

**AFRICAN  
STANDARD**

**DARS**  
**1600:2024**  
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**Non-Woven Bags— Specification**

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## **Non-woven bags — Specification**

### **1 Scope**

This Working draft African Standard specifies requirements, sampling and test methods for non-woven bags used for packaging.

It does not cover feel and lustre of the fabric.

### **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 9073-3, *Nonwovens Test methods Part 3: Determination of tensile strength and elongation at break using the strip method*

ISO 177, *Plastics — Determination of migration of plasticizers*

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

ISO 105 X12, *Textiles — Tests for colour fastness — Part X12: Colour fastness to rubbing*

ISO 1833 (all parts), *Textiles — Quantitative chemical analysis*

ISO 5077, *Textiles — Determination of dimensional change in washing and drying*

ISO 7965-2, *Sacks — Drop test — Part 2: Sacks made from thermoplastic flexible film*

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

ISO 9073-1, *Textiles — Test methods for nonwovens — Part 1: Determination of mass per unit area*

ISO 9073-4, *Textiles — Test methods for nonwovens — Part 4: Determination of tear resistance*

ISO 9073-5, *Textiles — Test methods for nonwovens — Part 5: Determination of resistance to mechanical penetration (ball burst procedure)*

ISO 9073-16, *Textiles — Test methods for nonwovens — Part 16: Determination of resistance to penetration by water (hydrostatic pressure)*

ISO 9073-17, *Textiles — Test methods for nonwovens — Part 17: Determination of water penetration (spray impact)*

ISO 9073-18, *Textiles — Test methods for nonwovens — Part 18: Determination of breaking strength and elongation of nonwoven materials using the grab tensile test*

ISO 12947-2 *Textiles — Determination of the abrasion resistance of fabrics by the Martindale method — Part 2: Determination of specimen breakdown*

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ISO 14362-1, *Textiles — Methods for determination of certain aromatic amines derived from azo colorants — Part 1: Detection of the use of certain azo colorants accessible with and without extracting the fibres*

ISO 14362-3, *Textiles — Methods for determination of certain aromatic amines derived from azo colorants — Part 3: Detection of the use of certain azo colorants, which may release 4-aminoazobenzene*

ISO 16373-1, *Textiles — Dyestuff — Part 1: General principles of testing coloured textiles for dyestuff identification*

ISO 16373-2, *Textiles — Dyestuffs — Part 2: General method for the determination of extractable dyestuffs including allergenic and carcinogenic dyestuffs (method using pyridine-water)*

ISO 16373-3, *Textiles — Dyestuffs — Part 3: Method for determination of certain carcinogenic dyestuffs (method using triethyl amine/methanol)*

ISO 22198, *Textile — Fabrics — Determination of width and length*

### **3 Terms and definitions**

For the purposes of this document, the following term and definition apply.

#### **3.1**

##### **non-woven**

a manufactured sheet, web or batt of directionally or randomly oriented fibers that are bonded

**NOTE:** Non-woven excludes paper and products which are woven, knitted, tufted, stitch bonded incorporating binding yarns or

### **4 Requirements**

#### **4.1 General requirements**

##### **4.1.1 Fabric**

**4.1.1.1** Non-woven fabric shall be of 100 % synthetic fibres when tested in accordance with the relevant parts of ISO 1833

**4.1.1.2** When polypropylene is used in making the non-woven fabric, it shall be made from virgin resin.

##### **4.1.2 Edge sealing**

All raw edges and unfinished edges shall not be exposed.

##### **4.1.3 Freedom from defects**

The non-woven bag shall be free from defects such as holes, cuts, tears, floats, crushed selvages, spots and stains, loose and frayed ends and any other defects that may affect the performance of the non-woven bag.

#### **4.2 Specific requirements**

**4.2.1** non-woven bags shall comply with the specific requirements given in Table 1 when tested in accordance with the methods specified therein.

