

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 1580 (1991): bituminous compound for water-proofing and caulking purposes [CED 41: Waterproofing and Damp-Proofing]



“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



भारतीय मानक

जल सहकारक और सन्धि प्रयोजनों के लिए बिटूमन —  
विशिष्ट

( दूसरा पुनरीक्षण )

*Indian Standard*

BITUMINOUS COMPOUNDS FOR  
WATERPROOFING AND CAULKING  
PURPOSES — SPECIFICATION

( Second Revision )

First Reprint DECEMBER 1996

UDC 691.16 : 699.82

© BIS 1991

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

## FOREWORD

This Indian Standard ( Second Revision ) was adopted by the Bureau of Indian Standards, after the draft finalized by the Waterproofing and Damp-Proofing Sectional Committee had been approved by the Civil Engineering Division Council.

This standard was first published as specification for bitumen ( plastic ) for waterproofing purposes. In 1969 it was revised with a new title as specification for bituminous compounds for waterproofing and caulking purposes. Since then other uses of the compound have also been experienced which necessitated the need of second revision of the standard. In this revision, besides incorporating three amendments earlier issued, two grades of bituminous material based on consistencies have been specified.

Bituminous compound is suitable for cold application and has several uses. It may be used for stopping leaks and waterproofing porous masonry or as waterproofing compound to be applied on bolts head and overlapping joints in GI and asbestos sheets used for roofing. This also serves as caulking agent to be used for joints in drainpipes, asbestos and CI pipes for crevices, vertical joints between steel plates and fold sections, wood joints, precast concrete cladding block, plate joints of railway wagon and buses. A compound of this type with some alteration is also used for fixing rainguard of polyethelene sheets on rubber trees.

Since the materials conforming to this standard are required to meet widely different uses, the consistency has to be different. A material of thick consistency required for filling wide cracks of roofs and for capping bolt heads of GI and asbestos roof while of thin consistency for plate joints of wagons and buses and for fixing rainguards.

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

## BITUMINOUS COMPOUNDS FOR WATERPROOFING AND CAULKING PURPOSES — SPECIFICATION

### ( Second Revision )

#### 1 SCOPE

This standard specifies requirements and methods of sampling and tests for bituminous compounds, applied cold and used for stopping leaks through cracks of roofs, floors, walls, etc; as sealant for plate joints of wagons, coaches and buses; as caulking agent for crevices and vertical joints between steel plates, folded sections, wood joints, precast concrete cladding, etc; and as adhesives for rainguards for rubber trees.

#### 2 REFERENCES

The Indian Standards listed below are necessary adjuncts to this standard:

IS No.	Title
334 : 1982	Glossary of terms relating to bitumen and tar ( <i>second revision</i> )
1201 : 1978	Methods for testing tar and bituminous materials; sampling ( <i>first revision</i> );
1209 : 1978	Methods for testing tar and bituminous materials; Determination of flash point and fire point ( <i>first revision</i> )
1211 : 1978	Methods for testing tar and bituminous materials; Determination of water content (Dean and Stark method) ( <i>first revision</i> )
1217 : 1978	Methods for testing tar and bituminous materials; Determination of mineral matter (ash) ( <i>first revision</i> )
4911 : 1986	Glossary of terms relating to bituminous waterproofing and damp-proofing of buildings ( <i>first revision</i> )

#### 3 TERMINOLOGY

For the purpose of this standard definitions given in IS 334 : 1982 and IS 4911 : 1986 shall apply.

#### 4 REQUIREMENTS

##### 4.1 Grades

Materials shall be of two grades : namely, Grade 1 and Grade 2

- a) *Grade 1* — shall be semistiff, smooth and homogenous paste suitable for application by spreading with hand, trowel, spatula or gun.
- b) *Grade 2* — shall be of light consistency and homogenous paste suitable for application by putty knife.

##### 4.2 Composition

**4.2.1** The material shall consist of bitumen and flux oils with or without addition of vegetable or resinous oils, cut back with volatile thinners and intimately mixed with non-gritty absorbent, inorganic fibrous material (with or without powder) in suitable proportions as to comply with the requirements of this standard.

**4.2.2** The material shall also comply with the requirements specified in Table 1.

##### 4.3 Keeping Quality

When stored under cover in a dry place in the original sealed container under normal temperature the material shall retain the specified properties for a period of not less than six months from the date of manufacture as declared on container.

#### 5 TESTS

Test shall be carried out by the methods specified in col 5 of Table 1.

#### 6 SAMPLING

The representative sample of the material shall be drawn as specified in IS 1201 : 1978.

#### 7 PACKING

The material shall be packed as agreed to between the manufacturer and the purchaser.

