



**DRAFT TANZANIA STANDARD**

**TDC 3 (1140) CD<sub>3</sub>  
First Edition**

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**Textiles — Woven High-Density Polyethylene/Polypropylene  
(HDPE/PP) Shopping bags — Specification**

*Draft for stakeholders comments only!*

**TANZANIA BUREAU OF STANDARDS**

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## Foreword

This Draft Tanzania Standard is being developed by the Household Textile Technical Committee under supervision of the Textiles and Leather Division Standards Committee and it is in accordance with the procedures of the Bureau.

This Draft Tanzania Standard has been prepared with assistance drawn from:

*Local Shopping bags manufacturers.*

*TZS 1257 Textiles – Specification for open mouth woven poly-sacks made from polypropylene tape- yarns*

Draft for stakeholders comments only!

## 1 Scope

This Draft Tanzania Standard specifies requirements for the materials, dimensions, and performance of woven HDPE/PP shopping bags.

## 2 Normative References

For the purpose of this Draft Tanzania Standard the following references shall apply:

- a) TZS 4 Rounding off numerical values.
- b) TZS 21 Textiles - Woven or knitted fabrics - Determination of mass per unit length and - per unit area.
- c) TZS 22 Textiles - Woven fabrics Determination of breaking load and extension.
- d) TZS 24 Textiles - Tests for colour fastness – Colour fastness to washing: Test 4.
- e) TZS 26 Textiles - Determination of conductivity, pH, water-soluble matter, chloride and sulphate in aqueous extracts.
- f) TZS 40 Textiles - Tests for colour fastness – Colour fastness to light: Daylight.
- g) TZS 138 Textiles - Test for colour fastness to rubbing.
- h) ISO 3451 Plastics — Determination of ash — Part 1: General methods.
- i) ISO 13936 – 1, Textiles — Determination of the slippage resistance of yarns at a seam in woven fabrics — Part 1: Fixed seam opening method.
- j) ISO 13936 – 2, Textiles — Determination of the slippage resistance of yarns at a seam in woven fabrics — Part 2: Fixed load method.
- k) ISO 13937 - 1, Textiles — Tear properties of fabrics — Part 1: Determination of tear force using ballistic pendulum method (Elmendorf).

## 3 Terms and Definitions

For the purpose of this Draft Tanzania Standard the following definitions shall apply:

### 3.1 polymer (polymerization)

combination or association of molecules that may be of one compound or more reacting simultaneously to form a regular system of molecules behaving as one unit

### 3.2 polypropylene (PP)

synthetic resin built up by the polymerization of propylene.

### 3.3 high density polyethylene (HDPE)

a thermoplastic polymer produced from the monomer with a high strength-to-density ratio.

### 3.4 polypropylene (PP) tape yarns

flat yarn composed of polypropylene polymer.

### **3.5 high-density polyethylene (HDPE) tape yarns**

flat yarn composed of high density polyethylene polymer.

### **3.6 fabric weaves**

patterns of interlacing of the warp (the tapes running in the machine or longitudinal direction of the woven material) and the weft (the tape yarns in the transverse direction).

### **3.8 woven PP/HDPE fabric**

sheet material woven from PP/HDPE tape yarns.

### **3.9 coated fabric**

fabric coated on one or both sides with suitable polymer.

### **3.10 poly-sack**

flexible container, made from fabric manufactured from woven PP/HDPE tape yarns.

## **4 Materials**

### **4.1 Fabric**

4.1.1 The weave of the fabric shall be woven from PP/HDPE tape yarn having a minimum width of 2mm.

4.1.2 The fabric shall be uncoated or coated on one side or both.

### **4.2 Stitch threads**

The stitching thread shall be made from either;

- a) Polypropylene, or
- b) Other materials provided they are not adversely affected by the expected climatic conditions in transit, storage and use.

## **5 Dimensions**

Unless otherwise agreed to between the buyer and the seller, the dimensions of the shopping bags shall be as declared subject to a tolerance of  $\pm 2$  mm

## **6 Construction**

### **6.1 shopping bag**

The shopping bag shall be produced either;

- a) From material woven as a tube, or
- b) From flat woven material and cut to the required length.

### **6.2 Edge sealing**

All edges shall be sealed to prevent leakage.

### **6.3 Base closure**

The base closure shall be such as to ensure compliance with the performance required.

### **6.4 Turned-over and stitched**

Where the base closure is affected by a turned-over and stitched seam, the turn over shall be 2.0 cm minimum, and the stitch line shall be done with one row of the chain stitch  $1.0 \pm 0.3$  cm from the base so formed and shall pass through all four thicknesses of the material.

## 6.5 Seam

The stitching shall be done at the bottom and at the mouth of the sack excluding value. It shall be done with a single or two rows of the lock or chain stitches.

## 6.6 Mouth

The mouth of the bag shall be either;

- a) plain, formed from the selvedge or from sealed raw edge, or
- b) hemmed with a single or double fold over stitched continuously round the mouth of the sack.

