भारतीय मानक
Indian Standard

IS 16186 : 2014

वस्त्रादि — 50 किग्रा खाद्यान्न पैक करने के लिये हल्के भार वाले पटसन के बोरे — विशिष्टि

Textiles — Light Weight Jute Sacking Bags for Packing 50 kg Foodgrains — Specification

ICS 55.080; 59.060; 67.060



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Price Group 3

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FOREWORD

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

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.

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.

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Indian Standard

TEXTILES — LIGHT WEIGHT JUTE SACKING BAGS FOR PACKING 50 kg FOODGRAINS — SPECIFICATION

1 SCOPE

This standard prescribes constructional details and other requirements of light weight jute sacking bags for packing 50 kg foodgrains.

2 REFERENCES

The following standards 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 below.

IS No.	*Title*
2873 : 1991	Textiles — Packaging of jute products in bales — Specification (*second revision*)
5476 : 1986	Glossary of term relating to jute (*first revision*)
9113 : 1993	Textiles — Jute sacking — General requirements (*first revision*)

3 TERMINOLOGY

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

4 MANUFACTURE

4.1 The bags shall be made from single piece of twill weave jute sacking of uniform construction as given below with warp running along the length of the bag:

Type A — Single warp, double weft woven on modern shuttleless loom.

Type B — Double warp, single weft woven on conventional shuttle loom.

There shall be a single blue stripe, or stripes woven along the length of the bag or the bag shall be without stripe as agreed to between the buyer and the seller. The constructional particulars of sacking used in the fabrication of the bags shall be such that the bags meet the requirements specified in Table 1.

4.2 Seam

The two sides of the bags shall be sewn with herakle stitches on selvedge through two layers of sacking as specified in IS 9113. The number of stitches per decimetre shall be 10 + 1.

4.3 Safety Stitch

If agreed to between the buyer and the seller, a line of safety union stitch shall be provided at the inner edges of the herakle stitches (*see* IS 9113). The number of safety union stitches per decimetre shall be 10 ± 1.

4.4 Hemming at the Mouth

Provisions of IS 9113 shall apply.

4.5 Freedom from Defects

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

5 SPECIFIC REQUIREMENTS

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

5.2 The bales containing the bags shall also conform to the requirements specified in Table 2.

5.3 The contract moisture regain shall be 20 percent.

5.4 Additional Requirements for Labelling as Environment Friendly Products

5.4.1 *General Requirement*

5.4.1.1 The bags shall confirm to the requirements for quality and performance prescribed under 5.1 to 5.3.

5.4.1.2 The manufacturers shall produce to BIS, environmental consent clearance from the concerned State Pollution Control Board as per the provisions of *Water (Prevention and Control of Pollution) Act*, 1974 and *Air (Preventions and Control of Pollution) Act*, 1981 alongwith the authorization, if required under the *Environment (Products) Act*, 1986 and the Rules made thereunder, while applying for ECO-Mark. Additionally, the manufacturer shall produce documentary evidence on compliance of the provisions related to noise level and occupational health under the provisions of *Factory Act*, 1948 and Rules made thereunder.

5.4.1.3 The product packaging may display in brief the criteria based on which the product has been labelled environment friendly.

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Table 1 Requirements of Jute Bags
(*Clauses* 4.1 *and* 5.1)

Sl No.	Characteristic	Requirement		Tolerance	Method of Test, Ref to Cl of IS 9113
		Type A	Type B		
(1)	(2)	(3)	(4)	(5)	(6)
i)	Dimensions (*see* Note 1) :				8.3.2
	a) Outside length, cm	91	94	+ 4 cm − 0	
	b) Outside width, cm	57	57	+ 4 cm − 0	
ii)	Ends/dm	46	64	+ 4 − 3	8.4.2
iii)	Picks/dm	50	28	+ 2 − 2	8.4.2
iv)	Corrected mass/bag, g (*see* Note 2)	580	580	+ 8.0 Percent − 6.0 Percent	8.5.2
v)	Average breaking strength of sacking (ravelled-strip method,10 cm × 20 cm), *Min*, N (kgf):				8.6.2
	a) Warpway	1 570 (160)	1 570 (160)		
	b) Weftway	1 420 (145)	1 420 (145)		
vi)	Average seam strength (5 cm × 20 cm ravelled strip), *Min* N (kgf)	490 (50)	490 (50)		8.7
vii)	Moisture regain, percent, *Max*	22	22		8.2
viii)	Oil content on dry de-oiled material, *Max*	3	3		8.8

