

भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS

Draft for comments only

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भारतीय मानक मसौदा

वस्त्रादि – 50 किलोग्राम शुगर पैक करने के लिए पटसन के बोरे – विशिष्ट
(आई एस 15138 का दूसरा पुनरीक्षण)

Draft Indian Standard

Textiles — Jute Bags For Packing 50 Kg Sugar — Specification
(Second Revision of IS 15138)

ICS: 55.080; 59.060.10; 67.180.10

Jute and Jute Products
Sectional Committee, TXD 03

last date for receipt of comments is
04 July 2024

FOREWORD

(Formal clauses will be added later)

This standard was first published in 2002 and revised in 2010 to incorporate the following major changes:

- a) Tolerances on length, width and mass of bag have been reduced for improved structure and serviceability;
- b) Sampling and criteria for conformity have been modified; and
- c) Classified major and minor defects have been incorporated to minimize failures during storage and end use.

This second revision has been made in the light of experience gained since its last revision and to incorporate the following changes:

- i) All amendments have been incorporated.
- ii) New variety of jute bag Type D and Type E bag have been incorporated.
- iii) Sampling and criteria for conformity has been modified.
- iv) BIS certification clause has been updated.
- v) Packing and marking clause has been updated.
- vi) References to Indian standards have been updated.

The types of bags specified in this standard have been developed after extensive trials keeping in view the guidelines provided by the International Labour Organization (ILO) for not permitting manual carriage of weight exceeding 50 kg by the workers and consumers for their safety. In addition, care has been taken to restrict the use of batching oil in the manufacture of bags to safer limit so as to minimize its adverse impact on the contents. One of the varieties also specifies a food grade loose liner to be used in order to protect the contents from adverse impact of oil and moisture.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*).’ The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1 SCOPE

This standard prescribes constructional details and other requirements of five types of jute bags for packing 50 kg sugar.

2 REFERENCES

The standards listed in Annex A contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated at Annex A.

3 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 5476 shall apply.

4 MANUFACTURE

4.1 Fabric

Type A bags shall be made from single piece of 568 g/m² double warp, plain weave jute fabric of uniform construction with warp running along the length of the bag. Type B and Type C bags shall be made from hessian having mass of 417 g/m² and 354 g/m² respectively. Type D and Type E shall be made from shuttle-less rapier loom with single warp and double weft of single piece of 441 g/m² and 408 g/m² respectively. The cloth shall be without stripes or shall have stripes as agreed to between the buyer and the seller, woven along the length of the bag.

NOTE — Mass of fabric is for guidance only.

4.1.1 The jute bags used for packing food items, such as sugar shall be manufactured from raw jute of Indian origin.

4.2 Seam

The sides of Type A bag shall be herakle stitched with safety stitch as specified in **5.1.4** of IS 9113. The side of Type B and Type C bags shall be sewn with herakle stitches on selvedge through two layers and the bottom raw edge shall be folded inside to a depth of at least 3.8 cm and then stitched at the mouth as specified in **5.1.3** of IS 9113. Type D and Type E are hemmed and both sides herakle stitched. The number of stitches per 10 cm shall be between 9 and 11.

4.3 Hemming at the Mouth

Provisions of **5.1.3** of IS 9113 shall apply.

4.4 Freedom from Defects

The bags shall meet the requirement of freedom from defects as given in Annex B.

4.5 Liner

Type C and Type E bags shall be provided with minimum 25µm thick loose liner made of food grade virgin high molecular high-density polyethylene (HMHDPE) conforming to IS 10146.

5 SPECIFIC REQUIREMENTS

5.1 The bags shall conform to the requirements specified in Table 1.

5.2 Tolerance

The following tolerance shall be permitted on outside length, outside width, ends/dm, picks/dm and corrected mass per bag as given in Table 1.

Sl No.	Characteristic(s)	Tolerance				
		Type A Bag	Type B Bag	Type C Bag	Type D Bag	Type E Bag
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	Outside length and outside width, cm	← +3 →			+4 -0	+4 -0
ii)	Ends/dm	+4 -2	±2	±2	±2	±2
iii)	Picks/dm	+2 -1	+2 -1	+2 -1	±2	±2

iv)	Corrected mass per bag, percent, <i>Max</i>	+7.5 -6.0	+7.5 -2.0	+7.5 -2.0	+8 -6	+8 -6
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5.3 The bales containing the bags shall conform to the requirements specified in Table 2.

6 PACKING

The bags shall be packed in bales as prescribed in IS 2873 or as specified in the agreement between the buyer and the seller.

7 MARKING

The bales shall be marked as prescribed in IS 2873. Additional markings shall be made as stipulated by the buyer or required by regulation or law in force.

