

Indian Standard

**JUTE BAGS FOR PACKING SUGAR —
SPECIFICATION**

भारतीय मानक चीनी भरने के जूट के बोरे — विनिर्दिष्ट

UDC 621.798.151 [677.13] 664.1

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards on 24 October 1988, after the draft finalized by the Jute and Jute Products Sectional Committee had been approved by the Textile Division Council.

In the recent years, considerable quantity of jute bags for packing sugar is being exported from India to USSR and keeping this in view, a decision was taken in a meeting of the group of Soviet and Indian experts under 'Indo-Soviet Co-operation in the Field of Standardization and Metrology' to formulate an Indian Standard on this subject.

This standard is mainly based on the requirements agreed by the above group of experts and also those being followed by USSR while procuring jute bags for packing sugar from India.

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 : 2-1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

JUTE BAGS FOR PACKING SUGAR — SPECIFICATION

1 SCOPE

1.1 This standard prescribes the constructional details and other requirements of three different sizes of jute bags for packing sugar.

2 REFERENCES

2.1 The Indian Standards listed below are necessary adjuncts to this standard:

IS No.	Title
IS 1963 : 1981	Methods for determination of threads per unit length in woven fabrics (<i>second revision</i>).
IS 2818 (Part 1) : 1971	Specification for Indian hessian : Part 1 General (<i>first revision</i>)
IS 2873 : 1969	Specification for packaging of jute products in bales (<i>first revision</i>)
IS 2969 : 1974	Method for determination of oil content of jute yarn and fabrics (<i>first revision</i>)
IS 5476 : 1986	Glossary of terms relating to jute (<i>first revision</i>)
IS 9030 : 1979	Method for determination of seam strength of jute fabrics including their laminates

3 TERMINOLOGY

3.0 For the purpose of this standard, the definitions given in IS 5476 : 1986 along with the following definitions shall be applicable.

3.1 Hemmed Bag

A bag with raw edges hemmed, forming the mouth of the bag.

3.2 Selvedged Bag

A bag with selvedge forming the mouth of the bag.

3.3 Joined Bag

A bag made from not more than two pieces of plain woven hessian cloth. The joining shall be done in such a manner that warp and weft shall run in the same direction.

3.4 Lot

All the bales of jute bags for packing sugar of same dimensions (type) and containing definite

quantity of bags and delivered to a buyer against one despatch note.

4 GENERAL REQUIREMENTS

4.1 Jute Fabric

The bags shall be made from single piece of plain weave hessian cloth having mass 420 g/m^2 with a tolerance of $\begin{matrix} +8 \\ -2 \end{matrix}$ percent. The other particulars of the cloth, that is, ends/dm, picks/dm and breaking strength shall be as given in Table 1. The hessian cloth used in the fabrication of the bags shall be of uniform construction.

4.2 The bag may be selvedged or hemmed bag as agreed to between the buyer and the seller. In the case of selvedged bag, the weft yarn shall run along the length of the bag and in the case of hemmed bag, the warp yarn shall run along the length of the bag.

4.3 Seam

The bag shall be sewn with overhead or herakle stitches. The sewing shall be done through two thicknesses of the cloth if both the edges to be sewn are selvedges. In case of raw edge(s), turning shall be done to a depth of at least 3.8 cm before sewing. The stitching shall be of even tension throughout with all the loose ends securely fastened. The number of stitches per dm shall be between 9 and 11. For overhead or herakle stitches, two strands of jute twine of count $310 \text{ tex} \times 3$ (9 grist $\times 3$) shall be used.

4.3.1 Safety Stitch

In case the bags are stitched with overhead stitching, a line of safety union stitch shall be provided at the inner edges of the overhead stitches using 2 ply jute twine of $310 \text{ tex} \times 2$ (9 grist $\times 2$). The number of safety union stitches per dm shall be between 9 and 11.

4.4 Hemming at the Mouth

In hemmed bags, the raw edges at the mouth of the bags shall be turned over first to a depth of about 1.3 cm and then to a depth of about 2.5 cm and the three thicknesses of hessian thus formed shall be hemmed. The number of stitches per decimetre in the hem shall be between 9 and 11. The count of the hemming twine shall be 310 tex (9 grist).

