



**उत्पाद मैनुअल**  
**सड़कों के लिए बिटुमेन पायस (ऋकयनीय टाइप)**  
**भारतीय मानक 3117: 2004 के अनुसार**  
**PRODUCT MANUAL**  
**FOR**  
**BITUMEN EMULSION FOR ROADS**  
**AND ALLIED APPLICATIONS**  
**(ANIONIC TYPE)**  
**ACCORDING to IS 3117: 2004**

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो) अनुरूपता मूल्यांकन (विनियम, 2018 की योजना -I के तहत प्रमाणन के संचालन में एकरूपता और पारदर्शिता के लिए इस उत्पाद मैनुअल का उपयोग सभी क्षेत्रीय / शाखा कार्यालयों और लाइसेंसधारियों द्वारा संदर्भ सामग्री के रूप में किया जाएगा। दस्तावेज़ का उपयोग बीआईएस प्रमाणन प्राप्त करने के इच्छुक संभावित आवेदकों द्वारा भी किया जा सकता है।

*This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure uniformity of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification.*

|    |                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | मानक संख्या<br>IS No.                    | : IS 3117: 2004                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|    | शीर्षक<br>Title                          | : सड़कों के लिए बिटुमेन पायस (ऋकयनीय टाइप)<br>: Bitumen Emulsion for Roads and Allied Applications (Anionic Type).                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|    | संशोधनों की संख्या<br>No. of amendments  | : 01                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 2. | नमूना दिशानिर्देश<br>Sampling Guidelines |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| a) | कच्चा माल<br>Raw material                | : <ol style="list-style-type: none"> <li>1. Bitumen shall comply with IS 73 and the requirements as per cl. 4.1 of IS 3117: 2004.</li> <li>2. Fluxing agent, if used, shall comply with the requirements of cl 4.1.1 of IS 3117: 2004 unless otherwise agreed between purchaser and manufacturer.</li> <li>3. Emulsifying agent shall comply with the requirements of cl 4.2 of IS 3117: 2004</li> </ol> <p><i>Note: This section indicates the requirements for raw material (if specified in the IS) for which compliance is to be established during Grant of Licence/Change in</i></p> |

|    |                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                                                                                                                                                                                                                                                                                                                                                            | <i>Scope of Licence/Factory Surveillance.</i>                                                                                                                                                                                                                                                                                                                                                                                                                         |
| b) | <b>समूहीकरण दिशानिर्देश Grouping Guidelines</b>                                                                                                                                                                                                                                                                                                            | : Not applicable (Sample of each type shall be drawn and tested).                                                                                                                                                                                                                                                                                                                                                                                                     |
| c) | <b>नमूने का परिमाण Sample Quantity</b>                                                                                                                                                                                                                                                                                                                     | : 6 Litres<br><br><i>Note: This section indicates the quantity of the sample of the product and/or the raw material (if applicable), required to be sent to the laboratory for testing, for the purpose of Grant of Licence/Change in Scope of Licence/ Factory Surveillance (in case of market surveillance, effort may be made to procure the required quantity of product sample, as far as possible since raw material sample may not be available in market)</i> |
| d) | <b>परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर Parameters to be Declared in Test Request</b>                                                                                                                                                                                                                                                           | : Type of Bitumen Emulsion.<br><br><i>Note: Apart from the above, any other requirements/parameters may also be declared as per the standard, as applicable.</i>                                                                                                                                                                                                                                                                                                      |
| 3. | <b>परीक्षण उपकरणों की सूची List of Test Equipment</b>                                                                                                                                                                                                                                                                                                      | : Please refer to <a href="#">Annex-A.</a>                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 4. | <b>निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing</b>                                                                                                                                                                                                                                                                                       | : Please refer to <a href="#">Annex-B.</a>                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 5. | <b>एक दिन में संभावित परीक्षण Possible tests in a day</b>                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|    | All tests except Settlement test.<br><br><i>Note: This section is for the guidance of BIS Certification Officers/Technical Auditors of BIS Authorized Outside Surveillance Agencies(OSAs) during factory inspection to provide ready reference regarding the tests which can be witnessed during the inspection in the factory by the officer/auditor.</i> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 6. | <b>लाइसेंस का दायरा/Scope of the Licence:</b>                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|    | "Licence is granted to use Standard Mark as per IS 3117: 2004 with amendment no. 1 with the following scope:                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|    | Name of the product                                                                                                                                                                                                                                                                                                                                        | Bitumen Emulsion for Roads and Allied Applications (Anionic Type)                                                                                                                                                                                                                                                                                                                                                                                                     |
|    | Type                                                                                                                                                                                                                                                                                                                                                       | RS / MS / SS.                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

