भारतीय मानक

सीमेंट के लिए बहु-परतदार कागज की बोरियाँ — विशिष्टि

(पहला पुनरीक्षण)

Indian Standard

MULTI-WALL PAPER SACKS FOR CEMENT — SPECIFICATION

(First Revision)

ICS 55.080; 91.100.10

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

January 1997

Price Group 3

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Paper and Pulp Based Packaging Sectional Committee had been approved by the Chemical Division Council.

Paper sacks are good substitute for the conventional jute bags since they are free from seepage and give better protection from moisture and air. However, care has to be taken for handling them during filling, storage, and transportation because the use of hooks is strictly prohibited in this case. Pelletization of filled paper sacks during their handling and transportation gives them an added advantage over the jute bags.

This standard was first published in 1986. At that time the cement industry was at experimental stage with these sacks and only valved-sewn-gussetted type paper sacks were of use in the country. Over the years technology has been developed and other type of sacks also now manufactured in the country for packing cement. In this revision requirements for sacks with pasted end have been included. Depending on the development in various fields requirements of materials, adhesives and drop test have also been modified in this revision.

A scheme for labelling environment friendly products known as ECO Mark has been introduced at the instance of the Ministry of Environment and Forests (MEF), Government of India. The ECO Mark would be administered by the Bureau of Indian Standards (BIS) under the *BIS Act*, 1986 as per the Resolutions No. 71 dated 21 February 1991 and No. 425 dated 28 October 1992 published in the Gazette of the Government of India. For a product to be eligible for marking with ECO logo, it shall also carry the ISI Mark of BIS besides meeting additional environment friendly requirements. For this purpose, the Standard Mark of BIS would be a single mark being a combination of the ISI Mark and the ECO logo. Requirements to be satisfied for a product to qualify for the BIS Standard Mark for ECO friendliness, has been included in this revision based on the Gazette Notification No. 364 dated 7 September 1995 for packaging material/package (Part I Paper Board and Plastics excluding laminates) as environment friendly products published in the Gazette of India.These requirements will be optional; manufacturing units will be free to opt for the ISI mark alone also.

The Committee responsible for formulation of this standard is given in Annex B.

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

MULTI-WALL PAPER SACKS FOR CEMENT — SPECIFICATION

(First Revision)

1 SCOPE

This standard specifies requirements for valved-sewn-gussetted, and valved-pasted ends multi-wall paper sacks intended for the packing of 50 kg of cement.

2 REFERENCES

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

3 TYPES

Multi-wall paper sacks shall be of following two types:

a) *Type* 1 — Valved-sewn-gussetted , and

b) *Type* 2 — Valved-pasted ends .

4 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 9 028 : 1978 and IS 9042 : 1978 shall apply.

5 MATERIAL

5.1 Material of construction shall be either sack kraft paper or extensible kraft or crimped paper or a combination of these. However, combination of sack kraft and extensible kraft paper is not recommended.

5.1.1 The outer ply shall have a reduced slippage characteristic for the ease of stacking of filled cement bags.

5.2 Sewing Thread

The thread used for sewing the sack shall be made of natural or synthetic fibre or a combination of these. The minimum breaking load of the thread shall be 68.5 N.

5.3 Adhesive

Adhesive used shall be treated suitably to resist microbial growth as are necessary.

5.4 Sewing Tape

The sewing tape used shall be of extensible kraft or crepe tape of width 50-55 mm and shall be glued to the outer ply along with a filler cord of the same material of at least 8 mm width on either side.