NOTES

1 The bags of specified dimensions are suitable for packing of wheat, rice and similar coarse grains. For packing of other materials, the buyer and the seller may agree to the dimensions other than those specified above. The mass of such bags may be calculated by the method given in 5.3 of IS 9113. However, tolerances specified in this table for dimension and on the mass shall be permissible.

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* 5.2)

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 1)	500	8.9
ii)	Number of bags per bundle	25	—
iii)	Contract mass of a bale, kg (*see* Note 2)	290	—
iv)	Corrected net mass of a bale, kg	Not less than contract mass	8.1
v)	Number of joined bags per bundle of 25 bags	1	Visual

NOTES

1 The number of bags per bale shall be 500 or as specified in an agreement between the buyer and the seller.

2 Contract mass of a bale is calculated as follows:

Contract mass of a bale = nominal mass of bag × specified number of bags per bale.

5.4.1.4 The material used for product packaging shall be reusable or made from recyclable or biodegradable materials.

5.4.1.5 Fatty alcohol based non-ionics as emulsifier should be used wherever required.

5.4.1.6 Polyhalogenated based phenolic fire retardants shall not be used.

5.4.2 *Specific Requirements*

5.4.2.1 The bags shall conform to the requirements given in Table 3.

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.

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Table 3 Specific Requirements for ECO-Mark
(*Clause* 5.4.2.1)

Sl No.	Parameter[a]	Maximum Limit, Hessians and Sackings mg/kg (ppm)
(1)	(2)	(3)
i)	Non-halogenated hydrocarbons	3 percent
ii)	Pesticides (Sum parameter)[a]	1.0
	Banned Pesticides	Nil (Below detectable limit)
iii)	pH of aqueous extract	6.0-7.0
iv)	Coupled aminess from azo-dyes (Sum parameters)[b]	50.0 (Detectable limit using GC-MS)

[a] The methods of tests for ECO-parameters are being developed by BIS and Textiles Committee. Till the methods of tests are standardized, the manufacturer shall declare conformance taking into consideration the chemicals, auxiliaries and dyes used.

[a] The list of pesticides used on jute, banned restricted or withdrawn is appended as Annex B.

[b] The list of coupled amines released from azo-dyes is appended as Annex C.

7 MARKING

7.1 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.

7.2 BIS Certification Marking

The bales may also be marked with the Standard Mark.

7.2.1 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 details of conditions under which the licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

7.3 The bales may also be marked with ECO-Mark in addition to Standard Mark if the requirements specified in 5.4 are also satisfied.

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 3 of Table 4. 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) Total corrected net mass of all the bales in the sample is not less than the total mass of all the bales.

b) Total number of bags in each bale selected as per 8.2 meet 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, 16 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 4.

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*

Table 4 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		
			No. of Bags from Each Bale	Total Number of Bags in Sample	Acceptance Number
(1)	(2)	(3)	(4)	(5)	(6)
i)	Up to 25	5	16	80	5
ii)	26 to 90	8	16	128	7
iii)	91 to 300	13	16	208	10
iv)	301 to 500	20	16	320	14

NOTE — 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. Joined bags shall also be drawn during sampling of bags for visual inspection and breaking strength test.

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Annex A). A lot shall be considered conforming to this requirement, if the number of defective is less than or equal to the acceptance number given in col 6 of Table 4. Acceptance number given in Table 4 is on the basis of an AQL of 2.5 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 the 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 defective found in the sample is less than or equal to the corresponding acceptance number given in col 6 of Table 4.

