IS : 3384 - 1986
(Reaffirmed 1996)

Indian Standard

SPECIFICATION FOR BITUMEN PRIMER FOR USE IN WATERPROOFING AND DAMP-PROOFING

(First Revision)

UDC 667·638·2 : 665·775 : 699·82

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

Gr 2

February 1987

Indian Standard

SPECIFICATION FOR BITUMEN PRIMER FOR USE IN WATERPROOFING AND DAMP-PROOFING

(First Revision)

Waterproofing and Damp-Proofing Sectional Committee, BDC 41

Chairman	*Representing*
PROF M. S. SHETTY	Ministry of Defence (Engineer-in-Chief's Branch)
Members	
LT-COL V. K. KANITKAR (*Alternate* to Prof M. S. Shetty)	
SHRI R. C. ARORA	Hindustan Petroleum Corporation Ltd, Bombay
SHRI S. S. CHANDOK	Central Public Works Department, New Delhi
SURVEYOR OF WORKS (NZ) (*Alternate*)	
SHRI T. CHOUDHURY	National Test House, Calcutta
SHRI S. S. DAS GUPTA	Indian Oil Corporation Ltd, Bombay
SHRI S. N. DUTTA GUPTA	Bharat Petroleum Corporation Ltd, Bombay
SHRI A. D. NAYAK (*Alternate*)	
SHRI D. S. GHUMMAN	Roofrite Pvt Ltd, New Delhi
SHRI K. K. LAL (*Alternate*)	
SHRI A. D. GUPTA	Fertilizer (Planning and Development) India Ltd, Dhanbad
SHRI B. K CHATTERJEE (*Alternate*)	
SHRI M. S. GUPTA	Roof Waterproofing Company, Calcutta
SHRI S. K. JAIN	Hoechst Dyes & Chemicals Ltd, Bombay
SHRI K. A. T. VARGHESE (*Alternate*)	
SHRI M. B. JAYWANT	Synthetic Asphalts, Bombay
SHRI S. K. KARAMCHANDANI	Union Carbide India Ltd, Calcutta
SHRI V. NIJHAVAN (*Alternate*)	
SHRI M. R. MALYA	In personal capacity (*Flat No. 3, Panorama, 30 Pali Hill Road, Bombay* 400005)
SHRI S. P. MODI	Engineers India Limited, New Delhi
DR MOHAMMED ASLAM	Central Building Research Institute (CSIR), Roorkee
SHRI A. G. POL	Public Works Department, Government of Maharashtra
SHRI R. P. PUNJ	Lloyd Bitumen Products, Calcutta
SHRI M. M. MATHAI (*Alternate*)	

(*Continued on page* 2)

(*Continued from page* 1)

Members	*Representing*
SHRI T. K. ROY	Shalimar Tar Products (1935) Ltd, Calcutta
SHRI B. K. BHATTACHARYA (*Alternate*)	
SHRI A. SEN GUPTA	Ministry of Railways, Calcutta
SENIOR DEPUTY CHIEF ENGINEER (BLDG)	Public Works Department, Government of Tamil Nadu
SUPERINTENDING ENGINEER DESIGN CIRCLE (*Alternate*)	
SHRI A. SHARIF	FGP Limited, Bombay
SHRI G. K. TAKIAR (*Alternate*)	
CAPT ASHOK SHASTRY	Onsar Chemical Pvt Ltd, Bombay
SHRI S. K. BANERJEE (*Alternate*)	
SHRI Y. S. SRINIVASAN	National Buildings Organization, New Delhi
SHRI SHASHI KANT (*Alternate*)	
PROF C. G. SWAMINATHAN	Central Road Research Institute (CSIR), New Delhi
SHRI Y. G. GOKHALE (*Alternate*)	
SHRI G. RAMAN, Director (Civ Engg)	Director General, ISI (*Ex-officio Member*)

Secretary

SHRI M. SADASIVAM
Assistant Director (Civ Engg), ISI

Indian Standard

SPECIFICATION FOR BITUMEN PRIMER FOR USE IN WATERPROOFING AND DAMP-PROOFING

(First Revision)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 4 July 1986, after the draft finalized by the Waterproofing and Damp-proofing Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 Bitumen primer is commonly used for priming concrete and masonry surfaces prior to the application of the first mopping coat of melted bitumen in laying built-up roofings or membrane waterproofing, so as to promote the bonding of the bitumen with the concrete roof deck or masonry surface. This standard is intended to cover the minimum requirements for bitumen primer for use in waterproofing and damp-proofing of buildings. This standard was first published in 1965 and the revision of this standard has been taken up to incorporate further changes necessary in view of the revision of various standards referred to in this standard. In this revision, in addition to carbon disulphide, use of carbon tetrachloride and trichloroethylene have been permitted for the requirements of primer. Sampling clause has been modified to bring it in line with the other published Indian Standards.

1. SCOPE

1.1 This specification covers the requirements for bitumen primer for application to concrete and masonry surfaces and to be used with bitumen in damp-proofing and waterproofing below or above ground level.

2. TERMINOLOGY

2.1 For the purpose of this standard, the definition given in IS : 4911-1968* shall apply.

*Glossary of terms relating to bituminous waterproofing and damp-proofing of buildings.

