IS 454 : 1994
(Reaffirmed 1999)

भारतीय मानक

मोम युक्त क्रुड से प्राप्त कटबैक बिटुमेन — विशिष्टि

(दूसरा पुनरीक्षण)

Indian Standard

CUTBACK BITUMEN FROM WAXY CRUDE — SPECIFICATION

(Second Revision)

UDC 665.745

BUREAU OF INDIAN STANDARDS
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Price Group 2

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Bitumen, Tar and Their Products Sectional Committee had been approved by the Petroleum, Coal and Related Products Division Council.

This standard was first published in 1953 and revised in 1961 in order to incorporate references to various methods of tests (IS 1201 to 1220) suitably subsequent to their publication in 1958. In the present version the requirements have been updated in accordance with the current manufacturing and trade practices and also in accordance with the revised methods of tests prescribed in IS 1201 : 1978 to IS 1220 : 1978 'Methods for testing tar and bituminous materials *(first revision)*'.

This standard is one of the series of Indian Standards on bitumen. Other specification so far published in the series are :

IS 73 : 1992	Paving bitumen (*second revision*) (Amendment No. 1)
IS 217 : 1988	Cutback bitumen (*second revision*) (Re-affirmed 1993)
IS 702 : 1988	Industrial bitumen (*second revision*) (Amendment No. 1) (Re-affirmed 1993)

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

CUTBACK BITUMEN FROM WAXY CRUDE — SPECIFICATION

(Second Revision)

1 SCOPE

This standard (Second Revision) covers the physical and chemical requirements of cutback bitumen from waxy crude of indigenous origin.

2 REFERENCES

2.1 The following Indian Standard is necessary adjunct to this standard :

IS 334 : 1982 Glossary of terms relating to bitumen and tar (*second revision*) (Re-affirmed 1991)

3 TERMINOLOGY

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

4 GRADES

4.1 Cutback bitumen from waxy crude shall be of the following three grades:

a) Light grade — for use as primer.

b) Medium grade — for surface dressing and resurfacing operations, and

c) Heavy grade — for pre-mix type of construction.

5 MANUFACTURE AND SOURCE

5.1 The material shall be prepared by fluxing bitumen with distillates of petroleum or coal tar.

5.2 The source and grade shall be stated by the manufacturer.

6 REQUIREMENTS

6.1 The materials shall comply with the requirements given in Table 1.

7 TESTS

7.1 The material shall be tested as per methods prescribed in various Indian Standards referred to in col 6 of Table 1.

8 PACKING AND MARKING

8.1 The material shall be packed in mild steel drums of size as agreed to between the purchaser and the supplier.

8.2 Marking

8.2.1 Each container of bitumen shall be legibly and indelibly marked with the following:

a) Indication of the source of manufacture;

b) Source and grade of the material;

c) Month and year of manufacture;

d) Batch number; and

e) Tare and gross mass of the drum.

8.2.2 *BIS Certification Marking*

8.2.2.1 The containers may also be marked with the Standard Mark.

8.2.2.2 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.

9 SAMPLING AND CRITERIA FOR CONFORMITY

9.1 Lot

In any consignment, all the containers of cutback bitumen of the same grade and from the same batch of manufacture shall be grouped together to constitute a lot.

9.2 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.

9.3 From each of the containers selected as in 9.2 an average sample representative of the material in the container shall be drawn in accordance with the methods prescribed in IS 1201 : 1978. All these samples from individual containers shall be stored separately.

Table 1 Requirements for Cutback Bitumen from Waxy Crude

(*Clauses* 6.1 *and* 7.1)

Sl No.	Characteristics	Requirement for Grades						Method of Test Ref to
		Light		Medium		Heavy		
		Min	*Max*	*Min*	*Max*	*Min*	*Max*	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
i)	Kinematic viscosity, 60°C cst	70	140	800	1 600	3 000	6 000	IS 1206 (Part III) : 1978
ii)	Flash point, Pensky Martens closed type, °C	38	—	55	—	55	—	IS 1209 : 1978
iii)	Distillate volume, percent of total distillate up to 360°C :							IS 1213 : 1978
	a) Up to 190°C	10	—	30	—	—	—	
	b) Up to 225°C	50	—	30	—	—	—	
	c) Up to 260°C	70	—	30	—	—	—	
	d) Up to 315°C	85	—	75	—	50	—	
iv)	Residue from distillation up to 360°C, percent by volume (by difference)	55	—	75	—	80	—	
v)	Tests on residue from distillation up to 360°C							
	a) Viscosity at 60°C, poises	600	2 400	100	2 400	100	2 400	IS 1206 (Part II) : 1978
	b) Ductility at 27°C	12	—	10	—	10	—	IS 1208 : 1978
	c) Matter soluble in Trichloroethylene, percent by mass	99	—	99	—	99	—	IS 1216 : 1978
	d) Penetration 25°C/100g/5 Sec	35	70	50	100	25	50	IS 1203 : 1978
vi)	Water content, percent by mass	—	0.2	—	0.2	—	0.2	IS 1211 : 1978

Table 2 Number of Containers to be Selected
(Clause 9.2)

Lot-Size	No. of Containers
Up to 50	2
51 to 100	3
101 to 200	4
201 to 300	5
301 to 500	7
501 and above	10

9.4 Number of Tests

9.4.1 All the individual samples shall be tested for kinematic viscosity and ductility.

9.4.2 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, a composite sample prepared by mixing together equal quantities from all the individual samples shall be tested.

9.5 Criteria for Conformity

9.5.1 The lot shall be considered as conforming to the requirements of this specification if the conditions mentioned in **9.5.2** and **9.5.3** are satisfied.

9.5.2 From the five test results for kinematic viscosity and ductility, the mean (X) and the range (R) shall be calculated. The following conditions shall be satisfied:

a) $(X - 0.6\,R)$ shall be greater than or equal to the *minimum* specified limit for the characteristic, and

b) $(X + 0.6\,R)$ shall be less than or equal to the *maximum* specified limit for the characteristic.

9.5.3 The composite sample when tested for the characteristic mentioned in **9.4.2** shall satisfy the corresponding requirements of the characteristics.

Bureau of Indian Standards

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Amendments Issued Since Publication

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