8.4.3 *Criteria for Conformity for Mass per Bag*

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

a) 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) 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.

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ANNEX A
(*Clauses* 4.5 *and* 8.4.1)

CLASSIFICATION OF DEFECTS

Type of Defect	*Description*		*Major*	*Minor*
GAW		> 1.5 cm	x	
		0.5 cm to 1.5 cm		X
Multiple broken/missing warp (end)	Two or more contiguous, regardless of length		x	
Multiple broken weft (pick)	Two or more contiguous, regardless of length		x	
	One pick, full width			X
Cut, hole, tear or patch	Two or more warp or filling threads ruptured at adjoining points		x	
Float	A place in the fabric where warp and weft yarns escape the required interlacement	> 2 cm^2	x	
		0.5 cm^2 to 2 cm^2		X
Gap stitching	Stitches missing	> 1.5 cm	x	
		0.5 cm to 1.5 cm		X
Corner Gap	Corner of the bag not properly stitched resulting in formation of hole	> 1.5 cm	x	
		0.5 cm to 1.5 cm		X
Mildew	Staining of fabric due to fungal or bacterial growth visible to naked eye		x	

NOTES

1 x — Major defects.
X — Minor defects.

2 Two minor defects shall be counted as one major defect.

ANNEX B
(*Table* 3)

LIST OF PESTICIDES USED ON JUTE — BANNED, RESTRICTED OR WITHDRAWN

B-1 PESTICIDES REGISTERED FOR USE ON JUTE IN INDIA

HERBICIDES : Dalapon

FUNGICIDES : Carbendazim

INSECTICIDES : Carbaryl, Carbofuran, Endosulfan, Lindane, Phosalone, Quinalphos

B-2 EXTRACT FROM LIST OF PESTICIDES NOT APPROVED, RESTRICTED USE, WITHDRAWN OR BANNED IN THE COUNTRY AS ON 10.04.1992

B-2.1 Pesticides not Approved for Use

2, 4, 5-T

B-2.2 Pesticides Restricted for Use

Use of DDT in agriculture is banned. In very special circumstances warranting the use of DDT for plant protection, the State or Central Government may purchase it directly from M/s Hindustan Insecticides Ltd, to be used under expert Government supervision. Use of DDT for public health programme up to 10 000 MT per annum, except in case of any major outbreak, is restricted.

Use of Diedrin shall be restricted for Locust Control in desert areas by Plant Protection Advisor to the Government of India.

B-2.3 Pesticides Banned/Withdrawn

Pentachlorophenol, Toxaphene and Aldrin.

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ANNEX C
(*Table* 3)

LIST OF COUPLED AMINES RELEASED FROM AZO — DYES

i) 4-Aminodiphenyl
ii) 2-Amino-4-nitrotouene
iii) Benzidine
iv) 4-Chloro-*o*-toluidine
v) 2-Naphy Iamine
vi) *o* Alminoazotolune
vii) *p*-Chloraniline
viii) 2,4-Diaminoanisole
ix) 4,4' — Diaminodiphenylmethane
x) 3,3' — Dimethoxybenzidine
xi) 3,3' — Dimethoxybenzidine
xii) 3,3' — Dimethylbenzidine
xiii) 3,3' — Dimethyl 4,4' diaminodiphenylmethane
xiv) *p*-kresidin (2-Methoxy 5 methylaniline)
xv) 4,4' Methylene-bis-(2-chloraniline)
xvi) 4,4' Oxydianiline
xvii) 4,4' Thiodianiline
xviii) *o*-Toluidine
xix) 2,4, — Toluylenediamine
xx) 2,4,5 — Trimethylaniline
xxi) *p*-Amino-azobezene
xxii) 2-Methoxyaniline

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AMENDMENT NO. 1 AUGUST 2016
TO
IS 16186 : 2014 TEXTILES — LIGHT WEIGHT JUTE SACKING BAGS FOR PACKING 50 kg FOODGRAINS — SPECIFICATION

(*Page* 1, *clause* **4.1**) — Substitute the following for the existing clause:

'**4.1** The bags shall be made from single piece of 2/1 twill weave sacking of uniform construction as given below having nominal mass of 504 g/m^2 with warp running along length of bag:

a) *Type A* — Single warp, double weft woven on modern shuttleless loom.
b) *Type B* — Double warp, single weft woven on conventional shuttle loom.

