

**IS : 1838 ( Part 2 ) - 1984**

*Indian Standard*

**SPECIFICATION FOR PREFORMED FILLERS  
FOR EXPANSION JOINT IN CONCRETE  
PAVEMENT AND STRUCTURE  
( NON-EXTRUDING AND RESILIENT TYPE )**

**PART 2 CNSL ALDEHYDE RESIN AND COCONUT PITH**

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

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( NON-EXTRUDING AND RESILIENT TYPE )**

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## *Indian Standard*

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

## PART 2 CNSL ALDEHYDE RESIN AND COCONUT PITH

### 0. FOREWORD

**0.1** This Indian Standard ( First Revision ) was adopted by the Indian Standards Institution on 28 May 1984, 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 and runways to relieve stresses developed in the slab by temperature and moisture changes. To provide an even riding surface these joints must be filled and at the same time the materials used for filling should permit expansion and contraction of concrete slab. This standard covers use of CNSL aldehyde resin and coconut pith as preformed fillers. Use of bitumen-impregnated fibre is covered in IS : 1838 ( Part 1 )-1983\*.

**0.3** To make the joint 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 of sealing compound are covered by IS : 1834-1984†.

**0.4** This Indian Standard is based on the work done by the Central Building Research Institute, Roorkee.

**0.5** 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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\*Specification for preformed fillers for expansion joint in concrete pavement and structure ( non-extruding and resilient type ): Part 1 Bitumen-impregnated fibre ( *first revision* ).

†Specification for hot applied sealing compounds for joint in concrete ( *first revision* ).

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

## 1. SCOPE

1.1 This standard specifies the material, manufacture, properties and tests for CNSL aldehyde resin and coconut pith based fillers for expansion joints in concrete roads, runways, bridges and other structures.

## 2. MATERIAL

2.1 **Cashewnut Shell Liquid ( CNSL ) — Aldehyde Resin** — Materials required are CNSL ( *see* IS : 840-1964\* ), phosphoric acid ( *see* IS : 6818-1973† ), paraformaldehyde ( *see* IS : 5271-1978‡ ), calcium hydroxide [ *see* IS : 1540 ( Part 2 )-1978§ ], fufuraldehyde and rubber latex.

2.2 **Coconut Pith** — Dry coconut pith and baby fibre are used as fillers. These are bye products of coir industry.

## 3. MANUFACTURE

3.1 CNSL is polymerized by heating in presence of acid to a suitable consistency. The polymerized liquid is mixed with coconut pith, calcium hydroxide and hardeners — paraformaldehyde and furfuraldehyde in suitable proportions.

The mixture is filled in wooden mould and consolidated by pressing to a density of about 450 g/mm<sup>3</sup>. Slabs of 12 mm thickness are made from this and allowed to harden to achieve sufficient strength

Hardening may be accelerated by curing in a warm chamber. The flexural strength of slabs may be increased by replacing part of filler by baby fibre and crumbling under compression may be reduced by incorporating suitable proportions of rubber latex.

## 4. PROPERTIES

4.1 Preformed slabs or strips of expansion joint fillers shall not be deformed or broken by twisting, bending or other handling when exposed to atmospheric conditions. Pieces of the joint filler that have been damaged shall be rejected.

4.2 **Recovery** — When tested in accordance with IS : 10566-1983||, the specimen shall recover at least 70 percent of its thickness before the test.

4.3 **Compression** — The load required to compress the test specimen ( *see* IS : 10566-1983|| ), to 50 percent of its thickness before test, shall be 0.7 to 5.3 N/mm<sup>2</sup>. The material after compression shall not show a loss of more than 5 percent of its original mass.

\*Specification for cashewnut shell liquid (CNSL) ( *revised* ).

†Code of safety for phosphoric acid.

‡Specification for paraformaldehyde.

§Specification for quick lime and hydrated lime for chemical industries: Part 2 Hydrated lime ( *second revision* ).

||Method of test for preformed fillers for expansion joints in concrete paving and structural construction.

**4.4 Extrusion** — When tested in accordance with IS : 10566-1983\*, with three edges restrained; and compressed to 50 percent of its thickness before test, the extrusion of the edge of the test specimen shall not exceed 6.5 mm.

**4.5 Weathering** — When tested in accordance with IS : 10566-1983\*, test specimen shall show no disintegration.

## 5. DIMENSIONS

**5.1** The dimensions of fillers shall conform to those as specified in contract or order.

**5.2** Tolerances of  $\pm 2.5$  mm on thickness,  $\pm 5$  mm on depth and  $\pm 7.5$  mm in length shall be permitted.

## 6. MARKING

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

### 6.2 BIS Certification Marking

The product may also be marked with Standard Mark.

**6.2.1** 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.

## 7. SAMPLING

**7.1 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.

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

**7.3 Tests** — All the test pieces as selected in 7.2 shall be subjected to physical requirements as specified in 4. The sample shall also be tested for dimensions and tolerances ( see 5 ). The lot shall be accepted if all the five test pieces meet the physical and dimensional requirements; otherwise not.

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

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