Woven bags made from natural fibres for cereals and pulses — Specification

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Kenya Agricultural & Livestock Research Organization (KALRO)

Kenya Association of Manufacturers (KAM)

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Woven bags made from natural fibres for cereals and pulses — Specification

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| Kenya Bureau of Standards, Popo Road, Off Mombasa Road, P.O. Box 54974 - 00200, Nairobi, Kenya | |
| A black and white logo  Description automatically generated with low confidence | +254 020 6948000, + 254 722202137, + 254 734600471 |
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Foreword

This Kenya Standard was prepared by the Yarns and Fibers Technical Committee under the guidance of the Standards Projects Committee, and it is in accordance with the procedures

of Kenya Bureau of Standards.

Cereals and pulses are generally packed in natural fibre bags. This standard has been prepared to meet the

need to preserve the quality of the packed product and the need for constructional suitability of the bags. Since

cereals/pulses have different densities and sizes, the standard addresses the common weights and the

corresponding sizes of bags suitable for packing them. The strength of bags, being an important handling

parameter, is also addressed in the standard.

This Sixth edition cancels and replaces the Fifth edition (KS 132:2013) which has been technically revised. The changes are as follows;

-Referenced test methods have been aligned as in KS 1037:2019

-Causes have been re-aligned

During the preparation of this standard, reference was made to the following document:

KS 1037:2019 Woven bags — Test methods

Acknowledgment is hereby made for assistance received from these sources.

**Woven bags made from natural fibres for cereals and pulses — Specification**

# 1 Scope

This Kenya Standard specifies the constructional and performance requirements of woven bags made from natural fibres to contain 50 kg and 90 kg load of cereals or pulses. It also prescribes the packing and marking requirements of a bale containing the bags, ready for dispatch.

The standard is not applicable to small grain cereals (rice).

# 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.

KS 1037, *Methods of test for woven bags*

KS ISO 3801, *Textiles — Woven fabrics — Determination of mass per unit length and mass per unit area*

# 3 Terms and definitions

For the purposes of this standard, the following definitions shall apply:

**3.1 natural fibre**

jute, kenaf or sisal fibre

**3.2 jute**

fibre obtained from the bast layer of the plants *corchorus capsularis* and *corchorus olitorius*

**3.3 kenaf**

fibre obtained from the bast layer of the plant *Hibiscus cannabinus*

**3.4 sisal**

pale clean hard fibre obtained from the leaf of sisal plant (*agave sisalana perrine*)

**3.5 ends**

yarns running along the length of and parallel to the direction of manufacture

**3.6 picks**

yarns running across the width of and ‘perpendicular’ to the direction of manufacture

**3.7 sacking**

coarse fabric made from natural fibres (see 4.1)

**3.8 joined bag**

a bag made out of two equal separate pieces of sacking

**3.9 bale**

a rectangular pressed rigid package containing woven bags made from natural fibres and covered with

protective wrappings which are stitched and/or securely bound

**3.10 contract-mass (bale)**

the mass as obtained by multiplying the nominal mass of a bag by specified number of bags in that bale.

**3.11 lot**

all bales containing woven bags made from natural fibres purporting to be of specified dimensions and quality

and definite number of bags delivered to one purchaser against one dispatch note.

**3.12 moisture regain (bag)**

the mass of moisture in a bag expressed as a percentage of the oven dry mass of the bag under standard

textile-testing conditions.

# 4 Requirements

**4.1 General requirements**

**4.1.1 Stitching thread**

The stitching thread shall comprise such material(s) which shall not have any adverse effects on the contents of the bag. The number of stitches per 10 cm shall be eight (8), minimum. The stitch line shall pass completely and continuously through all the folds of the sacking leaving no gaps in stitches.

**4.1.2 Seams**

The side seams of each bag and the bottom seam if any, shall be sufficiently tight to prevent sifting or leakage of the contents of the bag.

**4.1.3 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

and then to a depth of at least 1.6 cm and the three layers of the sacking thus so formed shall be firmly hemmed with the stitching thread.

**4.1.4 Freedom from defects**

The sacking shall be free from tweaving defects such as: holes, cuts, tears, floats, crushed selvedge’s, spots and stains. The bag shall be free from sewing defects such as: gap-stitches, loose ends and frayed ends.

**4.2 Specific requirements**

### 4.2.1 Sacking

The sacking shall be woven from natural fibre yarns with uniform construction and shall comply with the specific requirements specified in Tables 1, 2 ,3 and 4).

