



**PRODUCT MANUAL
FOR
BULBS (LAMPS) FOR MINERS CAP-LAMPS
ACCORDING TO IS 2596:2004**

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence 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 licence/certificate.

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|----|---|-----------------------------------|-----------------------------------|
| 1. | Product | : | IS 2596:2004 |
| | Title | : | BULBS(LAMPS) FOR MINERS CAP-LAMPS |
| | No. of Amendments | : | Nil |
| 2. | Sampling Guidelines: | | |
| a) | Raw material | : | NA |
| b) | Grouping guidelines | : | Please refer ANNEX-A |
| c) | Sample Size | : | 50 Pcs |
| 3. | List of Test Equipment | : | Please refer ANNEX – B |
| 4. | Scheme of Inspection and Testing | : | Please refer ANNEX – C |
| 5. | Possible tests in a day : | | |
| | Visual, mechanical and physical requirements | | |
| 6. | Scope of the Licence : | | |
| | “Licence is granted to use Standard Mark as per IS 2596: 2004 with the following scope: | | |
| | Name of the product | BULBS(LAMPS) FOR MINERS CAP-LAMPS | |
| | Rating | Voltage (V), Current (A) | |
| | Type of Gas filling | Argon/ Krypton/ Halogen | |
| | Lamp Cap | E10/13, P13.5s | |

ANNEX-A

Grouping Guidelines

1. The following parameters shall be considered for the purpose of GoL/ CSoL of Bulbs (Lamps) For Miners' Cap:
 - a. Voltage
 - b. Current
 - c. Type of gas filling
2. Each combination of voltage, current rating and type of gas filling as given in Table 1 of IS 2596 shall be tested to cover that variety in the scope of Licence.
3. Firm shall declare the varieties to be covered in the Licence. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.
4. During the operation of the Licence, BO shall ensure that all the varieties covered in the Licence are tested in rotation, to the extent possible.

ANNEX B**List of Test Equipment***Major test equipment required to test as per the Indian Standard*

| Sl. No. | Tests used in with Clause Reference | Test Equipment |
|----------------|---|--|
| 1. | Test on Bulb(CI 7.1.2) | 4.5 Kg Load, Hard Plane Surface |
| 2. | Test for attachment of Caps(CI 7.1.3) | Holder for torque test, torque testing machine capable of giving digital reading w.r.t torque |
| 3. | Ageing procedure(CI 7.1.4) | Ageing machines with different sectors for different voltages. Arrangement for rated voltage and current (proper holders to carry out testing for 2 hrs) |
| 4. | Screw threads(CI 4.1.3) | GO “NO GO” Gauge as per ANNEX-D of IS 2596:2004 |
| 5. | Test for initial rating(CI 7.2) | Lux meter, photometer, ammeter, voltmeter, test rack for |
| 6. | Life test-Lumen maintenance and Life (CI 7.3) | Life test rack, 50 Hz AC supply source, Lux meter, voltmeter (RMS), Ammeter (RMS). |

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

ANNEX B

Scheme of Inspection And Testing

1. LABORATORY - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

1.1 The manufacturer shall prepare a calibration plan for the test equipments.

2. TEST RECORDS – The manufacturer shall maintain test records for the tests carried out to establish conformity.

3. LABELLING AND MARKING – As per the requirements of IS 2596:2004.

4. CONTROL UNIT – All Lamps of same current and voltage rating and filled with the same type of gas, manufactured in a day shall constitute a control unit.

5. LEVELS OF CONTROL - The tests as indicated in column 1 of Table 1 and the levels of control in column 3 of Table 1, shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.

5.1 All the production which conforms to the Indian Standards and covered by the licence should be marked with Standard Mark.

6. REJECTIONS – 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

| (1) | | | | (2) | (3) | | |
|--|------------------------------------|-------------------|-----------|--|-------------------|--|--|
| Test Details | | | | Test equipment requirement R: required (or) S: Sub-contracting permitted | Levels of Control | | |
| Cl. | Requirement | Test Method | | | No. of Sample | Frequency | Remarks |
| | | Clause | Reference | | | | |
| Visual, Mechanical, Physical and marking Requirements | | | | | | | |
| 4.1.1 | Bulbs (lamps) | 4.1.1.1 and 7.1.2 | IS 2596 | R | 20 | Every Control Unit | The control unit shall be rejected if number of failures exceeds a) One in any single requirement, or b) Two in all these requirements combined together. |
| 4.1.2 | Glass shells | 4.1.2 and 7.1.1 | -do- | R | 20 | Every Control Unit | |
| 4.1.3 | Caps | 4.1.3 and 7.1.3 | -do- | R | 20 | Every Control Unit | |
| 4.1.4 | Solder | 4.1.4 | -do- | visual | Each bulb (lamp) | | |
| 4.1.4 | Marking | 6.1 | -do- | visual | Each bulb (lamp) | | |
| Initial current and Luminous Flux | | | | | | | |
| 7.1.4 | Ageing | 7.1.4 | IS 2596 | R | 5 | Every Control Unit | In case of any failure, further 25 bulbs (lamps) from the same control unit shall be tested. If there is any failure again, the control unit shall be rejected. |
| 4.2 | Initial current | 7.2 | -do- | R | 5 | Every Control Unit | |
| 4.2 | Initial luminous flux | 7.2 | -do- | R | 5 | Every Control Unit | |
| Life Performance and Lumen maintenance Requirements | | | | | | | |
| 4.3 | Average Life | 7.3 | IS 2596 | S | 15 | One control unit Once in three months | In case of failure, the marking shall be suspended for that rating. Necessary improvement in the design/production shall be made and 25 lamps from the improved production shall be tested. Marking shall be resumed only if this set of 25 samples meet the requirement. |
| 4.3 | Lumen maintenance | 7.3 | -do- | S | 15 | One control unit Once in three months | |
| 4.3 | Average life and Lumen maintenance | 7.3 | -do- | S | 15 | One control unit Once in three | |

| | | | | | | | |
|--|--|--|--|--|--|--------|--|
| | | | | | | months | |
|--|--|--|--|--|--|--------|--|

Note-1: Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau.

Note-2: The control unit and levels of control as decided by the Bureau are obligatory, to which the licensee shall comply with.