4.5 Joined Bag

The seam used to join the two pieces of hessian in a joined bag shall have strength not less

than the breaking strength of seam as specified in Table 1 and shall be sufficiently tight to prevent shifting or leakage of content of the bag.

4.6 Freedom from Defects

The hessian cloth used in the bags should be generally free from defects, such as holes, cuts, tears, floats, crushed selvedges, spots and stains. The bags should also be generally free from sewing defects and excessive oil smell.

5 SPECIFIC REQUIREMENTS

5.1 The bags of three different sizes shall conform to the requirements laid down in Table 1.

5.2 The contract moisture regain of bags shall be 16 percent. However, the contract moisture regain may be 14 percent if so agreed to between the buyer and the seller.

6 PACKING AND MARKING

6.1 Packing

The bags shall be packed in bales as laid down in IS 2873 : 1969 or as specified in an agreement between the buyer and the seller.

6.1.1 The bales may also be marked with the Standard Mark.

7 SAMPLING AND INSPECTION

7.1 Unless otherwise agreed to between the buyer and the seller, the procedure for sampling shall be as given in Annex A and the procedure for testing and inspection shall be as given in Annex B.

8 CRITERIA FOR CONFORMITY

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

- a) The total of the corrected net mass of the bales under test is not less than the contract mass of the bales (see Table 1).
- b) The dimensions of at least 80 percent of the bags under test are in accordance with the requirements specified (see Table 1). Out of the remaining bags (20 percent, *Max*), the dimensions of not more than

Table 1 Requirements of Jute Bag for Packing Sugar
(*Clauses 4.1, 4.5, 5.1 and 8.1*)

Sl No.	Characteristic	Requirement			Method of Test
		Size 1	Size 2	Size 3	
i)	Dimensions :				
a)	Length, cm	103	109	95	B-5
	Tolerance, cm	+4 -0	+4 -0	+4 -0	
b)	Width, cm	73	61	56	B-5
	Tolerance, cm	+4 -0	+4 -0	+4 -0	
ii)	Corrected mass of bag, g :				
a)	Selvedged	680	605	485	B-3
b)	Hemmed	695	610	490	
	Tolerance, percent	+8 -2	+8 -2	+8 -2	
iii)	Ends per dm	←-----47±2-----→			B-7
iv)	Picks per dm	←-----55±2-----→			B-7
v)	Moisture regain percent, <i>Max</i>	←-----17-----→			B-2
vi)	Oil content on dry de-oiled material basis, percent, <i>Max</i>	←-----6-----→			B-8
vii)	Breaking strength of cloth (10 × 20 cm ravelled strip) N (kgf), <i>Min</i> :				
a)	Warpway	←-----1 470 (150)-----→			B-8 ¹ of IS 2818 (Part 1) : 1971
b)	Weftway	←-----1 765 (180)-----→			
viii)	Seam breaking strength (5 × 20 cm ravelled strip) N (kgf), <i>Min</i> :				B-6
a)	Warpway	←-----490 (50)-----→			B-6
b)	Weftway	←-----685 (70)-----→			
ix)	Corrected net mass of a bale	Not less than the contract mass			B-1
x)	Total number of bags per bale	500 or as agreed to between the buyer and the seller			B-4
xi)	Number of joined bags per bundle of 25 bags, <i>Max</i>	←-----1-----→			B-4

¹Taking two warpway and two weftway test specimens from each bag (see A-2.2).

10 percent of the bags under test go below the specified value but no bag shall have dimensions less than 1.5 cm below the specified value (*see* Table 1).

- c) The corrected mass of at least 80 percent of the bags under test are in accordance with the requirement specified (*see* Table 1). Out of the remaining bags (20 percent, *Max*), the corrected mass of not more than 10 percent of the bags under test go below the lower specified limit. The average corrected mass of the bags under test conforms to the requirements specified (*see* Table 1).
- d) The total number of bags in each bale under test and the number of joined bags

in each bundle of bags under test meet the relevant requirement (*see* Table 1).