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

**ANNEX - A**  
**LIST OF TEST EQUIPMENT**  
**(INDICATIVE LIST, FOR GUIDANCE ONLY)**

| <b>Clause</b>      | <b>Test</b>                                                   | <b>Test Facilities</b>                                                                                                                                                                                                                                               |
|--------------------|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6.2 Table 1, i)    | Viscosity<br>(Saybolt Furol)                                  | <ol style="list-style-type: none"> <li>1. Oil tube</li> <li>2. Bath</li> <li>3. Glassware including receiver and withdrawal tube or pipette</li> <li>4. Oil tube thermometers</li> <li>5. Timing Device</li> </ol>                                                   |
| 6.2 Table 1, ii)   | Bitumen content                                               | <ol style="list-style-type: none"> <li>1. Glassware</li> <li>2. Balance</li> <li>3. Oven</li> </ol>                                                                                                                                                                  |
| 6.2 Table 1, iii)  | Settlement                                                    | <ol style="list-style-type: none"> <li>1. Cylinders</li> <li>2. Glassware</li> <li>3. Timer</li> <li>4. Balance</li> <li>5. Apparatus as per IS 1212</li> </ol>                                                                                                      |
| 6.2 Table 1, iv)   | Demulsibility                                                 | <ol style="list-style-type: none"> <li>1. Wire cloth</li> <li>2. Glassware</li> <li>3. Reagents</li> <li>4. Apparatus as per IS 1212</li> <li>5. Balance</li> <li>6. Arrangement for temperature of <math>27 \pm 1</math> °C</li> </ol>                              |
| 6.2 Table 1, v)    | Miscibility in water                                          | <ol style="list-style-type: none"> <li>1. Glassware</li> <li>2. Timer</li> </ol>                                                                                                                                                                                     |
| 6.2 Table 1, vi)   | Modified miscibility with water difference of Bitumen content | <ol style="list-style-type: none"> <li>1. Cylinder</li> <li>2. Glassware</li> <li>3. Supporting strip</li> <li>4. Crucibles</li> <li>5. Oven</li> <li>6. Balance</li> <li>7. Timer</li> </ol>                                                                        |
| 6.2 Table 1, vii)  | Cement mixing test                                            | <ol style="list-style-type: none"> <li>1. Sieves</li> <li>2. Dish</li> <li>3. Glassware</li> <li>4. Cement (conforming to IS 269)</li> <li>5. Balance</li> <li>6. Timer</li> <li>7. Oven</li> <li>8. Arrangement for maintaining the temperature of 27 °C</li> </ol> |
| 6.2 Table 1, viii) | Coating Ability and water resistance                          | <ol style="list-style-type: none"> <li>1. Sieves</li> <li>2. Spatula</li> <li>3. Dish</li> <li>4. Stone aggregate</li> </ol>                                                                                                                                         |

|                  |                 |                                                                                                                     |
|------------------|-----------------|---------------------------------------------------------------------------------------------------------------------|
|                  |                 | 5. Balance<br>6. Timer                                                                                              |
| 6.2 Table 1, ix) | Sieve test      | 1. 850 micron IS sieve<br>2. Pan<br>3. Reagent<br>4. Balance<br>5. Oven<br>6. Timer                                 |
| 6.2 Table 1, x)  | Particle Charge | 1. 12-volt battery<br>2. Rheostat<br>3. Ammeter<br>4. Copper plates<br>5. Glassware including container<br>6. Timer |

***The above list is indicative only and may not be treated as exhaustive.***

## **ANNEX - B**

### **SCHEME OF INSPECTION AND TESTING**

#### **1. QUALITY ASSURANCE PLAN**

1.1 It is expected that during operation of BIS licence, manufacturers will implement a Quality Assurance Plan (QAP) i.e. a plan of regular testing and in-process controls, designed to ensure that the product bearing the Standard Mark conforms to all requirements of the Indian Standard.

1.2 The manufacturers shall define a Quality Assurance Plan (QAP) defining the control unit (i.e. lot/batch etc.), the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and declare the arrangement for testing i.e. whether in-house or subcontracting/sharing for each applicable test and submit the same to BIS Branch Office for information. The manufacturer shall comply with the QAP and maintain test records in accordance with para 2.1.

#### **1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:**

1.3.1 For the guidance of manufacturers, the recommended definition of control unit is: *For the purpose of this scheme, the Bitumen Emulsion for Roads and Allied Applications (Anionic Type) of the same type produced in a shift shall constitute a control unit.*

1.3.2 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in [Table 1](#). Manufacturer has the discretion of declaring their own levels of control or accept the levels of control given in this document.