6 CONSTRUCTION

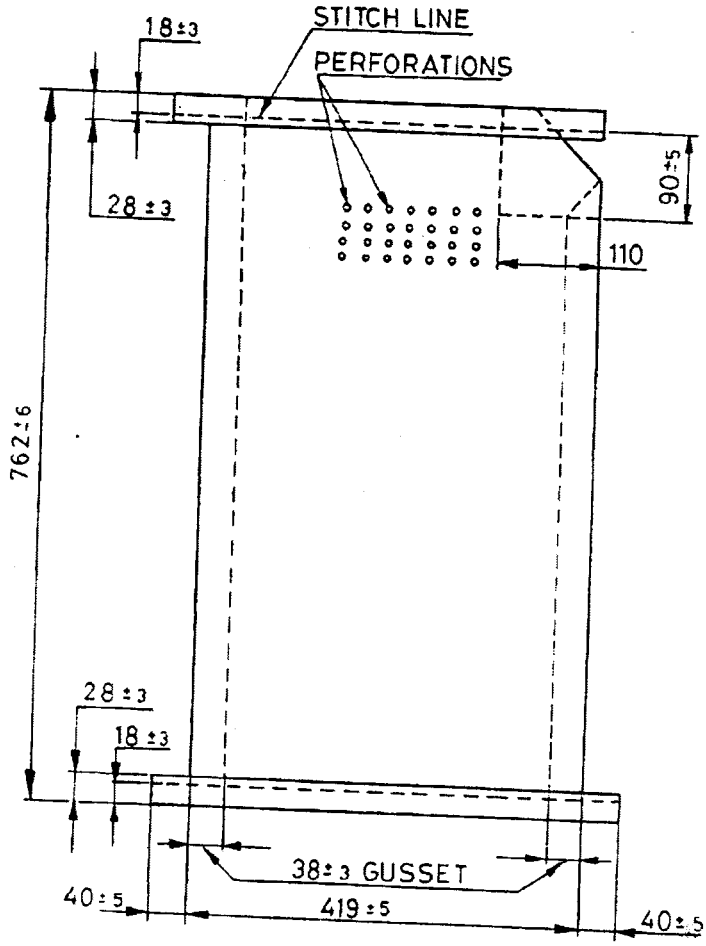
6.1 The sack shall be made of three or more well-nested plies of the type of paper as specified in **5.1** and **5.1.1**, the combination of the papers in the sack giving a total minimum tensile energy absorption (TEA) value of 548 J/m^2 along machine direction (MD) and 274 J/m^2 along cross direction (CD). Each individual ply shall be tested for its tensile strength and stretch in the cross and machine directions by the method detailed in **12.3** of IS 1060 (Part 1) : 1966. The values of TEA thus obtained for each ply shall be added to obtain the total TEA for complying with the minimum requirement.

6.1.1 The other properties of the kraft paper shall be as under:

Sl No.	*Property*	*Value*	*Method of Test*
i)	Elongation at break, percent, *Min*	MD - 2.5	**12.3** of IS 1060 (Part 1) : 1966
		CD - 4.5	do
ii)	Tear factor, *Min*	MD - 100	**12.7** of IS 1060 (Part 1) :1966
		CD - 120	do
iii)	Porosity, Sec/100 ml (Gurley), *Max*	25	Appendix A of IS 3413 : 1977

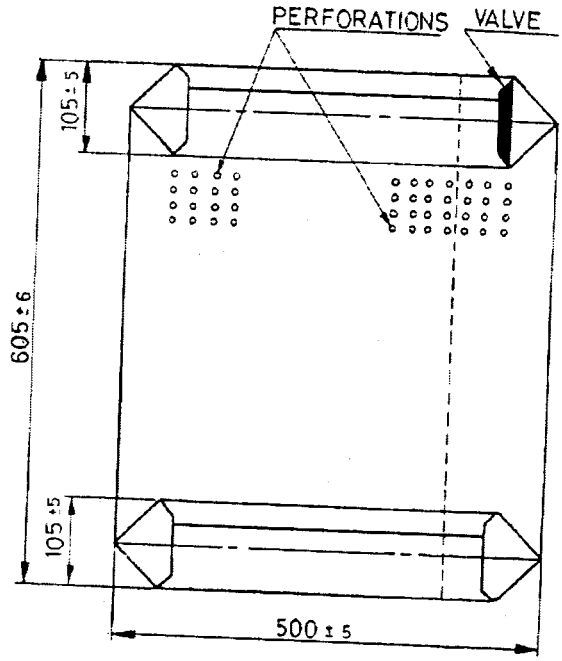
6.2 Shape and Dimensions

The sack shall be of either the valved-sewn-gussetted type or valved-pasted ends type and of dimensions as shown in Fig. 1 and Fig. 2 respectively. The length of the sack may vary and shall be



All dimensions in millimetres.

FIG. 1 MULTI-WALL PAPER SACK FOR PACKING 50 kg CEMENT (VALVED-SEWN-GUSSETTED TYPE)



All dimensions in millimetres.

FIG. 2 MULTI-WALL PAPER SACK FOR PACKING 50 kg CEMENT (VALVED-PASTED END TYPE)

specified by the purchaser depending on the temperature of filling and the density of the cement to be filled by him. The top and bottom width in pasted end type sacks may also vary and shall be specified by the purchaser. The sack shall be suitably perforated for escape of air. There shall be 9 to 12 stitches per 10 cm length of stitching in valved-sewn-gussetted sacks.