**Table 1 — Requirement of a 90 kg sisal bag and its sacking**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SN** | **Characteristic** | | | **Requirement** | **Tolerance** | **Test method** |
|  | Dimension of a bag for 90 kg load | Outside length, cm | | 110 | +10, -0 | KS 1037, Clause10.1 |
| Outside width, cm | | 70 | +10, -0 |
|  | Mass per bag, in g | | | 1,200 | ±50 | KS 1037, Clause 7 |
|  | Breaking strength of seam, newtons, min | | | 1200 | - | KS 1037, Clause 16 |
|  | Ends per 10 cm (min.) | | | 22 | +2, -0 | KS 1037, Clause 11 |
|  | Picks (shots), per 10 cm | | | 44 | +2, -0 | KS 1037, Clause 11 |
|  | Breaking strength of sacking (5cm x 20 cm strips), in newtons, min | | warp way | 1200 | - | KS 1037, Clause 12 |
| weft way | 1200 | - |
|  | Mass, in g/m2 of sacking | | | 800 | +30, -0 | KS ISO 3801 |
|  | Moisture regain, %, max | | | 13 | - | KS 1037, Clause 14 |
|  | Oil content on dry de-oiled material, %, max | | | 2 | - | KS 1037, Clause 15 |

**Table 2 — Requirement of a 90 kg jute (including kenaf) bag and its sacking**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SN** | **Characteristic** | | | **Requirement** | **Tolerance** | **Test method** |
|  | Dimension of a bag for 90 kg load | Outside length, cm | | 110 | +10, -0 | KS 1037, Clause 10.1 |
| Outside width, cm | | 70 | +10, -0 |
|  | Mass per bag, in g | | | 1,000 | ±50 | KS 1037, Clause 7 |
|  | Breaking strength of seam, newtons, min | | | 650 | - | KS 1037, Clause 16 |
|  | Ends per 10 cm (min.) | | | 28 | +2, -0 | KS 1037, Clause 11 |
|  | Picks (shots), per 10 cm | | | 30x2 | - | KS 1037, Clause 11 |
|  | Breaking strength of sacking (5cm x 20 cm strips), in newtons, min | | warp way | 700 | - | KS 1037, Clause 12 |
| weft way | 1000 | - |
|  | Mass, in g/m2 of sacking | | | 800 | +30, -0 | KS ISO 3801 |
|  | Moisture regain, %, max | | | 13 | - | KS 1037, Clause 14 |
|  | Oil content on dry de-oiled material, %, max | | | 2 | - | KS 1037, Clause 15 |

**Table 3 — Requirements for a 50 kg jute and jute like fibres bag**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SN** | **Characteristic** | | **Requirement** | **Tolerance** | **Test method** |
|  | Area of bag, min. | | 5040 cm2 |  | KS 1037, Clause 10.1 |
|  | Threads per 10 cm | Ends | 76 | +4 | KS 1037, Clause 11 |
| Picks | 28 | -2 |
|  | Breaking strength, N, min. | warp way | 700 | - | KS 1037, Clause 12 |
| weft way | 700 | - |
|  | Seam Breaking strength, N, min. | | 650 | - | KS 1037, Clause 16 |
|  | Mass of bag, min., g | | 550 | - | KS 1037, Clause 7 |
|  | Moisture regain, %, max | | 13 | - | KS 1037, Clause 14 |
|  | Oil content on dry de-oiled material, %, max | | 2 | - | KS 1037, Clause 15 |

**Table 4 — Requirements for a 50 kg sisal bag**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SN** | **Characteristic** | | **Requirement** | **Tolerance** | **Test method** |
|  | Area of bag, min. | | 5040 cm2 |  | KS 1037, Clause 10.1 |
|  | Threads per 10 cm | Ends | 22 | +2, -0 | KS 1037, Clause 11 |
| Picks | 44 | +2, -0 |
|  | Breaking strength, N, min. | warp way | 1200 | - | KS 1037, Clause 12 |
| weft way | 1200 | - |
|  | Mass of bag, min., g | | 1000 | ±50 | KS 1037, Clause 7 |
|  | Mass in g/m2, min. | | 800 | - | KS ISO 3801 |
|  | Moisture regain, %, max | | 13 | - | KS 1037, Clause 14 |
|  | Oil content on dry de-oiled material, %, max | | 2 | - | KS 1037, Clause 15 |
|  | Breaking strength of seam, N, min. | | 1200 | - | KS 1037, Clause 16 |

**4.2.2 Requirements of packed bale**

**4.5.1** Each packed bale shall comply with the requirements given in Table 5.

**Table 5 — Requirements of a packed bale**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **SN** | **Characteristic** | **Requirement** | **Tolerance** | **Test method**  **(Ref. to clause of appendix)** |
|  | Total number of bags per bale | 150 | - | A.1 |
|  | Contract mass of a bale, kg | 150 | ±2.5 | KS 1037, Clause 8 |
|  | Correct mass of a bale, kg | Not less than the  contract mass | - | KS 1037, Clause 9 |

# 5 Labelling

The following information shall be legibly and indelibly marked on each bale,

1. name of the manufacturer;
2. the inscription ‘Woven bags for cereals and pulses’;
3. number of bags;
4. contract mass, in kg;
5. bale number;
6. country of manufacture

**Annex A**

(normative)

**Inspection of a bale**

**A.1** Record all the particulars as stated on the bale.

**A.2** Remove all packing materials from the bale**.** Count and record the number of all bags in the bale.

Denote this by *N*.

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