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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]



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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* )

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BUREAU OF INDIAN STANDARDS  
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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

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**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 )

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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‡).

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\*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.

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### **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.

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\*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.

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\*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 )

Sl 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 re-covered 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.

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