification

1 Scope

This Draft East African Standard specifies requirements, sampling and test methods for thermal-sensitive paper used in places where information has to be printed out quickly and economically

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.

ASTM D 6789, *Standard Test Method for Accelerated Light Aging of Printing and Writing Paper by Xenon-Arc Exposure Apparatus*

ISO 186, *Paper and board — Sampling to determine average quality*

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

ISO 536, *Paper and board — Determination of grammage*

ISO 1924-2, *Paper and board — Determination of tensile properties — Part 2: Constant rate of elongation method (20 mm/min)*

ISO 2470-1, *Paper, board and pulps — Measurement of diffuse blue reflectance factor — Part 1: Indoor daylight conditions (ISO brightness)*

ISO 2471, *Paper and board — Determination of opacity (paper backing) — Diffuse reflectance method*

ISO 4046 (all parts), *Paper, board, pulps and related terms — Vocabulary*

ISO 5627, *Paper and board — Determination of smoothness (Bekk method)*

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

ISO 8791-2, *Paper and board — Determination of roughness/smoothness (air leak methods) — Part 2: Bendtsen method*

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

3 Terms and definitions

For the purposes of this document, the following terms and definitions and those in ISO 4046 (all parts) shall apply

thermal printing

process where words or images are produced on the thermal paper by means of direct heat transmission

4 Requirements

4.1 General requirements

4.1.1 The base paper shall be manufactured from bleached chemically processed cellulose fibres or recycled fibres (or both) or any other material that will ensure compliance with the requirements given in Table 1.

4.1.2 Thermal paper shall be made of an acceptable white, glossy paper unless specified otherwise.

4.1.3 Thermal paper shall be coated on one side or both sides with a heat sensitive coating material.

4.1.4 The papers shall be free from tears, holes, dust, wood splinters, blemishes, slime spots, creases and other visible defects and shall be uniform in texture.

4.1.5 The web paper shall be evenly, squarely and tightly wound on the core.

4.1.6 The web shall have smooth cut edges, and the roll shall be so wound as to give smooth end-faces that are free from dust and loose fibres and debris.

4.1.7 The free (outer) end of the paper shall be attached to the roll with glue, a small self adhesive tape or sticker or other acceptable sealing methods

4.1.8 The core shall be of a material that is suitable for the purpose and such that the core will not deform or collapse under normal conditions of handling, transportation, storage and usage.

4.2 Specific requirements

4.2.1 The physical and chemical properties of thermal-sensitive paper rolls shall comply with the requirements set out in Table 1.

4.2.2 The type of thermal-sensitive paper rolls shall be such that optical density, image density and image life under proper storage conditions are visible for a minimum of 3 years without disappearing.

4.2.3 The thermal-sensitive paper shall be capable to withstand temperature between 100 °C to 600 °C

Table 1 — Requirements of thermal paper

S/No	Parameter	Requirement	Test Method
i	^a Grammage, g/m ² , Min..	40	ISO 536
ii	Tensile strength, N/15 mm, min.	MD	ISO 1924-2
		CD	
iii	Opacity (%), min.	78	ISO 2471
iv	Moisture Content, %	4.0 – 8.5	ISO 287
v	pH	5.0 — 8.5	ISO 6588-1
vi	Bendtsen Roughness, mL/min	150 – 500	ISO 8791-2
vii	Smoothness, coated side (Bekk, front), s, min.	200	ISO 5627
viii	Brightness, % min.	Before aging	ISO 2470-1
		After aging	

ix	Optical density before aging	Light resistance, 5 000 Lux, 24 h	>1.33	ASTM D 6789
		Heat resistance, 60 °C/24h		
		Moisture resistance, 60 °C/ 90%/R.H 24h		
x	Optical density after aging	Light resistance, 5 000 Lux, 24 h	>1.25	ASTM D 6789
		Heat resistance, 60 °C/24h		
		Moisture resistance, 60 °C/ 90%/R.H 24h		
^a Tolerance of $\pm 5\%$ on declared value above the minimum				

4.3 Dimensions

4.3.1 When tested in accordance with ISO 11093-4, the thermal-sensitive paper shall meet the requirements of the declared dimensions

4.3.2 The length of the core shall not exceed the nominal width of the paper roll nor shall the core be recessed from either end-face of the roll by more than 1.5 mm.

