DRAFT TANZANIA STANDARD

Textiles — Open mouth woven poly-sacks made from High Density Polyethylene (HDPE)/polypropylene (PP) tape-yarns— Specifications.
Foreword

This third edition of this Draft Tanzania Standard was improved to include other requirements which were not specified in the Second Edition.

It has been improved to assist manufacturers of woven poly sacks produced from polypropylene tape yarns by specifying the characteristic requirements of various sacks for packing different products.

This Draft Tanzania Standard is a revision of the second version finalized in the year 2010. This third edition cancels and replaces the second edition TZS 1257: 2010 which has been technically revised.

In the preparation of this Draft Tanzania Standard assistance was derived from:

BS 6162, Specification for open mouth sacks manufactured from woven polyolefin tape yarn

IS11652, Woven sacks for packing cement — High density polyethylene/polypropylene, published by Bureau of India Standards

ISO 23560: 2015 Woven Polypropylene sacks for bulk packaging of food stuffs

In reporting the results of a test or analysis made in accordance with this Draft Tanzania Standard, if the final value, observed or calculated is to be rounded off, it shall be done in accordance with TZS 4, Rounding off numerical values (see clause 2).
1. SCOPE

This Draft Tanzania Standard specifies requirements and test methods for open mouth poly – sacks made from HDPE/PP tape yarn.

2. NORMATIVE REFERENCES

The following referenced documents are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

TZS 4, Rounding off numerical values
TZS 20, Textiles — Woven fabrics — Determination of number of threads per unit length and per unit width
TZS 21: Textiles — Woven or knitted fabrics — Determination of mass per unit length and per unit area
TZS 22, Textiles — Woven fabrics — Determination of breaking load and extension
TZS 44, Textiles — Woven or knitted fabrics — Determination of width and length

3. TERMS AND DEFINITIONS

For the purposes of this Draft Tanzania Standard, the following terms and definitions shall apply.

3.1 Polymer (polymerization)
combination or association of molecules that may be of one compound or two or more reacting simultaneously to form a regular system of molecules behaving as one unit

3.2 Polypropylene tape yarns
Flat yarn composed of polypropylene polymer

3.3 Fabrics weaves
pattern 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)

3.4 Sack weave
number of tapes per 100 mm running in the longitudinal direction of the sack by the number of tapes per 100 mm in the transverse direction

3.5 Woven polypropylene fabric
sheet material woven from polypropylene tape yarns

3.6 Coated fabric
fabric coated on one or both sides with suitable polymer

3.7 Poly–sack
flexible container, made from fabric manufactured from woven polypropylene tape yarns

3.8 Liner
single ply flexible container which may be bonded or loosely inserted in the sack
4. MATERIALS

4.1 Fabric
The weave of the fabric shall be plain, woven from polypropylene tape yarns and its construction described as warp by weft in tapes per 10 cm, and 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
Expression of dimensions

5.1 The dimensions of a sack shall be expressed as follows;
   a) face width x length, in centimetres, for an open mouth flat sack (see figure 1).
   b) face width x length, of gusset in centimetres, for an open mouth gusseted sack (see figure 2); regardless of whether the length is greater or less than the face width.

5.2 The dimensions of a tape yarn shall be;
   a) Tape width shall be between 1.5mm and 6mm.
   b) Monofilament continuous tape shall be used for fabric weaving
   c) Tape width shall have a tolerance of ±2 mm. (see table 1)

6. CONSTRUCTION
6.1 Sack
The sack 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 flying.

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 1.0±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 sack shall be either;
   a) plain, formed from the selvedge or from sealed raw edge,
   b) hemmed with a single or double fold over stitched continuously round the mouth of the sack.

6.7 Liners
Where liners are used they shall be either;
   a) Loosely inserted or,
   b) Anchored with adhesive (or other suitable medium) or,
   c) Stitched at the base closure or,
   d) Stitched at the mouth.