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**Table 1 — Specific requirements for non-woven bags**

Characteristic	Requirement		Test method
Mass per unit area, g/m <sup>2</sup> , min.	50		ISO 9073-1
Breaking strength of the fabric (Grab method), N, min.	MD	220	ISO 9073-18
	CD	140	
Dimensional stability, %	3		ISO 5077
Water penetration resistance (hydrostatic pressure), cm head, min.	10		ISO 9073-16
Water penetration resistance (spray impact), g, max.	2.00		ISO 9073-17
Seam Strength (grab method), N, min.	50		ISO 9073-18
Handle strength, N, min. (Non-woven bags with a handle design feature)	90		Annex A
Puncture resistance (ball burst method), N, min.	100		ISO 9073-5
Abrasion resistance, cycles, min.	10 000		ISO 12947-2
Tear resistance (trapezoid), N, min.	MD	100	ISO 9073-4
	CD	80	
Colour fastness to rubbing (crocking), min.	Dry	4	ISO 105 X12
	Wet	4	
Colour fastness to washing	Colour change	4	ISO 105 C10 Test C
	Staining	4	
Fibre composition	Shall contain mixtures of polypropylene fibres and certain other fibres refer to the one for synthetic hair extensions		ISO 1833 (all parts)

### 4.3 Microbiological requirements

Non-woven bags material shall comply with the microbiological requirements given in Table 2 when tested in accordance with the methods specified therein.



**Table 2 — Microbiological requirements for non-woven bags (confirm with the laboratories)**

S/N	Characteristic	Limit	Test method
i	<i>Total viable count, cfu/g, max.</i>	1000	ISO 8784-1
ii	<i>Pseudomonas aeruginosa, cfu/g</i>	Not detected in 1 g of the product	
iii	<i>Staphylococcus aureus, cfu/g</i>		
iv	<i>Candida albicans, cfu/g</i>		

**Commented [JW1]:** Test method and the requirement on TVC to be confirmed during Public enquiry

#### 4.4 Dimension

When tested in accordance with ISO 22198, the nominal dimensions of the bags shall be as declared subject to a tolerance of  $\pm 2$  cm.

#### 4.5 Overall migration

The migration limit shall be a maximum 60 mg/kg for foodstuff and maximum 60 mg/l for liquid foodstuffs or of simulants when tested in accordance with ISO 177.

#### 4.6 Pigments, and colorants

Dyestuff on textiles shall be identified when tested in accordance with ISO 16373-1. Banned aromatic amines on non-woven fabric shall not exceed 30 mg/kg when tested in accordance with ISO 14362-1 and ISO 14632-3. Allergenic and carcinogenic dyestuffs shall not exceed 20 mg/kg when tested in accordance with ISO 16373-2 and ISO 16373-3.

#### 4.7 Drop test

##### 4.7.1 Butt dropping

When tested in accordance with ISO 7965-2 at a height of 1.20 m on the bottom and the top of the bag, after each drop, there shall be no rupture or loss of contents.

##### 4.7.2 Flat dropping

When tested in accordance with ISO 7965-2 at a height of 1.60 m twice on one flat face and twice on the opposite flat face, there shall be no rupture or loss of contents.

### 5 Packaging

**5.1** Non-woven bags shall be packed in suitable materials that prevents it from damage, contamination during normal handling, storage and transportation.

**5.2** The bags shall be packaged in agreed quantities between the buyer and seller.



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### 6 Labelling

#### 6.1 Primary package

The primary package shall be legibly and indelibly marked with the following information:

- a) manufacturer's name and physical address
- b) registered trade mark if any;
- c) dimensions of the bag;
- d) country of manufacture and/or origin;
- e) instruction for storage and disposal; and
- f) batch number or code;

#### 6.2 Bulk package

The bulk package shall be legibly and indelibly marked with the following information:

- a) Manufacturer's name and physical address;
- b) registered trade mark if any;
- c) Description of goods, "Non-woven Bags";
- d) The quantities of the bags;
- e) Batch number or code;
- f) Instruction for storage and disposal of bulk packaging material; and
- g) country of manufacture and/or origin.

### 7 Sampling and criteria for conformity

#### 7.1 Lot

In a consignment, all non-woven bags of the same variety shall be grouped together to constitute a lot. Each lot shall be separately sampled for the purpose of ascertaining the conformity of the requirements of the specification.