Table 1 Requirements of Bags
(Clause 5.1)

SI No.	Characteristic	Requirement					Method of Test (Ref to Cl of IS 9113)
		Type A Bag	Type B Bag	Type C Bag	Type D Bag	Type E Bag	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(6)
i)	Dimensions, cm (<i>see Note 1</i>)						
	a) Outside length	87.5	91.5	91.5	90	90	8.3.2
	b) Outside width	58.5	56.0	56.0	59	59	8.3.2
ii)	Ends/dm	68	47	47	52	50	8.4.2
iii)	Picks/dm	31	55	47	52	50	8.4.2
iv)	Corrected mass per bag, g	630	475	405 +32 linear	506	470 +33 Liner	8.5.2
v)	Average breaking load of sacking (ravelled strip method, 10 cm × 20 cm), <i>Min</i> , N (kgf) :						
	a) Warpway	1570 (160)	1470 (150)	1470 (150)	1225 (125)	1225 (125)	8.6.2
	b) Weftway	1420 (145)	1765 (180)	1420 (145)	1225 (125)	1225 (125)	
vi)	Average breaking load of seam (ravelled strip method, 5.0 cm × 20.0 cm), <i>Min</i> , N (kgf) :						
	a) Warpway	-	490 (50)	490 (50)	-	-	8.7
	b) Weftway	440 (45)	685 (70)	490 (50)	440 (45)	440 (45)	
vii)	Moisture regain:	22	17	17	22	22	8.2

	a) Moisture regain, percent, <i>Max</i> (see Note 2)	20	16	16	20	20	-
	b) Contract moisture regain, percent						
NOTES							
1 The bags of specified dimensions are suitable for packing of sugar. However, other dimensions as per agreement between the buyer and the seller may also be used provided the tolerance on dimensions and bag mass as given in 5.2 is complied with. The mass of such bags shall be calculated by the method given in 5.3 of IS 9113.							
2 Average moisture regain shall be maximum 22 percent. However, 10 percent of the individual value of moisture regain percent may be above 22 percent with an upper limit of 26 percent							

Table 2 Requirements of Packed Bales
(Clause 5.3)

Sl No.	Characteristic	Requirement	Method of Test (Ref to Cl of IS 9113)
(1)	(2)	(3)	(4)
i)	Total number of bags per bale (see Note)	500	8.9
ii)	Number of bags per bundle	25	-
iii)	Number of joined bags per bundle of 25 bags, <i>Max</i>	1	-
iv)	Contract mass of a bale, kg	315 (Type A) 237.5 (Type B) 218.5 (Type C) 253.0 (Type D) 251.5 (Type E)	-
v)	Corrected net mass of a bale	Not less than the contract mass	8.1
vi)	Oil content on dry deoiled material basis, percent, <i>Max</i>	3	8.8
NOTE — The number of bags per bale shall be 500 or as specified in an agreement between the buyer and the seller			

Additional markings including the country of origin shall be made as stipulated by the buyer or required by the regulation or law in force.

7.1 BIS Certification Marking

7.1.1 The bales and the jute bag may also be marked with the Standard Mark.

7.1.2 The jute bags conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act, 2016* and the Rules and Regulations framed thereunder, and the jute bags may be marked with the Standard Mark.

8 SAMPLING AND CRITERIA FOR CONFORMITY

8.1 Lot

All bales of jute bags of same size produced under similar conditions of production and delivered to a buyer against one dispatch note shall constitute a lot.

8.2 Sample Size and Criteria for Conformity

For assessing the conformity of lot to the requirements of this standard, bales shall be first selected from each lot at random in accordance with the col 2 and col 3 of Table 3. All the bales so selected in the sample shall be tested for 'Gross mass of bales', 'Tare mass of bailing hoops and other packing materials' and 'Number of bundles per bale'. Two bundles of bags selected at random from each bale selected in the sample shall be tested for total number of bags per bundle.

The lot shall be considered as conforming to the requirements of this standard, if all the following conditions are satisfied:

- a) The total corrected net mass of all the bales in the sample is not less than the total contract mass of all the bales.
- b) The total number of bags in each bale selected as per **8.2** under test meets the relevant requirement.

8.3 Sample Size for Bags

For freedom from defects, length, width, ends/dm, picks/dm, number of stitch/dm, mass per bag and moisture regain, 07 bags shall be selected at random from each of the bales selected as per **8.2**. The total number of bags to be tested from each lot for these requirements is given in col 5 of Table 3

8.4 Criteria for Conformity

8.4.1 *Criteria for Conformity for Freedom from Defects*

Each bag selected in the sample shall be tested for freedom from defects. A bag shall be termed as defective, if it contains two or more major defects (*see* Annex B). A lot shall be considered conforming to this requirement, if the number of defectives is less than or equal to the acceptance number given in col 6 of Table 3. Acceptance numbers given in Table 3 are on the basis of an AQL of 4.0 percent.