- e) The average moisture regain percent for the bags under test is in accordance with the requirement specified (*see* Table 1).
- f) The average ends and picks per decimetre of bags under test is in accordance with the requirements specified (*see* Table 1).
- g) The average values of (1) warpway and weftway breaking strength of the cloth, and (2) warpway and weftway breaking strength of the seam of the bags under test conform to the requirements specified (*see* Table 1).
- h) The average oil content percent of the bags under test is not more than the specified requirement (*see* Table 1).

ANNEX A

(*Clauses 7 and B-0.1*)

SAMPLING

A-0 SAMPLING PROCEDURE

A-0.1 The following minimum number of bales and bags shall be taken at random from the lot and subjected to corresponding test (*see* Annex B).

A-1 GROSS MASS

A-1.1 For evaluating the gross mass of bales, 10 percent of the bales, selected from the lot, shall constitute the test sample.

A-2 OTHER REQUIREMENTS

A-2.1 For assessing the conformity to the requirements other than the gross mass of the bales, the number of bales to be selected from the lot shall be in accordance with the following:

<i>No. of Bales in the Lot</i>	<i>No. of Bales to be Drawn and Opened for Inspection</i>
Up to 15	2
16 to 50	3
51 to 150	5

NOTE — If the number of bales in a lot exceeds 150, the same shall be taken as a separate lot comprising of bales maximum up to 150.

A-2.2 From the bales selected as above, the test

sample shall be drawn as follows:

<i>Sl No.</i>	<i>Tests</i>	<i>Test Sample</i>
i)	Tare mass (of baling hoops and all other packing materials)	} The bales selected as in A-2.1
ii)	Total number of bags per bale	
iii)	Number of joined bags per bale	} Two bundles of bags from each bale selected as in A-2.1
iv)	Moisture regain, percent	
v)	Length and width	} 30 bags (Selecting equal number of bags from each bale selected in A-2.1)
vi)	Ends and picks	
vii)	Mass per bag	
viii)	Breaking load	} Five bags selected out of the bales selected in A-2.1 subject to a minimum of one bag from each bale
	a) Cloth	
	b) Seam	} Two bags selected out of two different bales as selected in A-2.1
ix)	Oil content, percent	

NOTE — Joined bags shall not be selected for the purpose of tests at Sl No. (v) to (ix) above.

ANNEX B

(Clauses 7.1 and A-0.1)

TESTING AND INSPECTION

B-0 TESTING AND INSPECTION PROCEDURE

B-0.1 Testing and inspection of the lot as laid down below shall be carried out on the samples drawn in accordance with Annex A.

B-1 MASS OF BALES

B-1.1 Determine the total gross mass W_g of the bales in the test sample (see A-1) from the gross mass of each bale to the nearest kilogram.

B-1.2 Remove the baling hoops and all other packing materials of the bales selected as in A-2.2 and weigh them together to the nearest kilogram. Calculate the average tare mass of the bale and multiply by the number of bales weighed W_t .

B-1.3 The total net mass of bales under test, $W_n = W_g - W_t$.

B-1.4 Determine the total corrected net mass W of bales under test by the following formula:

$$W = \frac{W_n \times (100 + \text{Contract regain, percent})}{100 + \text{Average moisture regain, percent, of bales (see B-2)}}$$

B-2 MOISTURE REGAIN

B-2.1 Determine the moisture regain in each bag (see A-2.2) after opening the bales (see A-2.1) by the use of a suitable moisture meter. After opening the bales, sufficient time (not less than 10 minutes) be allowed to lapse before measuring moisture regain to enable the cloth to attain conditions for the normal use of moisture meter. Take at least one reading for each sample bag.

NOTES

1 The mathematical average of all the readings is the average moisture regain, percent, of the bales.

2 IJIRA (Indian Jute Industries 'Research Association) moisture metre¹ may be used for the purpose. This meter works on the principle of measuring the electrical resistance which changes with moisture content in the material. The specimen (jute product) is placed under the electrode gun having two poles of specially designed spring loaded electrodes. The small amount of current passing through the electrodes is amplified and recorded on the meter calibrated against the actual moisture regain, based on oven-dry method of the material. A separate chart, calibrating the readings of the actual moisture regain based on oven-dry method of the material may also be used. The instrument shall be operated according to the manufacturer's instructions.