## 6.7 The handle

The handle of the shopping bag if not attached on the top, shall be located at a distance of 5 cm from the top edge of the bag.

**Table 1-Performance Requirements for the woven sacks.**

SN	Characteristics	Requirements	Test method
1	Average breaking strength (ravelled strip method, (200mm x 50mm), -min, N i) Width wise ii) Length wise	500 500	TZS 22
2	Elongation at break of fabric (%), min i) Length wise ii) Width wise	20 18	TZS 22
3	Breaking strength of bottom seam, ravelled strip method, N, <i>min</i>	250	ISO 13936
4	handle pull strength, N, <i>min</i> .	50	Annex B
4	Mass per unit area, g/m <sup>2</sup> , min, Unlaminated fabric Laminated fabric	50 65	TZS 21
5	Number of yarns per decimetre, min I) Ends/dm II) Picks/dm	40 40	TZS 20
6	Average breaking strength and elongation at break of UV stabilized HDPE/PP fabric after been exposed to UV radiation and weathering, min.	Not less than 50% of original strength	Annex A

7	Ash content (for UV stabilized fabrics), max per cent.	2.2	ISO 3451 – 1: 2008 Method A.
8	Capacity	shall be as declared	Visual
9	Dimension	shall be as agreed to between the buyer and the seller with a tolerance of $\pm 2$ cm	TZS 44

## 7. Printing, packing and marking

### 7.1 Printing on shopping bags

7.1.1 The bags shall be printed with food grade indelible printing ink.

7.1.2 Each shopping bag shall be marked with the following;

- a) Manufacturer's name and address,
- b) Carrying capacity,
- c) Recycling logo.
- d) Dimensions

### 7.2 Marking of packed bale

The following information shall be marked on each bale with indelible ink.

- a) Name of the manufacturer;
- b) Type and/or size of the sack;
- c) Gross mass of the bale;
- d) Date of manufacture;
- e) Any other information required by the buyer;
- f) Identification Mark;
- g) Number of sacks.

Note 2 - Each sack shall be compulsory marked with visible recycling logo as given below at a space on bottom of the bag compatible with the artwork of the buyer for printing the sack and bale.

Note 2 - For sacks with similar properties of a laminating film, the sack shall be compulsory marked with a visible recycling logo below at a space on bottom of the bag compatible with the artwork of the buyer for printing the sack and bale.



Put the clear and visible recycling logo

Fig 1 Recycling Logo

**ANNEX A**  
**(Normative)**  
**UV RESISTANCE TEST**

**A – 1** To determine the effect of UV radiation and weathering on the breaking strength, the HDPE/PP Woven fabrics shall be exposed as given in A - 2 and A – 3.

**A – 2 TEST PROCEDURE**

The test shall be carried out with fluorescent UV – Lamp type B (313nm or its equivalent).

The duration of the test shall be 192h (that is eight days) in continuous mode.

The test cycle shall be: 8h at 60°C ± 3°C with UV – radiation alternating with 4h at 50°C ±3°C condensation. Irradiance level throughout the test shall be maintained at 0.63 (+0.04/ -0) W/m<sup>2</sup>.

**A – 3 TEST PROCEDURE**

**A – 3.1** Determine the original average breaking strength of fabric as per test method specified in IS 1969 (part 1)

**A – 3.2** Expose the specimens alternately to ultraviolet light and condensation in respective test cycle in continuous mode for total 192h.

The type of fluorescent UV lamp, the timing of the UV and condensation exposure and the temperature of the UV exposure and condensation shall be specified in A-2.

**A – 3.3** Determine the average breaking strength of the fabric separately after UV exposure as mentioned above.

**A – 3.4** Determine the per cent retention of original strength as follows:

$$\text{Percentage retention of original breaking strength} = \frac{a}{b} \times 100$$

Where,

a) a= average breaking strength before UV exposure as obtained in A – 3.1

b) b= average breaking strength after UV exposure as obtained in A – 3.3

**NOTES**

1. The UV source is an array of fluorescent lamps (with lamp emission concentrated in the UV range).
2. Condensation is produced by exposing the test surface to a heated, saturated mixture of air and water vapour, while the reverse side of the test specimen is exposed to the cooling influence of ambient room air.

## **Annex B (Normative)**

### **Determination of pull strength of the handle (Pulling tester machine)**

**B-1** Determine and mark the end point of all the handles tail

**B-2** As per distance between the upper clamp or jaw, reduce the length of the bag by knot or stitch to get the clear look to the handle loop

**B-3** Hook the handle loop to the upper clamp or jaw

**B-4** From bottom of the non-woven bag, fold 8 cm and grip the fold line to the lower clam or jaw

**B-5** At constant transverse rate of 20 cm per minute, measure the breaking point for 5 specimens to evaluate the pulling strength according to TZO 22.

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