6.3 Ends

6.3.1 Both ends of valved-sewn-gussetted sacks shall be attached with glued crepe or extensible paper tape and then sewn with the sewing thread with the reinforcing filler cord.

6.3.2 Both ends of valved-pasted ends sacks shall be pasted with adhesive as specified in **5.3**.

7 WORKMANSHIP

The plies shall be properly but not excessively creased. In the construction of the sack tube, the outer ply fit shall be such that at the point of manufacture, each ply shall be smaller in circumference than the next outer ply within the elongation limits of the material in order to ensure; even load distribution between the plies. Care shall be taken to ensure adequate longitudinal overlap, equal gusset formation and spot gluing quantity and line of gluing.

8 TESTING

8.1 Sampling shall be as per procedure laid down in IS 10528 : 1983.

8.2 Conditioning

The paper sack samples from the lot for testing shall be conditioned as per IS 1060 (Part 1) : 1966.

8.3 Drop Test

Ten sacks shall be taken from a lot of sacks offered for testing. The sacks shall be conditioned and filled as per the details given in IS 11052 : 1984. Each sack shall then be subjected to the following sequential drops:

One drop each on front side, back side, right side, left side, bottom and top. The drop height shall be 0.85 m for the first two drops (that is, front and back sides) and 0.3 m for drops on the remaining sides.

8.3.1 The sacks shall be examined for bursting leading to seepage of the contents at the end of each drop. The lot shall be considered passing if not more than one sack shows failure in bursting leading to seepage. The lot shall be considered failing if more than two sacks shows failure in bursting leading to seepage. However, if two sacks shows failure in bursting, a second set of 5 sacks from the same lot shall be tested and if more than one shows failure in bursting leading to seepage, the lot shall be considered failing.

9 ADDITIONAL REQUIREMENTS FOR ECO MARK

9.1 General Requirements

9.1.1 The product shall conform to the requirements for quality and performance prescribed under **3** to **8**.

9.1.2 The paper and paper boards used for the manufacture of packaging materials/packages shall comply with the relevant Indian Standards.

9.1.3 The manufacturer shall produce to BIS, the 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 (Prevention and Control of Pollution) Act* 1981 along with the authorization, if required, under the *Environment (Protection) Act* 1986 and the rules made thereunder, while applying for ECO Mark.

9.2 Specific Requirements

9.2.1 The material shall be of the following two types depending on the raw material used in the manufacture:

a) *Type* A — Manufactured from pulp containing not less than 60 percent by mass of pulp made from materials other than bamboo, hardwood, softwood and reed.

b) *Type* B — Manufactured from pulp made from 100 percent waste paper or agricultural/industrial waste.

NOTE — The manufacturer shall provide documentary evidence by way of certificate or declaration to this effect to BIS while applying for ECO mark for requirements under (a) and (b) above.

10 MARKING AND PACKING

10.1 Paper sacks shall be bundled and suitably packed in waterproof material or as agreed upon between the purchaser and the supplier, for supply.

10.2 The ECO marked packaging material/package may be sold along with instructions for proper use and mode of safe disposal so as to maximise its performance and minimize wastage.

10.3 Each sack shall be marked with the following information printed on it:

a) Relevant product details along with the name of the product manufacturer;

b) Net mass of the contents; and

c) 'Do not use hooks', preferably showing the corresponding pictorial illustration as per IS 1260 (Part 2) : 1979.

10.3.1 The sacks may also be marked with the following information:

a) 'Do not drop', preferably showing the pictorial illustration as per IS 1260 (Part 2) : 1979.

b) 'Do not drop on edges, corners and ends', preferably showing the corresponding pictorial illustration as per IS 1260 (Part 2) : 1979.

10.3.2 BIS Certification Marking

The product may also be marked with the Standard Mark.

10.3.2.1 The use of the Standard Mark is governed by the provisions of *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 Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

10.3.3 *Additional Requirements for ECO Mark*

10.3.3.1 Each sack may display in brief the criteria for which the product has been labelled as environment friendly.

10.3.3.2 It shall be suitably marked on each sack that ECO Mark label is applicable only to the packaging material/package if content is not separately covered under the ECO Mark scheme.

NOTE — It may be stated that the ECO Mark is applicable to the product or packaging material or both.

