Foreword

The objective of this second edition Draft Tanzania Standard is to assist trade between manufacturers, buyers and users of sisal bags, by providing a mutually understood basis for specifying the characteristic requirements of different sisal bags for packing various products.

In the preparation of this Draft Tanzania Standard experience from manufacturers, traders and the views from the consumers were taken into consideration. Assistance was also derived from:


EAS 221: 2001 – Woven bags (100% Sisal), for clean coffee beans – Specifications.

For the purpose of deciding whether a particular requirement of this specification is complied with, the final value, observed or calculated, expressing the result of a test shall be rounded off in accordance with TZS 4 (see clause 2).
1. SCOPE

This Draft Tanzania Standard specifies requirements and test methods for 100% sisal bags.

2. NORMATIVE REFERENCES

The following referenced documents are indispensable for the application of this Draft Tanzania Standard.

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 – Determination of breaking load and extension of strips of woven fabrics
TZS 44: Textiles – Woven or knitted fabrics - determination of width and length

3. TERMS AND DEFINITIONS

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

3.1 Sisal
long pale-cream hard fibre obtained from the leaf of a sisal plant (Agave Sisal anaperrine) and other agave hybrids.

3.2 Sacking
coarse fabric made from sisal yarns

3.3 Ends
warp yarns running along the length of the sacking and parallel to the sacking selvedge.

3.4 Picks (shots)
weft yarns running across the width of the sacking and perpendicular to the sacking selvedge.

3.5 Bale
rectangular, pressed, rigid package containing 100 per cent sisal bags, covered with a bale covering with the outer layer securely bound.

3.6 Contract mass (bale)
mass obtained by multiplying the nominal mass of a bag by the specified number of bags in that bale

3.7 Corrected net mass (bag)
mass that a bag would have, if the recommended allowance for moisture in the bag was added to the oven-dry mass of the bag under standard atmosphere (see EAS 240).

3.8 Moisture regain
mass of moisture in a bag expressed as a percentage of the oven-dry mass of the bag (see EAS 240).

3.9 Bag cloth
Woven textile cloth made from sisal in various constructions.

3.10 Sisal bag
Sacks or bags made from materials as defined in 3.1 and used for packing various products such as grains, vegetables, fruits and flour

3.11 Hessian or plain weave
Single warp, single weft plain woven fabric.
3.12 Twilled sacking or just twill
fabric with diagonal lines in the weave running from selvedge to selvedge. This usually has a double warp.

3.13 Sisal, paper lined
Laminated fabric with paper united by adhesive.

3.14 Cropping
Process whereby the short protruding fibres on the fabric surface are removed by sharpened, spiral blade.

3.15 Calendaring (also known as cylndering)
A process for flattening the threads, carried out from the machine known as calendar, in which the fabric is run under pressure between two or more alternate steel cylinders (bowls).

3.16 Chesting
A process which reduces the intersections between threads more effectively than calendaring. Fabric after calendaring is rolled on a steel pin and rotated backwards and forwards under pressure between two steel bowls, in a machine known as a mangle.

3.17 Make up
The fabric after finishing or in loom state shall be delivered made up or unmade up. (i.e. FWR and S for Full Width Rolled and Stitched, marked with Land W i.e. Length and Width).

4. BAG CONSTRUCTION AND SIZE
4.1. Sisal fabric materials for packing can range from light-weight open weave to the heaviest and closest of weaves depending on the intended end-use. Bag construction can also vary, as can bag size.

4.2. To comply with this Draft Tanzania Standard buyer and supplier shall agree upon bag cloth, bag construction and size. These shall then constitute the Standard Patterns.

4.3. The Standard Patterns shall then be the reference for all the characteristics described in this Draft Tanzania Standard.

5. REQUIREMENTS

5.1 Sacking
The sacking shall be woven with uniform construction and shall comply with the requirements specified in Table 1.

5.2 Sewing
5.2.1 Stitching thread — The stitching thread shall be 100% sisal. The number of stitches per 10 cm shall be at least 8. The stitch line shall pass completely and continuously through all the folds of the sacking leaving no gaps in stitches.

5.2.2 Seams — The side seams of each bag (and the bottom seam, if any) shall be sewn in such a way that they (seams) comply with the requirements of Table 1.

5.2.3 Hemming at the Mouth — The raw edges of the sacking at the mouth of each bag shall first be turned over to a depth of at least 1.5 cm with double fold and shall be firmly hemmed with the stitching thread.