8.4.2 *Criteria for Conformity for Length, Width, Ends/dm, Picks/dm, Number of Stitches/dm and Moisture Regain*

The lot, which meets requirements of **8.4.1**, shall be tested for length, width, ends/dm, picks/dm, number of stitches/dm and moisture regain as per the plan. A bag shall be termed as defective, if it fails to meet any one or more of these requirements. The lot shall be considered as conforming to the requirements of length, width, ends/dm, picks/dm, stitches/dm and moisture regain, if the total number of defectives found in the sample is less than or equal to the corresponding acceptance number given in col 6 of Table 3.

8.4.3 *Criteria for Conformity for Mass of Fabric*

The lot, which meets the above requirement, shall then be tested for mass of fabric. The lot shall be declared as conforming to this requirement, if

- a) the average value of mass per bag, as obtained for sampled bags is not less than the nominal value specified; and
- b) not more than 10 percent of the individual values of mass of bags is below the lower specified value.

8.5 Sample Size and Criteria for Conformity for Breaking Strength Requirement

The lot, which meets the above requirements, shall then be tested for breaking strength requirements. For this purpose, one bag shall be selected at random from each bale selected in the sample. Suitable test specimens shall be taken from these bags and tested for warpway, weftway and seam strength. The lot shall be declared as conforming to these requirements, if

- a) the average values of warpway, weftway and seam breaking strengths respectively, as obtained for all test specimens are not less than the corresponding values specified; and
- b) none of the individual value is less than 20 percent below the specified value.

8.6 Sample Size and Criteria for Conformity for Oil Content

The lot, which meets the above requirements, shall then be tested for oil content. For this purpose two bags shall be selected out of two different bales selected as per **8.2**. The lot shall be declared as conforming to this requirement, if both the bags meet the requirement of oil content.

8.7 The lot shall be considered as conforming to the requirements of this standard, if **8.2** and **8.4** to **8.6** are satisfied.

Table 3 Sample Size and Acceptance Numbers

(Clauses 8.2, 8.3, 8.4.1 and 8.4.2)

Sl No.	No. of Bales in the Lot	No. of Bales in the Sample	For Length, Width, Number of Stitches/dm, Ends/dm, Picks/dm, Moisture Regain		
			(4)	(5)	(6)
(1)	(2)	(3)	(4)	(5)	(6)
i)	Up to 25	5	07	35	5
ii)	26 to 90	8	07	56	6
iii)	91 to 300	12	07	84	8
iv)	301 to 500	18	07	126	10

NOTES
1 If the number of bales in a consignment exceeds 500, the same shall be split into number of lots each comprising maximum of 500 bales.
2 Joined bags shall also be drawn for visual inspection and breaking strength.

ANNEX A
(Clause 2)

LIST OF REFERRED STANDARDS

<i>IS No.</i>	<i>Title</i>
IS 2873 : 1991	Textiles — Packaging of jute products in bales — Specification (<i>second revision</i>)
IS 5476 : 2023	Jute — Glossary of Terms (<i>second revision</i>)
IS 9113 : 2012	Textiles – Jute sacking – General requirements (<i>second revision</i>)
IS 10146 : 1982	Specification for polyethylene for its safe use in contact with foodstuffs, Pharmaceuticals and drinking water

ANNEX B
(Clauses 4.4 and 8.4.1, and Table 4)

CLASSIFICATION OF DEFECTS

B-1 The detailed classification of defects is given in Table 4.

Table 4 Classification of Defects

Sl No.	Type of Defect	Description	Major	Miner	
(1)	(2)	(3)	(4)	(5)	
i)	GAW	Portion over the whole width of the fabric completely unwoven with weft	>1.5 cm	x	-
			0.5-1.5 cm	-	X

ii)	Multiple broken/missing warp (End)	Two or more contiguous, regardless of length	x	-	
iii)	Multiple broken weft (Pick)	Two or more contiguous, regardless of length	x	-	
		One pick, full width	-	X	
iv)	Cut, hole, tear or patch	Two or more warp or filling threads ruptured at adjoining points	x	-	
v)	Float	A place in the fabric where warp and weft yarns escape the required interlacement	>2 cm ²	x	-
			0.5 cm ² to cm ²	-	X
vi)	Gap stitching	Stitches missing	> 1.5 cm	x	-
			0.5-1.5 cm	-	X
vii)	Corner gap	Corner of the bag not properly stitched resulting in formation of hole	> 1.5 cm	x	-
			0.5-1.5 cm	-	X
viii)	Mildew	Staining of fabric due to fungal or bacterial growth visible to naked eye	x	-	
NOTE — Two minor defects shall be counted as one major defect.					