B-3 MASS PER BAG

B-3.1 Weigh each bag (see A-2.2) to the nearest 5 g after tests for B-1 and B-2. Weighing may be carried out in prevailing atmospheric conditions. Correct the observed mass of each

¹Mention of the name of the specific instrument is not intended to promote or give preference to the use of that instrument over others not mentioned.

bag for observed moisture regain (see B-2.1) as follows:

$$\text{Corrected mass} = \frac{\text{Observed mass} \times (100 + \text{Contract moisture regain, percent})}{100 + \text{Observed moisture regain, percent}}$$

Also calculate the average corrected mass of the bags under test.

B-4 NUMBER OF BAGS AND JOINED BAGS PER BALE

B-4.1 Count the number of bundles of bags in each bale (see A-2.1) and number of bags and joined bags in each bundle (see A-2.2). From the above, determine the total number of bags in each bale under test.

B-5 LENGTH AND WIDTH

B-5.1 Lay each bag (see A-2.2) flat on a table free from creases and wrinkles and measure the outside length and outside width about the centre to the nearest 0.5 cm.

B-6 BREAKING STRENGTH OF SEAM

B-6.1 Take two test specimens, one from each side of the bag for breaking strength of seam of hemmed bag and for selvedged bag, two test specimens each from side and the bottom of the bag (see A-2.2). Test the breaking strength of specimen taking 200 mm between grips of a strength tester having a constant rate of traverse of 460 mm (or 18 in) per minute in accordance with IS 9030 : 1979.

B-7 ENDS AND PICKS

B-7.1 Count the ends and picks from each bag (see A-2.2) in one and two places, respectively with a suitable gauge measuring 5 cm. Determine the average ends and picks per decimetre of the bags under test in accordance with 7 of IS 1963 : 1981.

B-8 OIL CONTENT

B-8.1 From each bag, take one representative strip (see A-2.2) and determine oil content on dry de-oiled material basis by Soxhlet extraction using trichloroethylene as solvent, by the following formula (see IS 2969 : 1974):

$$\text{Oil content, percent, on dry de-oiled material basis} = \frac{W_o}{W_d} \times 100$$

where

W_o = mass in gram, of the extracted material (including natural fat, wax and batching oil); and

W_d = oven-dry mass, in gram, of the strip after extraction.

Standard Mark

The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

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Doc : No. TDC 3 (2482)

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones : 331 01 31, 331 13 75

Telegrams : Manaksanstha
(Common to all Offices)

Regional Offices:

Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg
NEW DELHI 110002

Telephone

{ 331 01 31
{ 331 13 75

Eastern : 1/14 C. I. T. Scheme VII M, V. I. P. Road, Maniktola
CALCUTTA 700054

36 24 99

Northern : SCO 445-446, Sector 35-C, CHANDIGARH 160036

{ 2 18 43
{ 3 16 41

Southern : C. I. T. Campus, IV Gross Road, MADRAS 600113

{ 41 24 42
{ 41 25 19
{ 41 29 16

Western : Manakalaya, E9 MIDC, Marol, Andheri (East)
BOMBAY 400093

6 32 92 95

Branches : AHMADABAD. BANGALORE. BHOPAL. BHUBANESHWAR.
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AMENDMENT NO. 1 JULY 2004
TO
IS 12493 : 1988 JUTE BAGS FOR PACKING SUGAR —
SPECIFICATION

(*Page 1, clause 1*) — Substitute the following for the existing:

1 SCOPE

1.1 This standard prescribes constructional details and other requirements of three different sizes of jute bags for packing sugar.

1.2 The bags specified in this standard shall not be manually handled after packing sugar more than 50 kg.'

(TX 03)

Reprography Unit, BIS, New Delhi, India

**AMENDMENT NO. 2 OCTOBER 2005
TO**

**IS 12493 : 1988 JUTE BAGS FOR PACKING SUGAR —
SPECIFICATION**

(*Page 1, clauses 4.3, 4.3.1 and 4.4*) — Insert the following note at the end of each clause:

‘NOTE — The count of jute twine is given for guidance only.’

[*Page 2, Table 1, Sl No. (vi), Under ‘Requirement’*] — Substitute ‘3’ for ‘6’.

(TX 03)