ANNEX A

(*Clause* 2)

LIST OF REFERRED INDIAN STANDARDS

IS No.	*Title*
1060 (Part 1) : 1966	Methods of sampling and test for paper and allied products: Part 1 (*revised*)
1260 (Part 2) : 1979	Pictorial marking for handling and labelling of goods: Part 2 General goods (*second revision*)
3413 : 1977	Base paper for carbon paper (*first revision*)
9028 : 1976	Glossary of terms relating to paper sacks
9042 : 1978	Method of measurement and expression of the dimensions of paper sacks
10528 : 1983	Method of sampling for empty paper sack for testing
11052 : 1984	Methods of test for vertical impact drop test on paper sack

ANNEX B

(Foreword)

COMMITTEE COMPOSITION

Paper and Pulp Based Packaging Sectional Committee, CHD 016

Chairman	*Representing*
SHRI P. V. NARAYANAN	Indian Institute of Packaging, Mumbai
Members	
SHRI K. B. GUPTA (*Alternate* to Shri P.V. Narayanan)	
SHRI ANIL AGGARWAL	Ministry of Defence (DGQA), New Delhi
SHRI S. N. SRIVASTAVA (*Alternate*)	
SHRI A. B. AJMERA	Card Board Box Manufacturing, Calcutta
SHRI S. B. AJMERA (*Alternate*)	
SHRI S. N. BHADKE	Tata Oil Mills Ltd, Mumbai
SHRI V. SIVARAMAN (*Alternate*)	
SHRI AMBRISH BHARGAVA	All India Small Paper Mills Association, Mumbai
SHRI SANJAY VERMA (*Alternate*)	
SHRI V. C. BHARGAVA	Directorate of Plant Protection Quarantine & Storage, Faridabad
SHRI S. K. GHOSH (*Alternate*)	
SHRI D. K. BORAL	India Foils Ltd,Calcutta
SHRI B. BOSE (*Alternate*)	
SHRI K. S.CHAWAN	Glaxo India Ltd, Mumbai
SHRIMATI E LOBO (*Alternate*)	
SHRI D. C. DAS	Directorate General of Supplies & Disposals, New Delhi
SHRI R. C. SHARMA (*Alternate*)	
SHRI T. B. DEB	ITC Ltd, Calcutta
DR K. L. GABA	Federation of Biscuit Manufacturers, New Delhi
SHRI K. C. GUPTA (*Alternate*)	
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SHRI SUDIP SEN (*Alternate*)	
DR M. B. JAUHARI	Indian Pulp & Paper Technical Association, Saharanpur
DR A. G. KULKARNI (*Alternate*)	
SHRI U. B. KANCHAN	Ministry of Defence (R & D), New Delhi
SHRI RAVINDER KUMAR (*Alternate*)	
SHRI S. K. KAPOOR	Central Pulp & Paper Research Institute, Saharanpur
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SHRI A. K. CHATTERJEE (*Alternate*)	
SHRI A. S. NARAYANAN	All India Paper and Allied Products Manufacturers Association, Mumbai
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SHRI SANJAY NAYER (*Alternate*)	
DR S. N. PANDEY	Jute Technological Research Lab, Calcutta
DR A. DEY (*Alternate*)	
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SHRI MANOJ DUTT (*Alternate*)	
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REPRESENTATIVE	Railway Board, New Delhi.
SHRI A. ROY	Brooke Bond Lipton India Ltd, Bangalore
SHRI RAJIV SAH	Central Pulp Mills, Songad
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SHRI P. D. SHAH	Federation of Corrugated Box Manufacturers Association, Mumbai
CAPT N. K. DAWAR (*Alternate*)	
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SHRI G. M. MATHUR (*Alternate*)	
SHRI V. K. SOOD	Nestle India Ltd, New Delhi
SHRI V. K. GERA (*Alternate*)	
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Member-Secretary
SHRI N. K. PAL
Joint Director (Chem), BIS

(*Continued on page 6*)

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Paper Sacks Subcommittee, CHD 16:06

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Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act, 1986* to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Handbook' and 'Standards Monthly Additions'.

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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 : 323 01 31, 323 83 75, 323 94 02

Telegrams : Manaksanstha
(Common to all offices)

Regional Offices :		Telephone
Central	: Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	323 76 17 323 38 41
Eastern	: 1/14 C. I.T. Scheme VII M, V. I. P. Road, Maniktola CALCUTTA 700054	337 84 99, 337 85 61 337 86 26, 337 91 20
Northern	: SCO 335-336, Sector 34-A, CHANDIGARH 160022	60 38 43 60 20 25
Southern	: C. I. T. Campus, IV Cross Road, MADRAS 600113	235 02 16, 235 04 42 235 15 19, 235 23 15
Western	: Manakalaya, E9 MIDC, Marol, Andheri (East) MUMBAI 400093	832 92 95, 832 78 58 832 78 91, 832 78 92

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