1.3.3 The manufacturer shall ensure inspection and testing as per the Quality Assurance Plan submitted by them on the whole production of the factory which is covered by this plan.

**2. ENSURING COMPLIANCE THROUGH TESTING-** manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard for which they may have in-house test facilities. However, there is no obligation to maintain in-house laboratory. Licensee may use alternative arrangements for tests of the production as per the declared QAP. Various alternatives are available for operation of BIS certification as given below and the relevant guidelines for availing such relaxations by the manufacturers, as amended from time to time, are to be referred:

- i) Shared testing resources like common facility,
- ii) Cluster based testing facility,
- iii) Sub-contracting to outside laboratories which may either be:
  - a) BIS recognised/empanelled laboratories, or
  - b) Any accredited laboratory as per ISO/IEC 17025

**2.1 TEST RECORDS-** The manufacturers shall maintain test records for the tests carried out (either in-house or at a sub-contracted or at shared test facility) to establish conformity of the product to the Standard for operation of licence. For the tests being subcontracted or conducted

at a shared test facility, test results issued by the laboratories or test facilities, shall be made available for inspection by BIS.

**3. PACKING AND MARKING** - The Standard Mark, as given in the Schedule of the licence, shall be incorporated legibly and indelibly on each container of Bitumen Emulsion for Roads and Allied Applications (Anionic Type), provided always that the material so marked, conform to every requirement of the specification.

3.1 Packing and marking shall be done as per the provision of the Indian Standard. In addition, each container of Bitumen Emulsion for Roads and Allied Applications (Anionic Type) shall also be marked with the following additional requirement:

- a) BIS Licence No. CM/L \_\_\_\_\_.
- b) BIS website details: "For BIS certification details please visit [www.bis.gov.in](http://www.bis.gov.in)"

**4. REJECTION** - The production which conforms to the Indian Standard and covered under the scope of this licence shall be marked with the Standard Mark. Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016.

**TABLE 1**  
***(Recommended Levels of Control by BIS - For Guidance Only)***

| <b>(1)</b>          |                                                               |                     |                  | <b>(2)</b>               |                                     |
|---------------------|---------------------------------------------------------------|---------------------|------------------|--------------------------|-------------------------------------|
| <b>Test Details</b> |                                                               |                     |                  | <b>Levels of Control</b> |                                     |
| <i>Clause</i>       | <i>Requirement</i>                                            | <i>Test Methods</i> |                  | <i>No. of Sample</i>     | <i>Frequency</i>                    |
|                     |                                                               | <i>Clause</i>       | <i>Reference</i> |                          |                                     |
| 4                   | Materials                                                     | 4                   | IS 3117          | One                      | Each consignment of each material * |
| 6.1                 | Homogeneity                                                   | 6.1                 | IS 3117          | One                      | Each control unit                   |
| 6.2 Table 1, i)     | Viscosity                                                     | Annex A             | IS 3117          | One                      | Each control unit                   |
| 6.2 Table 1, ii)    | Bitumen content                                               | Annex B             | IS 3117          | One                      | Each control unit                   |
| 6.2 Table 1, iii)   | Settlement                                                    | Annex C             | IS 3117          | One                      | Once in a month                     |
| 6.2 Table 1, iv)    | Demulsibility                                                 | Annex D             | IS 3117          | One                      | Each control unit                   |
| 6.2 Table 1, v)     | Miscibility in water                                          | Annex E             | IS 3117          | One                      | Each control unit                   |
| 6.2 Table 1, vi)    | Modified miscibility with water difference of Bitumen content | Annex F             | IS 3117          | One                      | Each control unit                   |
| 6.2 Table 1, vii)   | Cement mixing test                                            | Annex G             | IS 3117          | One                      | Each control unit                   |
| 6.2 Table 1, viii)  | Coating Ability and water resistance                          | Annex H             | IS 3117          | One                      | Each control unit                   |
| 6.2 Table 1, ix)    | Sieve test                                                    | Annex J             | IS 3117          | One                      | Each control unit                   |
| 6.2 Table 1, x)     | Particle Charge                                               | Annex K             | IS 3117          | One                      | Each control unit                   |

\* Conformity of raw materials to the requirement of the specification may be established through either of the following or a combination of the same (No testing is required if the material is ISI marked):

- (i) Test report from a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau, or
- (ii) Material manufacturer's test certificate, or
- (iii) In house factory test report.