

**IS : 1398 - 1982**

( Reaffirmed 1994 )

*Indian Standard*

**SPECIFICATION FOR  
PACKING PAPER WATER PROOF,  
BITUMEN-LAMINATED**

**( *Second Revision* )**

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

*Indian Standard*  
**SPECIFICATION FOR  
 PACKING PAPER WATER PROOF,  
 BITUMEN-LAMINATED**  
*( Second Revision )*

Paper and Pulp Based Packaging Materials  
 Sectional Committee, CDC 45

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SPECIFICATION FOR  
PACKING PAPER WATER PROOF,  
BITUMEN-LAMINATED  
( *Second Revision* )

**0. FOREWORD**

**0.1** This Indian Standard ( Second Revision ) was adopted by the Indian Standards Institution on 31 August 1982, after the draft finalized by the Paper and Pulp Based Packaging Materials Sectional Committee had been approved by the Chemical Division Council.

**0.2** This standard was first published in 1960 and subsequently revised in 1968. It was felt that some of the requirements, namely, pH, chloride content, sulphate content and loss on heating, were not necessary for the paper used for general purpose packaging except where direct contact with food or material where tranishing/corrosion of paper may occur. Consequently, these had been deleted from the first revision. Further, the requirement for bitumen content had also been dropped since it was found difficult to have a minimum bitumen content of 50 g/m<sup>2</sup> for all the three types of bitumen laminated waterproof packing paper and with different substances of kraft paper. Water penetration and bleeding resistance tests were considered adequate to ensure the correct amount of bitumen.

**0.3** In this revision, besides other modifications, the requirements of bursting strength have been modified on the basis of the experience gained, during the implementation of the standard. The units of bursting strength have been expressed in SI units.

**0.4** 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, shall be rounded off in accordance with IS : 2-1960\*. 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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\*Rules for rounding off numerical values ( revised ).

## 1. SCOPE

**1.1** This standard prescribes requirements and methods of sampling and test for bitumen-laminated waterproof paper for general packaging.

## 2. TYPES

**2.1** Bitumen-laminated waterproof packaging paper shall be of the following three types:

a) *Type 1* — Waterproof paper comprising two plies of kraft paper laminated with bitumen,

*Type 2* — Waterproof paper comprising two plies of draft paper laminated with bitumen and reinforced with jute or cotton yarns placed 25 to 30 mm apart,

*Type 3* — Waterproof paper comprising one ply of hessian cloth and one of kraft paper, laminated with bitumen.

## 3. REQUIREMENTS

### 3.1 Materials

**3.1.1 Kraft Paper** — It shall have substance as agreed to between the purchaser and the supplier ( *see* IS : 1397-1967\* ).

**3.1.2 Bitumen** — A bitumen composition of air-blow grade having a softening point ( ring and ball method ) of not less than 80°C ( *see* IS : 702-1961† ).

**3.2 Finish** — The bitumen shall be smoothly and uniformly spread throughout and shall not crack on folding the paper. The adhesion between the plies shall be such that they cannot be separated by pulling apart with hands, after conditioning as per clause 2.1 of IS : 1060 ( Part I )-1966‡, without damaging the paper.

**3.3** The bitumen-laminated paper shall also comply with the requirements given in Table 1 when tested in accordance with the methods referred to in col 6, 7 and 8 of the table

**3.4 Sizes and Tolerance on Sizes** — The finished paper shall be in the form of rolls or sheets as agreed to between the purchaser and the supplier. Unless otherwise agreed to between the purchaser and the supplier, the size of sheets shall be one of the finished or raw stock sizes given in Tables 1 and 2 of IS : 1064-1980§, while each roll shall be of

\*Specification for kraft paper ( *first revision* ).

†Specification for industrial bitumen ( *revised* ).

‡Methods of sampling and test for paper and allied products, Part I ( *revised* ).

§Specification for paper sizes ( *second revision* ).

continuous length of 100 metres with width equal to one of the dimensions of a finished or a raw stock size given in the said tables.

**TABLE 1 REQUIREMENTS OF PACKING PAPER, WATERPROOF, BITUMEN-LAMINATED**

( Clause 3.3 )

Sl. No.	CHARACTERISTIC	REQUIREMENT			METHOD OF TEST, REF TO CL No. IN		
		Type 1	Type 2	Type 3	Appen- dix	IS : 1060- ( Part I )- 1966*	IS : 1060- ( Part II )- 1960†
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
i)	Bursting strength, MPa‡ <i>Min:</i>				—	12.5	—
	a) Kraft paper of substance 60 g/m <sup>2</sup> and less	0.23	0.30§	—			
	b) Kraft paper of substance above 60 g/m <sup>2</sup>	0.30	0.35§	—			
	c) Kraft paper with 255 g, hessian	—	—	1.1			
	d) Kraft paper with 312 g, hessian	—	—	1.2			
ii)	Tensile strength, kg/cm, <i>Min:</i>				—	12.3	—
	a) Machine direction	4.5	5.0§	10.0			
	b) Cross direction	3.0	3.0	7.0			
<sup>i</sup> ii)	Water penetration	To pass the test			A	—	—
iv)	Bleeding resistance	No stain shall appear either on the imitation art paper or on the exposed surface of the test piece itself			—	—	11

\*Methods of sampling and test for paper and allied products, Part I ( revised ).

†Methods of sampling and test for paper and allied products, Part II.

‡1 kg/cm<sup>2</sup> = 0.098 066 5 Megapascal ( MPa ).

§Tested with a single jute yarn located centrally on the test piece.

