

# इंटरनेट

# मानक

## Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 1838-1 (1983): preformed fillers for expansion joint in concrete pavement and structures (non extruding and resilient type): Part 1 Bitumen impregnated fibre - Specification [CED 13: Building Construction Practices including Painting, Varnishing and Allied Finishing]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”



BLANK PAGE



IS : 1838 ( Part I ) -1983  
(Reaffirmed 2010)

## *Indian Standard*

# SPECIFICATION FOR PREFORMED FILLERS FOR EXPANSION JOINT IN CONCRETE PAVEMENT AND STRUCTURES ( NON EXTRUDING AND RESILIENT TYPE)

PART I BITUMEN IMPREGNATED FIBRE

( *First Revision* )

Fourth Reprint JULY 2006  
( Including Amendment No. I )

UDC 625.848 [624.012.33 ] : 677.865

© Copyright 1983

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

## *Indian Standard*

# SPECIFICATION FOR PREFORMED FILLERS FOR EXPANSION JOINT IN CONCRETE PAVEMENT AND STRUCTURES ( NON EXTRUDING AND RESILIENT TYPE )

## PART I BITUMEN IMPREGNATED FIBRE

### *( First Revision )*

---

Building Construction Practices Sectional Committee, BDC 13

*Chairman*

SHRI C. P. MALIK  
C-4/38, Safdarjung Development Area,  
New Delhi

*Members*

SHRI P. D. AGARWAL

SHRI SURAJ S. J. BAHADUR

SHRI D. R. BATLIVALA

SHRI J. R. BHALLA

SHRI R. K. MATHUR (*Alternate*)  
CHIEF ENGINEER (NORTH)

CHIEF ENGINEER (BLDGs), PWD,  
MADRAS

SUPERINTENDING ENGINEER,  
(SPECIAL BUILDING CIRCLE),  
PWD, MADURAI (*Alternate*)

CHIEF ENGINEER-CUM-ADDITIONAL  
SECRETARY TO THE GOVERN-  
MENT (B & R)

EXECUTIVE ENGINEER (DESIGNS  
& SPECIFICATION) (*Alternate*)

CHIEF ENGINEER (TRAINING)

SUPERINTENDING SURVEYOR  
OF WORKS (TRAINING) (*Alternate*)

*Representing*

Public Works Department, Government of Uttar  
Pradesh, Lucknow

Housing & Urban Development Corporation Ltd,  
New Delhi

Bhabha Atomic Research Centre, Bombay  
Indian Institute of Architects, New Delhi

Public Works Department, Government of  
Punjab, Chandigarh

Public Works Department, Government of  
Tamil Nadu, Madras

Public Works Department, Government of  
Rajasthan, Jaipur

Central Public Works Department, New Delhi

( *Continued on page 2* )

© Copyright 1983

BUREAU OF INDIAN STANDARDS

This publication is protected under the *Indian Copyright Act* (XIV of 1957) and reproduction in whole or in part by any means except with written permission of the publisher shall be deemed to be an infringement of copyright under the said Act.

## IS : 1838 ( Part I ) - 1963

( Continued from page 1 )

<i>Members</i>	<i>Representing</i>
DIRECTOR ( ARCHITECTURE ), RDSO	Railway Board, Ministry of Railways
JOINT DIRECTOR ( ARCHITECTURE ), RDSO ( <i>Alternate</i> )	
SHRI R. G. GOKHALE	State Bank of India, Bombay
SHRI M. KARTIKAYAN	Builders' Association of India, New Delhi
SHRI J. S. KOHLI	Engineer-in-Chief's Branch, Army Headquarters, New Delhi
SHRI M. G. VIRMANI ( <i>Alternate</i> )	
SHRI R. L. KUMAR	Institution of Surveyors, New Delhi
SHRI V. G. PATWARDHAN ( <i>Alternate</i> )	
SHRI M. Z. KURIEN	Tata Consulting Engineers, Bombay
SHRI G. K. MAJUMDAR	Hindustan Prefab Ltd, New Delhi
SHRI H. S. PABRICHA ( <i>Alternate</i> )	
SHRI R. C. MANGAL	Central Building Research Institute ( CSIR ), Roorkee
SHRI M. P. JAISINGH ( <i>Alternate</i> )	
SHRI B. V. B. PAI	Concrete Association of India, Bombay
SHRI P. SRINIVASAN ( <i>Alternate</i> )	
SHRI R. K. PANDARE	Life Insurance Corporation of India, Bombay
DEPUTY CHIEF ENGINEER ( NORTH ) ( <i>Alternate</i> )	
SHRI K. S. PRUTHI	Forest Research Institute & Colleges, Dehra Dun
SHRI T. K. SARAN	Bureau of Public Enterprises ( Ministry of Finance )
SHRI S. S. KAIMAL ( <i>Alternate</i> )	
SHRI K. S. SRINIVASAN	National Buildings Organization, New Delhi
DEPUTY DIRECTOR ( <i>Alternate</i> )	
SHRI SUSHIL KUMAR	National Buildings Construction Corporation Ltd, New Delhi
PROF C. G. SWAMINATHAN	Central Road Research Institute ( CSIR ), New Delhi
SHRI S. R. TAMBE	Public Works & Housing Department, Bombay
SHRI B. T. UNWALLA	Institution of Engineers ( India ), Calcutta
SHRI G. VENKATESULU	Ministry of Shipping & Transport ( Roads Wing )
SHRI PRAFULLA KUMAR ( <i>Alternate</i> )	
SHRI G. RAMAN, Director ( Civ Engg )	Director General, ISI ( <i>Ex-officio Member</i> )