**8 MARKING**

**8.1** The containers shall be marked to give following informations:

- a) Indication of the source of manufacture,
- b) Name of material,

c) Grade of material,

d) Date of manufacture.

**8.2** The containers may also be marked with the Standard Mark.

**Table 1 Requirements for Bituminous Compounds**

( Clauses 4.2.2 and 5 )

Sl No.	Characteristic	Requirements		Method of Test <sup>1</sup> Ref to
		Grade 1	Grade 2	
(1)	(2)	(3)	(4)	(5)
i)	Water content, percent by mass, <i>Max</i>	0.5	0.5	IS 1211 : 1978
ii)	Ash content, percent by mass, <i>Max</i>	40	30	IS 1217 : 1978
iii)	Flow	Shall satisfy the requirement	Shall satisfy the requirement	Annex A
iv)	Flash point °C, <i>Min</i>	35	35	IS 1209 : 1978
v)	Flexibility and adhesion	Shall satisfy the requirement	Shall satisfy <sup>1</sup> the requirement	Annex B
vi)	Consistency			
	a) Before setting ( test after 1 h ) <i>Min</i>	100	225	} Annex C
	b) After setting ( test after 24 h ) <i>Min</i>	80	200	

<sup>1</sup> However, the temperature for test shall be stringent and kept at 10°C.

**ANNEX A**

[ Table 1, Item (iii) ]

**FLOW TEST****A-1 TEST SPECIMEN**

Prepare a test film by applying the bitumen on 150 mm × 100 mm × 0.3 mm mild steel panel to a thickness of 3 mm.

**A-2 NORMAL TEST**

The film immediately after preparation as in A-1 shall not show any slip when the panel is kept in a vertical position indoor at a temperature of 27 ± 2°C for 5 h.

**A-3 HEAT TEST**

The film shall not slip more than 6 mm when the panel is kept for 5 h in the vertical position in an air-dry oven maintained at 60 ± 1°C.

**A-4 COLD TEST**

The film shall remain plastic and firmly adherent when the panel after treatment described in A-2 and A-3 is kept at 0°C for one hour.

**ANNEX B**

[ Table 1, Item (v) ]

**FLEXIBILITY AND ADHESION TEST****B-1 TEST SPECIMEN**

The same test specimen that was used in the normal, heat and cold test, described in A-2, A-3 and A-4 shall be used for this test also.

**B-2 BEND TEST**

The film shall not crack or flake off when the panel, after being subjected to the treatments described in A-2, A-3 and A-4 is bent double over a 25 mm diameter rod, with the film on the outside, at 27 ± 2°C.





## **C-5 PROCEDURE**

### **C-5.1 For Consistency of the Sample Kept at $27\pm 2^{\circ}\text{C}$ for One Hour**

Transfer the required quantity of the specimen to be tested into the penetration cup preferably in one lump and remove the entrapped air by gently tapping the sides of the cup. Fill the cup to the brim with specimen with least manipulation, without any air pockets. Immerse the cup with the specimen under water at  $27\pm 2^{\circ}\text{C}$  and keep it for one hour.

After one hour, place the cup on the penetrometer table, and adjust the cone assembly such that the tip of the cone just touches the surface of the material. The cone assembly should weigh  $150\pm 0.1$  g. Release the cone assembly and allow it to

penetrate the material for 5 s. Read the penetration on the penetrometer dial and express the consistency as penetration in tenths of mm.

### **C-5.2 For Consistency of the Material Kept at $27\pm 2^{\circ}\text{C}$ for 24 h**

The penetration of the test specimen and test procedure is exactly the same as given in C-5.1 except that the container filled with the specimen shall be kept under water at  $27\pm 2^{\circ}\text{C}$  for 24 h.

### **C-5.3 Additional Testing**

Average of three readings shall be taken on the same specimen if the consistency is less than 200, readings being observed at  $120^{\circ}$  apart. In case the consistency is more than 200, separate containers shall be filled with the material and tested.

## 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.

### Copyright

BIS has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of BIS. This does not preclude the free use, in the course of implementing the standard, of necessary details, such as symbols and sizes, type or grade designations. Enquiries relating to copyright be addressed to the Director (Publications), BIS.

### 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'.

This Indian Standard has been developed from Doc : No. CED 41 ( 4537 )

### 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

Branches : AHMADABAD. BANGALORE. BHOPAL. BHUBANESHWAR.  
COIMBATORE. FARIDABAD. GHAZIABAD. GUWAHATI. HYDERABAD.  
JAIPUR. KANPUR. LUCKNOW. PATNA. THIRUVANANTHAPURAM.