#### 7.2 Sampling

7.2.1 From each lot, sample bags shall be selected at random as prescribed in Table 3.

Table 3 – Sampling plan

Lot size-No. of the bags	Sample size-No of the bags
Up to 25	4
26 to 50	6

51 to 100	8
101 and above	10

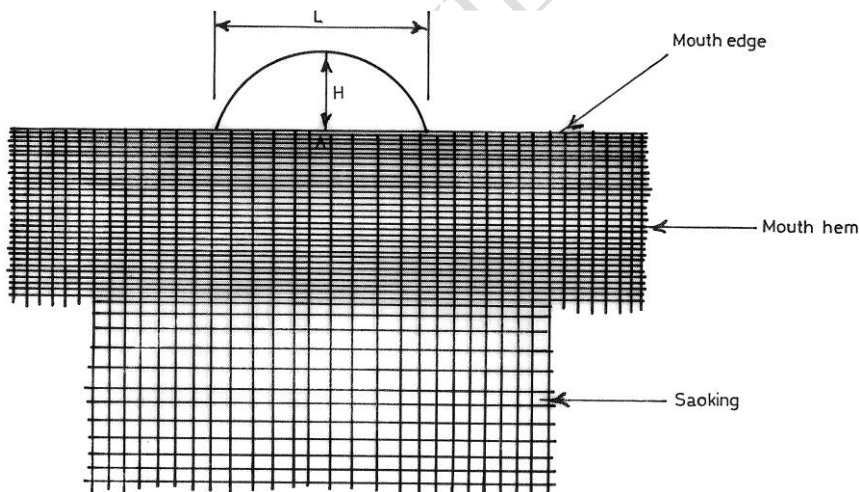
7.2.2 The bags selected as per Table 3 above shall be tested for characteristic outline in Table 1.

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**Annex A**  
**(normative)**

**Determination of withdrawal force of handle**

- A.1** Visually examine the way the handles are fixed onto the body of the non-woven bag and trace the handle-ends and note their positions.
- A.2** From the bag mouth, cut two specimens each with a handle, leaving a clearance on either side of at least 5 cm from the handle-ends and the point at which the handle-loop emerges from the bag mouth and sacking length of at least 20 cm from the bag mouth.
- A.3** Reduce the sacking width line to about the span length (or about 16 cm) so that the resulting specimen is T shaped
- A.4** With the handle hooked by the upper jaw and the sacking below the hemming line gripped by the lower jaw of a strength tester using a constant rate of traverse of 20 cm per minute, determine the handle withdrawal force in accordance with ISO 9073-3.
- A.5** Repeat the procedure for 5 specimens. The handle withdrawal force for each bag is the average of the tow readings.



## **Annex B**

### **(informative)**

### **Overall migration**

Overall migration is a term used to describe the total amount of substances that can transfer from a food contact material or article (such as packaging) to food. It is a measure of the inertness or safety of the material or article, and it is usually expressed in milligrams per square decimetre of food contact surface area (mg/dm<sup>2</sup>). Overall migration does not identify the specific substances that migrate, but rather gives an indication of the quantity of migration. Different food contact materials may have different overall migration limits (OMLs) depending on their intended use and the type of food they contact. For example, plastics have an OML of 10 mg/dm<sup>2</sup> for most foods, but lower OMLs for fatty foods. Overall migration testing is done by exposing the material or article to a food simulant, which is a liquid that mimics the properties of real food, such as water, ethanol, acetic acid, or vegetable oil. The simulant is then analysed for the amount of extracted residue, which represents the overall migration.

The standards for migration in food packaging vary depending on the region and the type of packaging material. However, some common elements are:

An overall migration limit (OML), which is the maximum amount of total substances that can migrate from the packaging into food or food simulant. The OML is usually expressed in mg/kg of food or mg/dm<sup>2</sup> of packaging surface area. For example, the European Union (EU) has set an OML of 60 mg/kg or 10 mg/dm<sup>2</sup> for all packaging materials<sup>1</sup>.

A specific migration limit (SML), which is the maximum amount of a specific substance that can migrate from the packaging into food or food simulant. The SML is based on the toxicological risk assessment of the substance and is usually expressed in mg/kg of food. For example, the EU has set SMLs for various substances that are authorized for use in plastic packaging materials<sup>2</sup>.

A specification test, which is a test to verify the quality and purity of a substance used in packaging materials. The specification test may include parameters such as molecular weight, color, odor, solubility, etc.

To determine the compliance with these standards, different methods are used to measure the migration of substances from packaging materials into food or food simulants. These methods include:

Experimental testing, which involves exposing the packaging material to a food or a food simulant under certain conditions of time and temperature, and then analyzing the amount of substances that have migrated using analytical techniques such as chromatography or mass spectrometry.

Mathematical modeling, which involves using equations and parameters to describe the diffusion and partitioning of substances from the packaging material into the food or food simulant. Modeling can be a useful tool for estimating consumer exposure, risk assessment, safe packaging design, and regulatory compliance testing.

**Bibliography**

Commented [JW2]: WG 4 to provide references

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