### *Secretary*

SHRI S. SENGUPTA  
Assistant Director ( Civ Engg ), ISI

( Continued on page 8 )

**AMENDMENT NO. 1    OCTOBER 1999**  
**TO**  
**IS 1838 ( PART 1 ) : 1983    SPECIFICATION FOR**  
**PREFORMED FILLERS FOR EXPANSION JOINT IN**  
**CONCRETE PAVEMENT AND STRUCTURES ( NON**  
**EXTRUDING AND RESILIENT TYPE )**

**PART 1    BITUMEN IMPREGNATED FIBRE**

*( First Revision )*

*( Page 7, clause 8.2 ) — Substitute '100 mm × 100 mm' for '100 × 100 cm'.*

**( CED 13 )**

---

**Printed at Prabhat Offset Press, New Delhi-2**

**Indian Standard**  
**SPECIFICATION FOR**  
**PREFORMED FILLERS FOR EXPANSION JOINT**  
**IN CONCRETE PAVEMENT AND STRUCTURES**  
**( NON EXTRUDING AND RESILIENT TYPE )**

**PART I BITUMEN IMPREGNATED FIBRE**

**( First Revision )**

**0. FOREWORD**

**0.1** This Indian Standard ( Part I ) ( First Revision ) was adopted by the Indian Standards Institution on 4 March 1983, after the draft finalized by the Building Construction Practices Sectional Committee had been approved by the Civil Engineering Division Council.

**0.2** Joints are required in concrete roads, runways, floor and roof slabs of buildings to relieve stresses developed due to temperature shrinkage, creep, relaxation, vibration, etc. To provide an even surface these joints must be filled and at the same time the materials used for filling should permit expansion and contraction of the concrete. The joint filler is a strip of compressible material used to form and fill the expansion joints in structures. The chief function of the joint filler is to permit the joint to expand without developing stresses. Joint filler are produced from a variety of materials such as bitumen impregnated fibre, cork strips, sponge or synthetic rubber, expanded plastics, epoxy, coconut pith and CNSL resin. This standard ( Part I ) has been prepared to cover the requirements for the bitumen impregnated fibre type of expansion joint fillers. The requirements for other types will be issued separately.

**0.3** To make the joints effective it is also necessary to prevent the ingress of water or grit down the joint. This is achieved by using a sealing compound over the joint filler. The requirements for sealing compounds and methods of installation of joints has been covered separately ( see IS : 1834-1961\*, IS : 3414-1968† and IS : 6509-1972‡).

---

\*Specification for hot applied sealing compounds for joints in concrete.

†Code of practice for design and installation of joints in buildings.

‡Code of practice for installation of joints in concrete pavements.



## **IS : 1838 ( Part I ) - 1983**

**0.4** This standard was first published in 1961 with a view to provide guidance to the manufacturers to facilitate commercial production. This revision has been prepared to take into consideration various recommendations received from the users. In this revision additional alternative fibres for the manufacture of fillers have been indicated. The method of manufacture has been dealt in detail and additional physical requirements have been added. The methods of tests have been deleted and included in a separate Indian Standard. The title of the standard has also been modified.

**0.5** This standard contains clause 4.1 which permits the purchaser to use his option for selection to suit his requirements.

**0.6** 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\*. 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**

**1.1** This standard ( Part I ) specifies the requirements for bitumen impregnated fibre fillers for expansion joints.

**1.1.1** The fillers may be used for filling expansion joints in concrete roads, runways and buildings.

### **2. MATERIAL**

**2.1 Bitumen** — This shall conform to IS : 73-1961† or IS : 702-1961‡.

**2.2 Fibre** — This shall be either soft board, or fibre board, or cane or any other suitable fibre of cellular nature.

### **3. MANUFACTURE**

**3.1** The fillers shall consist of preformed strips of suitable fibre of a cellular nature securely bonded together and then uniformly saturated with bitumen.