7 SACK IDENTIFICATION AND REQUIREMENTS
7.1 Sack performance requirement.
   a) Sacks shall conform to the requirements shown in Table 1
   b) Various dimensions and capacity are shown in Table 2
   c) If the sack has a liner, the liner shall conform to the requirement shown in Table 2.

7.2 Identification of a sack
For the purpose of identification, coloured tape yarns shall be incorporated into the weaving process of a sacking fabric as per customer's requirement.
### Table 1 – Performance Requirements for the Wovensacks

<table>
<thead>
<tr>
<th>S/N</th>
<th>Characteristics</th>
<th>Requirements</th>
<th>Tolerance</th>
<th>Test method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Capacity</td>
<td>The capacity of the sack shall be upon agreement between buyer and seller however, it shall not exceed 100kg.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>Dimension</td>
<td>The dimension of the sack shall be upon an agreement between buyer and seller with a tolerance of ±2cm of the declared value</td>
<td>±2</td>
<td>TZS</td>
</tr>
</tbody>
</table>
| 3   | Average breaking strength (ravelled strip method, (200mm x 50mm), minimum, N) | a) Width wise 500  
    b) Length wise 500 | -         | ISO 13934: 1 |
| 4   | Elongation at break of fabric (%)                   | i) Length wise 20  
    ii) Width wise 20 | -         | IS 1969 (part 1) |
| 5   | Minimum breaking strength of bottom seam, ravelled strip method, N | 250 | -         | IS 9030 |
| 6   | Mass per unit area of fabric g/m²                    | 65 | -         | TZS 21 |
| 7   | Number of yarns per decimetre                       | i) Ends/dm 40  
    ii) Picks/dm 40 | -         | TZS 20 |
| 8   | Average breaking strength and elongation at break of UV stabilized HDPE/PP fabric after being exposed to UV radiation and weathering, min. | Not less than 50% of original strength | -         | Annex A |
| 9   | Ash content (for UV stabilized fabrics), max percent. | 2.2 | -         | ISO 3451 – 1: 2008 Method A. |

Note 1 – Requirement number 8 and 9 are subjected to the agreement between manufacturer and buyer.

### Table 2 – Performance requirement of the liner (in case the sack is attached with a liner)

<table>
<thead>
<tr>
<th>SN</th>
<th>Characteristics</th>
<th>Requirements</th>
<th>Tolerance</th>
<th>Test methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Weight of the liner (micron), min</td>
<td>30</td>
<td>-</td>
<td>TZS 21</td>
</tr>
<tr>
<td>2</td>
<td>Bottom seam of loose liner</td>
<td>At least 25mm from the bottom edge.</td>
<td>-</td>
<td>IS 1969 (Part 1)</td>
</tr>
</tbody>
</table>
| 3  | Dimension of liner                      | a) Width of loose liner      | At least 20mm more than the specified width of the sack  
    b) Length of loose liner  | At least 50mm more than the specified length of the sack | -         | IS 9030       |
8. PRINTING, MARKING AND PACKAGING:—packaging to be included (printing, packing and marking).

8.1 Printing on sacks
The sacks shall be printed with food grade printing ink with identification mark of sack manufacture, size of the bag along with other information as required by the buyer.

8.2 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) Net mass of the bale;
   e) Date of manufacture;
   f) Any other information required by the buyer;
   g) Identification Mark;
   h) 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 art work of the buyer for printing the sack and bale.

![Recycling Logo](Fig.1)
ANNEX A
(Normative)
UV RESISTANCE TEST

B – 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.

B – 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/m².

B – 3 TEST PROCEDURE

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

B – 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.

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

B – 3.4 Determine the percent retention of original strength as follows:

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
(Informative)

Diagram showing open mouth flat sack and open mouth gusseted sack

Figure 1 — Open-mouth flat sack

Figure 2 — Open-mouth gusseted sack