5.3 Freedom from defects — The sacking shall be free from defects such as holes, cuts, tears, floats, crushed selvedge, spots and stains. The bag shall be free from sewing defects such as gap stitches, loose ends and frayed ends.
5.5 Bag cloth
The bag cloth shall be specified by the following characteristics.

a) Fibre content – This shall be of 100 % sisal fibre hydrocarbon free for food packing.
b) Weave – This shall be plain weave, DW Tarpaulin, DW bagging, Twilled sacking or Twill, or sisal paper lined (see clause 3).
c) Dimensions – The Length and width of the piece shall be stated.
d) Weight – The average weight per square meter shall be stated.
e) Threads per 10cm – The average number of threads per 10 cm shall be stated.
f) Finish – The type of finish e.g. cropping, calendaring, chesting or mangling shall be stated (see clause 3).
g) Make-up – The make-up shall be stated (see clause 3).

5.4 Capacity
The capacity of the bag cloth shall not exceed 100kg.

Table 1 — Requirements for 100 % sisal bag and its sacking

<table>
<thead>
<tr>
<th>S/N</th>
<th>Characteristics</th>
<th>Requirement</th>
<th>Method of test</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dimensions of a bag</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(i) Inside length</td>
<td>Agreed upon buyer and seller but subjected to</td>
<td>TZS 44</td>
</tr>
<tr>
<td></td>
<td></td>
<td>the tolerance of ±2 of the declared nominal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(ii) Inside width</td>
<td>value</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Mass per bag in grams, \textit{min}</td>
<td>950</td>
<td>TZS 21</td>
</tr>
<tr>
<td>3</td>
<td>Mass per unit area, g/m²; \textit{min}</td>
<td>738</td>
<td>TZS 21</td>
</tr>
<tr>
<td>4</td>
<td>Number of threads per dm.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) Ends, \textit{min}</td>
<td>24</td>
<td>TZS 20</td>
</tr>
<tr>
<td></td>
<td>b) Picks, \textit{min}</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(i) Single</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(ii) Double</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Breaking load of sacking in N (20 cm x 5 cm strips),\textit{min}</td>
<td>1100</td>
<td>TZS 22</td>
</tr>
<tr>
<td></td>
<td>(i) Warp-way</td>
<td>1100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(ii) Weft-way</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Moisture regain, \textit{Max}</td>
<td>14</td>
<td>IS 9113:1992</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Clause 2</td>
</tr>
<tr>
<td>7</td>
<td>Oil content on dry de-oiled material, \textit{Max}</td>
<td>5</td>
<td>IS 2969:1974</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Clause 2</td>
</tr>
</tbody>
</table>
5.6 Recommended packing of food grains (Informative).
This Draft Tanzania Standard gives a guideline from Weights and Measures for recommended quantities in which certain food grains shall be packed (See table below).

Table 2 – Example of products and the recommended packing

<table>
<thead>
<tr>
<th>S/N</th>
<th>Products</th>
<th>Recommended packing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Beans, coffee beans</td>
<td>250 g, 500 g, 1 kg thereafter by steps of 1 kg to 10 kg to 90 kg</td>
</tr>
<tr>
<td>2</td>
<td>Dengu</td>
<td>250 g, 500 g, 1 kg thereafter by steps of 1 kg to 10 kg to 90 kg</td>
</tr>
<tr>
<td>3</td>
<td>Pease</td>
<td>250 g, 500 g, 1 kg up to 10 kg to 90 kg</td>
</tr>
<tr>
<td>4</td>
<td>Wheat grains</td>
<td>250 g, 500 g, 1 kg, thereafter by steps of 1 kg to 20 kg, 50 kg, 90 kg</td>
</tr>
<tr>
<td>5</td>
<td>Maize grains</td>
<td>1 kg, thereafter by steps of 1 kg, 10 kg, 20 kg, to 90 kg</td>
</tr>
<tr>
<td>6</td>
<td>Millet</td>
<td>90 kg</td>
</tr>
<tr>
<td>7</td>
<td>Sorghum</td>
<td>90 kg</td>
</tr>
<tr>
<td>8</td>
<td>Ground nuts</td>
<td>90 kg</td>
</tr>
<tr>
<td>9</td>
<td>Simsim</td>
<td>90 g</td>
</tr>
</tbody>
</table>

6. MARKING AND PACKING

6.1 All bales of sisal bags shall be marked to indicate bag cloth, bag construction and what products may safely be packed in the bag.

6.2 This marking may be in words, letter code or by colour coding.

7. STORAGE

Bag cloth and bags shall be stored under a cover in a well ventilated storage preferably on wooden racks raised above floor level.

NOTE – It is particularly important in tropical conditions to consider the possibilities of bacterial attack which can be promoted by poor storage conditions.