---

\*Rules for rounding off numerical values (*revised*).

†Specification for paving bitumen (*revised*).

‡Specification for industrial bitumen (*revised*).

## **4. DIMENSIONS AND TOLERANCES**

**4.1 Dimensions** — The length, width and thickness of the preformed strips when measured in accordance with the method given in IS : 10566-1983\* shall be as agreed to between the purchaser and the manufacturer.

**4.2 Tolerances** — The tolerances on the average dimensions shall be as given below:

On length	$\pm 5$ mm
On width	$\pm 3$ mm
On thickness	$\pm 1.5$ mm

## **5. PHYSICAL REQUIREMENTS**

**5.1** The physical requirements of the fillers shall conform to those specified in col 3 of Table 1 when tested in accordance with the method specified in IS : 10 66-1983\*.

## **6. PACKING**

**6.1** The preformed joint fillers shall be packed in such a manner that there shall be no distortion or breakage or deterioration of the properties of the fillers during transportation.

## **7. MARKING**

**7.1** The packages shall be marked with the manufacturer's name or trade-mark, if any, size and type of filler.

### **7.2 BIS Certification Marking**

The product may also be marked with Standard Mark.

**7.2.1** 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.

---

\*Methods of test for preformed fillers for expansion joints in concrete paving and structural construction.

TABLE 1 PHYSICAL REQUIREMENTS OF BITUMEN IMPREGNATED FIBRE FILLERS

( Clause 5.1 )

Sr No.	CHARACTERISTIC	REQUIREMENT	METHOD OF TEST ( REF TO INDIAN STANDARD )
(1)	(2)	(3)	(4)
i)	Resistance to handling	Strips shall not be deformed or broken by twisting, bending or other types of ordinary handling when exposed to atmospheric conditions ( see Note )	—
ii)	Recovery	Shall recover at least 70 percent of its thickness before the test	IS : 10566-1983*
iii)	Compression	a) Load required to compress the specimen to 50 percent of its original thickness before the test shall be 7 kgf/cm <sup>2</sup> ( 0.7 N/mm <sup>2</sup> ), <i>Min</i> 53 kgf/cm <sup>2</sup> ( 5.3 N/mm <sup>2</sup> ), <i>Max</i> b) Loss in bitumen 3 percent, <i>Max</i>	IS : 10566-1983*
iv)	Extrusion	Amount of extrusion of the free edge shall not exceed 6.5 mm	IS : 10566-1983*
v)	Water absorption	20 percent, <i>Max</i>	IS : 10566-1983*
vi)	Density	300 kg/m <sup>3</sup> , <i>Min</i>	IS : 10566-1983*
vii)	Bitumen content	35 percent, <i>Min</i>	IS : 10566-1983*
viii)	Weathering	a) Shall show no sign of disintegration, delamination or separation of fibres after the test b) Shall satisfy the requirement of recovery, compression and extrusion after the test	IS : 10566-1983*
ix)	Penetration of recovered bitumen	Shall be between 25 to 100 at 25°C	IS : 10566-1983*

NOTE — Pieces of the joint filler that have been damaged shall be rejected.

\*Methods of test for preformed fillers for expansion joints in concrete paving and structural construction.

**8. SAMPLING**

**8.1 Number of Samples** — One representative sample shall be selected from each lot of 100 m<sup>2</sup> of the material having same thickness. The sampling shall be done at random.

**8.2 Size of Sample** — Each sample shall consist of sufficient material so that five test pieces measuring 100 × 100 cm could be obtained.

**8.3 Tests** — All the test pieces as selected in 8.2 shall be subjected to dimensional and physical requirements. The lot shall be accepted if all the five test pieces meet the physical and dimensional requirements; otherwise not.

## IS : 1838 ( Part I ) - 1983

( Continued from page 2 )