#### 4. PACKING AND MARKING

4.1 The paper in the form of sheets shall be made into packages of 250 or 500 sheets depending on the sheet size and mass. The packing shall be done as agreed to between the purchaser and the supplier.

**4.2** The paper, in rolls more than 100 metres in length, shall be wound on a core having inside diameter of 70 mm and length corresponding to the width of the paper and provided with a wooden plug on each end extending to a minimum of 75 mm into the core.

**4.2.1** For rolls up to 100 metres in length, core and plug shall be used if agreed to between the purchaser and the supplier.

**4.3** Each package or roll shall be marked with the following information:

*Package*

- a) Description, substance and type of paper;
- b) Number of sheets;
- c) Mass in kg per 500 sheets including wrapping paper;
- d) Size in mm;
- e) Lot number;
- f) Date of manufacture; and
- g) Name of the manufacturer or recognized trade-mark, if any.

*Roll*

- a) Description substance and type of paper;
- b) Mass in kg of the roll including the mass of the core and the plug;
- c) Length and width of roll;
- d) Lot number;
- e) Date of manufacture; and
- f) Name of the manufacturer or recognized trade-mark, if any.

**4.3.1** The material may also be marked with the ISI Certification Mark.

**NOTE** — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution ( Certification Marks ) Act and the Rules and Regulations made thereunder. The ISI 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 ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

## **5. SAMPLING**

**5.1** Representative samples for the test shall be drawn as prescribed in 3 of IS : 1060 ( Part I )-1966\*.

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\*Methods of sampling and test for paper and allied products, Part I ( revised ).

**APPENDIX A**

( Clause 3.3 and Table 1 )

**WATER PENETRATION TEST****A-1. APPARATUS**

**A-1.1** The apparatus consists of a metal tube with an internal cross-section of not less than 100 cm<sup>2</sup> and not less than 10 cm high, with arrangements to clamp it on the test piece. The apparatus of the type prescribed for Cobb test [ see 13.2.2 of IS : 1060 ( Part I )-1966\* ] is suitable.

**A-2. PROCEDURE**

**A-2.1** The paper is subjected to a pressure of 10 cm of water containing one percent eosin or any other suitable water-soluble dye at a temperature of  $27 \pm 2^{\circ}\text{C}$  with a filter paper in close contact with underside of the test piece.

At the end of 18 hours, water is poured out and the filter paper underneath the test piece examined. There shall be no staining of the filter paper.

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\*Methods of sampling and test for paper and allied products, Part I ( *revised* )

# BUREAU OF INDIAN STANDARDS

## Headquarters:

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

Telephones: 323 0131, 323 3375, 323 9402 Fax : + 91 11 3234062, 3239399, 3239382

E - mail : bisind @ del 2.vsnl.net.in Internet : http://wwwdel.vsnl.net.in/bis.org

## Central Laboratory :

Plot No. 20/9, Site IV, Sahibabad Industrial Area, Sahibabad 201010

**Telephone**

91-77 00 32

## Regional Offices:

Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002 323 76 17

\*Eastern : 1/14 CIT Scheme VII, V.I.P. Road, Kankurgachi, CALCUTTA 700054 337 86 62

Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160022 60 38 43

Southern : C.I.T. Campus, IV Cross Road, CHENNAI 600113 235 23 15

†Western : Manakalaya, E9, MIDC, Behind Marol Telephone Exchange, Andheri (East), MUMBAI 400093 832 92 95

## Branch Offices:

'Pushpak', Nurmohamed Shaikh Marg, Khanpur, AHMEDABAD 380001 550 13 48

‡Peenya Industrial Area, 1st Stage, Bangalore-Tumkur Road, BANGALORE 560058 839 49 55

Commercial-cum-Office Complex, Opp. Dushera Maidan, Arera Colony, Bittan Market, BHOPAL 462016 72 34 52

62/63, Ganga Nagar, Unit VI, BHUBANESHWAR 751001 40 36 27

Kalai Kathir Building, 670 Avinashi Road, COIMBATORE 641037 21 01 41

Plot No. 43, Sector 16 A, Mathura Road, FARIDABAD 121001 91-28 88 01

Savitri Complex, 116 G.T. Road, GHAZIABAD 201001 91-71 19 98

53/5 Ward No.29, R.G. Barua Road, 5th By-lane, GUWAHATI 781003 56 65 08

5-8-56C, L.N. Gupta Marg, Nampally Station Road, HYDERABAD 500001 320 10 84

E-52, Chitaranjan Marg, C- Scheme, JAIPUR 302001 37 38 79

117/418 B, Sarvodaya Nagar, KANPUR 208005 21 68 76

Seth Bhawan, 2nd Floor, Behind Leela Cinema, Naval Kishore Road, LUCKNOW 226005 21 89 23

NIT Building, Second Floor, Gokulpat Market, NAGPUR 440010 52 51 71

Patliputra Industrial Estate, PATNA 800013 26 28 08

Institution of Engineers (India) Building 1332 Shivaji Nagar, PUNE 411005 32 36 35

'Sahajanand House' 3rd Floor, Bhaktinagar Circle, 80 Feet Road, RAJKOT 360002 26 85 86

T.C. No. 14/1421, University P. O. Palayam, THIRUVANANTHAPURAM 695034 32 72 15

\*Sales Office is at 5 Chowringhee Approach, P.O. Princep Street, CALCUTTA 700072 27 10 85

†Sales Office is at Novelty Chambers, Grant Road, MUMBAI 400007 309 65 28

‡Sales Office is at 'F' Block, Unity Building, Narashimaraja Square, BANGALORE 560002 222 39 71