4.3.3 The core shall have a maximum wall thickness of 3 mm.

4.3.4 Length based dimensions shall be designated as $W \times L \times C, C$ while diameter based dimensions shall be designated as $W \times D \times C, C$ (See Figure 1)

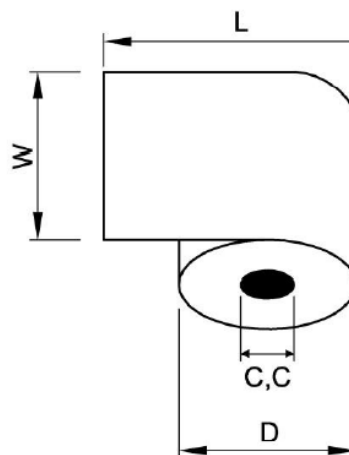


Figure 1 — illustration of thermal paper components

Where;

W is the nominal width of the roll, measured in millimetres and subject to a tolerance of ± 1.0 mm

L is the nominal length of paper roll, measured in meters and subject to a tolerance of ± 0.2 m

C, C is the nominal inside diameter of the core on which the paper is wound, and is in millimeters expressed to a single decimal and subject to a tolerance of $+ 0.5$ mm

D is the nominal diameter of the roll, measured in millimetres and subject to a tolerance of ± 1.5 mm

5 Packaging and Labelling

5.1 Packaging

5.1.1 Individual rolls shall be wrapped completely

5.1.2 Thermal-sensitive paper rolls shall be packed in an upright position (chimney stacked) in suitable packages that are rigid enough to prevent damage to the contents during handling, transportation and storage of the products.

5.1.3 Thermal-sensitive paper rolls shall be supplied in packages containing the same type and size of the rolls.

5.1.4 The package used shall prevent thermal-sensitive paper rolls from being exposed to moisture, dust, dirt and other hazards during transportation and storage.

5.1.5 The package shall be of such quality and strength as to prevent bursting, tearing, distortion or opening-up from the weight of thermal-sensitive paper rolls.

5.2 Labelling

5.2.1 Labelling on a unit roll

Each package shall be legibly and indelibly marked either in English, Kiswahili or French or combination.

- a) manufacturer's name, address and/or trademark;
- b) name of the product (i.e. "Thermal-sensitive paper roll for printers");
- c) thermal paper dimensions including width, inside diameter, roll diameter for diameter-based rolls and width, inside diameter and paper length for length-based rolls;
- d) paper grammage;
- e) date of manufacture of the rolls;
- f) storage instructions;
- g) country of origin; and
- h) any other information requested by the purchaser.

5.2.2 Labelling on bulk package

Each package shall be legibly and indelibly marked either in English, Kiswahili or French or combination with the following information:

- a) manufacturer's name, address and/or trademark;
- b) name of the product (i.e. "Thermal-sensitive paper roll for printers");
- c) thermal paper dimensions including width, inside diameter, roll diameter for diameter-based rolls and width, inside diameter and paper length for length-based rolls;
- d) paper grammage;
- e) date of manufacture of the rolls;
- f) number of rolls in the package;
- g) gross weight;
- h) batch number;
- i) storage instructions;
- j) country of origin; and
- k) any other information requested by the purchaser.

6 Sampling

Sampling shall be done in accordance with ISO 186

Bibliography

- [1] TBS/CDC-10 (6437) P3 *Thermal paper rolls — Specification*

Public Review Draft Standard

Public Review Draft Standard