### Joints in Structure Subcommittee, BDC 13 : 14

<i>Convener</i>	<i>Representing</i>
<b>SRI HARISH CHANDRA</b>	Central Public Works Department, New Delhi
<i>Members</i>	
<b>SRI J. P. BAJAJ</b>	Institution of Surveyors, New Delhi
<b>LT-COL C. T. CHARI</b>	Engineer-in-Chief's Branch, Army Headquarters
<b>SRI S. K. GUPTA ( Alternate )</b>	
<b>SRI R. C. P. CHOUDHARY</b>	Engineers India Ltd, New Delhi
<b>SRI K. N. SINHA ( Alternate )</b>	
<b>SRI P. S. GOKHALE</b>	Gammon India Ltd, Bombay
<b>SRI K. RAJAGOPALAN ( Alternate )</b>	
<b>SRI G. B. JAHAGIRDAR</b>	National Industrial Development Corporation Ltd, New Delhi
<b>SRI M. P. JAISINGH</b>	Central Building Research Institute ( CSIR ), Roorkee
<b>SRI R. K. JAIN ( Alternate )</b>	
<b>SRI S. R. KULKARNI</b>	M. N. Dastur & Company (P) Ltd, Calcutta
<b>SRI D. B. GHOSH ( Alternate )</b>	
<b>DR M. NAYAK</b>	Concrete Association of India, Bombay
<b>SRI P. SRINIVASAN ( Alternate )</b>	
<b>SRI Y. R. PHULL</b>	Central Road Research Institute ( CSIR ), New Delhi
<b>SRI K. L. SETHI ( Alternate )</b>	
<b>SRI R. V. RAMAMURTHY</b>	Directorate General Border Roads, New Delhi
<b>SRI R. P. SETHI ( Alternate )</b>	
<b>SRI SAMUL F.</b>	Indian Institute of Architects, New Delhi
<b>SRI S. SEETHARAMAN</b>	Ministry of Shipping & Transport (Roads Wing), New Delhi
<b>SRI PRAPULLA KUMAR ( Alternate )</b>	
<b>SRI K. S. SRINIVASAN</b>	National Buildings Organization, New Delhi
<b>SRI A. K. LAL ( Alternate )</b>	
<b>SRI SUSHIL KUMAR</b>	National Building Construction Corporation Ltd, New Delhi
<b>SRI DALJIT SINGH ( Alternate )</b>	
<b>SUPERINTENDING SURVEYOR OF WORKS (CZ)</b>	Central Public Works Department, New Delhi
<b>SURVEYOR OF WORKS ( Alternate )</b>	

## **BUREAU OF INDIAN STANDARDS**

### **Headquarters:**

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002

Telephones: 23230131, 23233375, 23239402

Fax: 91+011 23234062, 23239399, 23239382

E-mail: [bis@vsnl.com](mailto:bis@vsnl.com)

website: <http://www.bis.org.in>

### **Central Laboratory:**

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

### **Telephone**

2770032

### **Regional Offices:**

Central: Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002

23237617

\*Eastern: 1/14 CIT Scheme VII M, V.I.P. Road Kankurgachi, KOLKATA 700054

23378662

Northern: SCO 335-336, Sector 34-A, Chandigarh 160022

603843

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

254 19 84

Western: Manakalaya, E9, MIDC, Behind Marol Telephone Exchange,

2832 92 95

Andheri (East), MUMBAI 400093

### **Branch offices:**

'Pushpak' Nurmohamed Shaikh Marg, Khanpur, AHMEDABAD 380001

560 13 48

Peenya Industrial Area, 1<sup>st</sup> Stage, Bangalore-Tumkur Road, BANGALORE

839 49 55

Commercial-cum-office Complex, opp. Dushera Maidan, Arera Colony,

242 34 52

Bittan Market, BHOPAL 462016

62/63, Ganga Nagar, Unit VI, BHUBANESHWAR 751001

240 3139

5<sup>th</sup> Floor, Koval Towers, 44 Bala Sundaram Road, COIMBATORE 641018

221 0141

SCO 21, Sector 12, Faridabad 121007

2292175

Savitri Complex, 116 G.T. Road Ghaziabad 201001

2861498

53/5 Ward No. 29, R.G. Barua Road 5 by-lane, Apurba Sinha Path

2541137

GUWAHATI 781003

5-8-56C L.N. Gupta Marg, Nampally Station Road, HYBERABAD 500001

23201084

E-52, Chitrangan Marg, C-Scheme, JAIPUR 302001

2373879

117/418 B Sarvodaya Nagar, KANPUR 208005

2218774

Sethi Bhavan; 2<sup>nd</sup> Floor, Behind Leela Cinema, Naval Kishore Road,

2215698

LUCKNOW 226001

NIT Building, Second Floor, Gokulpat Market, NAGPUR 440010

2525171

Mahavir Bhavan, First Floor, Ropar Road, NALAGARH 174101

221451

Patliputra Industrial Estate, PATNA 800013

2262808

First Floor, Plot Nos 657-660, Market Yard, Gultkdi, PUNE 411037

4268659

"Sahajanand House" 3<sup>rd</sup> Floor, Bhaktinagar Circle, 80 Feet Road,

2378251

RAJKOT 360002

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

2322104

1st Floor, Udyog Bhavan, VUDA, Siripuram Junction, VISHAKHAPATNAM-03

2712833

Sales Office is at 5 Chowringhee Approach, P.O. Princep Street, Kolkata 700072

22371085

Sales Office is at Novelty Chambers, Grant Road, MUMBAI 400007

23098528