3. REQUIREMENTS

3.1 The primer shall conform to the requirements given in Table 1.

TABLE 1 REQUIREMENTS OF PRIMER

Sl No.	Characteristic	Requirement	Method of Test, Reference to
(1)	(2)	(3)	(4)
i)	Viscosity by standard tar viscometer, 4-mm orifice, in sec, at 25°C	4 to 24	IS : 1206 (Part 1)-1978*
ii)	Distillation fractions, percent by volume of the primer:		Method A of IS : 1213-1978†
	a) Up to 225°C, *Min*	35	
	b) Up to 360°C, *Max*	65	
iii)	Flash point, Pensky Martens closed type, *Min*	40	IS : 1209-1978‡
iv)	Water content, percent, *Max*	0·2	IS : 1211-1978§
v)	Tests on residue from distillation up to 360°C:		
	a) Ductility, 27°C, *Min*	3	IS : 1208-1978‖
	b) Penetration at 25°C, 100 g, 5 sec in 1/100 cm	20 to 50	IS : 1203-1978¶
	c) Matter soluble in carbon disulphide or carbon tetrachloride or trichloroethylene, percent by weight, *Min*	99·0	IS : 1216-1978**

Methods for testing tar and bituminous materials
*Determination of viscosity: Part 1 Industrial viscosity (*first revision*).
†Distillation test (*first revision*).
‡Determination of flash point and fire point (*first revision*).
§Determination of water content (Dean and Stark method) (*first revision*).
‖Determination of ductility (*first revision*).
¶Determination of penetration (*first revision*).
**Determination of solubility in carbon disulphide or carbontetra chloride or trichloroethylene (*first revision*).

4. MARKING

4.1 Each container of primer shall be legibly and indelibly marked with the following:

a) Manufacturer's name and trade-mark, if any;

b) Date of manufacture;

c) Batch number; and

d) Grade of bitumen from which primer is made.

4.1.1 Each container 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 AND CRITERIA FOR CONFORMITY

5.1 The method of drawing representative samples of the material and the criteria for conformity shall be as prescribed in Appendix A.

APPENDIX A

(*Clause* 5.1)

SAMPLING AND CRITERIA FOR CONFORMITY

A-1. SAMPLING

A-1.1 Lot — In any consignment, all the containers of primer from the same batch of manufacture shall be grouped together to constitute a lot.

A-1.2 The number of containers to be selected at random from the lot shall depend upon the size of the lot and shall be in accordance with Table 2.

TABLE 2 NUMBER OF CONTAINERS TO BE SELECTED

No. of Containers/ Bags in the Lot	No. of Containers/Bags to be Selected for Sampling
(1)	(2)
1	1
2 to 15	2
16 to 50	3
51 to 150	5
151 to 500	8
501 and above	13

A-1.3 From each of the containers selected as in **A-1.2**, an average sample representative of the material in the container shall be drawn in accordance with the methods prescribed in IS : 1201-1978* taking all the precautions mentioned therein. All these samples from individual containers shall be stored separately.

A-2. NUMBER OF TESTS

A-2.1 All the individual samples shall be tested for viscosity by standard tar viscometer.

A-2.2 For the remaining characteristics, namely, flash point, residue from distillation up to 360°C, water content, and tests on residue from distillation up to 360°C other than ductility at 27°C, a composite sample prepared by mixing together equal quantities from all the individual samples shall be tested.

A-3. CRITERIA FOR CONFORMITY

A-3.1 The lot shall be considered as conforming to the requirements of this specification if the conditions mentioned in **A-3.2** and **A-3.3** are satisfied.

A-3.2 From the test results for viscosity or penetration, the mean ($\bar{X}$) and the range (R) shall be calculated. The following conditions shall be satisfied:

a) ($\bar{X} - 0{\cdot}6\ R$) shall be greater than or equal to the minimum specified limit for the characteristic, and

b) ($\bar{X} + 0{\cdot}6\ R$) shall be less than or equal to the maximum specified limit for the characteristic.

A-3.3 The composite sample when tested for the characteristics mentioned in **A-2.2** shall satisfy the corresponding requirements of the characteristics.

*Method for testing tar and bituminous materials (*first revision*).

INDIAN STANDARDS INSTITUTION

Headquarters:

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

Telephones : 331 0131 331 1375

Telegrams : Manaksanstha
(Common to all Offices)

Regional Offices:	*Telephone*
*Western : Manakalaya, E9 MIDC, Marol Andheri (East) BOMBAY 400093	6 32 92 95
†Eastern : 1/14 C. I. T. Scheme VII M, V. I. P. Road, Maniktola, CALCUTTA 700054	36 24 99
Northern : SCO 445-446, Sector 35-C CHANDIGARH 160036	2 18 43 3 16 41
Southern : C. I. T. Campus, MADRAS 600113	41 24 42 41 25 19 41 29 16
Branch Offices:	
'Pushpak', Nurmohamed Shaikh Marg, Khanpur AHMADABAD 380001	2 63 48 2 63 49
'F' Block, Unity Bldg, Narasimharaja Square, BANGALORE 560002	22 48 05
Gangotri Complex, 5th Floor, Bhadbhada Road, T. T. Nagar, BHOPAL 462003	6 67 16
Plot No. 82/83, Lewis Road, BHUBANESHWAR 751002	5 36 27
53/5 Ward No. 29, R. G. Barua Road, 5th Byelane, GUWAHATI 781003	—
5-8-56C L.N. Gupta Marg, HYDERABAD 500001	22 10 83
R14 Yudhister Marg, C Scheme, JAIPUR 302005	6 34 71 6 98 32
117/418 B Sarvodaya Nagar, KANPUR 208005	21 68 76 21 82 92
Patliputra Industrial Estate, PATNA 800013	6 23 05
Hantex Bldg (2nd Floor), Rly Station Road, TRIVANDRUM 695001	52 27
Inspection Office (With Sale Point):	
Institution of Engineers (India) Building, 1332 Shivaji Nagar, PUNE 411005	5 24 35

*Sales Office in Bombay is at Novelty Chambers, Grant Road, BOMBAY 400007 — 89 65 28

†Sales Office in Calcutta is at 5 Chowringhee Approach, P.O. Princep Street, CALCUTTA 700072 — 27 68 00

Printed at Printograph, New Delhi, India