There shall be a single blue stripe, or stripes woven along the length of the bag or the bag shall be without stripe as agreed to between the buyer and the seller. The constructional particulars of sacking used in the fabrication of the bags shall be such that the bags meet the requirements specified in Table 1.'

[*Page* 2, *Table* 1, *Sl No.* (ii), (v) *and* (vi)] — Substitute the following for the existing:

Table 1 Requirements of Jute Bags
(*Clauses* 4.1 *and* 5.1)

Sl No.	Characteristic	Requirement		Tolerance	Method of Test, Ref to Clause of IS 9113
		Type A	Type B		
(1)	(2)	(3)	(4)	(5)	(6)
ii)	Ends/dm	46	64	Type A ±2 Type B +4 - 3	**8.4.2**
v)	Average breaking strength of sacking (ravelled-strip method, 10 cm × 20 cm), *Min*, N (kgf):				**8.6.2**
	a) Warpway	1 225(125)	1 225(125)		
	b) Weftway	1 225(125)	1 225(125)		
vi)	Average seam strength (5 cm × 20 cm ravelled strip), *Min*, N (kgf)	431(44)	431(44)		**8.7**

(*Page* 3, *clauses* **8.3**, **8.4**, **8.4.1**, **8.4.2** *and* **8.4.3**) — Substitute the following for the existing clauses:

'**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, 7 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 4.

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 A). 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 4. Acceptance numbers given in Table 4 are on the basis of an AQL of 4.0 percent.

8.4.1.1 *Criteria for conformity for length and width*

The dimension of at least 90 percent of the bags under test shall be in accordance with the requirement specified. Out of the remaining bags (10 percent, *Max*), dimension of not a single bag is below the specified nominal value by more than 2.0 cm and 1.0 cm in case of length and width, respectively.

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

The lot which meets the requirements of **8.4.1** and **8.4.1.1** shall be tested for 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 ends/dm, picks/dm, number of stitches/dm and moisture regain, if the total number of defective found in the sample is less than or equal to the corresponding acceptance number given in col 6 of Table 4.

8.4.3 *Criteria for Conformity for Mass per Bag*

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

a) the average corrected value of mass per bag as obtained for sampled bags under test is not less than nominal value specified.

b) the corrected mass of at least 80 percent of bags under test is in accordance with requirement specified.

c) out of remaining bags (20 percent, *Max*), all bags may have corrected mass above the specified limit, but corrected mass of not more than 10 percent of sampled bags under test is below the specified value by more than 12 percent of specified nominal value.'

(*Page* 3, *Table* 4) — Substitute the following for the existing table:

Table 4 Sample Size and Acceptance Numbers
[*Clauses* 8.2, 8.3, 8.4.1, 8.4.1.1 *and* 8.4.2]

Sl No.	No. of Bales in the Lot	No. of Bales in the Sample	For Number of Stitches/dm, Ends/dm, Picks/dm, Moisture Regain		
			No. of Bags from Each Bale	Total Number of Bags in Sample	Acceptance Number
(1)	(2)	(3)	(4)	(5)	(6)
i)	Up to 25	5	7	35	5
ii)	26 to 90	8	7	56	6
iii)	91 to 300	12	7	84	8
iv)	301 to 500	18	7	126	10

NOTE — 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. Joined bags shall also be drawn during sampling of bags for visual inspection and breaking strength test.

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