



**PRODUCT MANUAL FOR
MINERS' CAP-LAMP BATTERIES (LEAD-ACID TYPE)
ACCORDING TO IS 2512: 1978**

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.

1.	Product	:	IS 2512 : 1978
	Title	:	Miners' Cap-Lamp Batteries (Lead-Acid Type)
	No. of Amendments	:	4
2.	Sampling Guidelines:		
a)	Raw material	:	Rubber and plastics containers
		:	Sulphuric Acid
		:	Water
b)	Grouping guidelines	:	Miners' Cap-Lamp Batteries (Lead-Acid Type) of each Capacity shall be tested for the purpose of GoL/CSoL
c)	Sample Size	:	6 pcs
3.	List of Test Equipment	:	Please refer ANNEX – <u>A</u>
4.	Scheme of Inspection and Testing	:	Please refer ANNEX – <u>B</u>
5.	Possible tests in a day :		
	(i) Physical examination and mass		
	(ii) Air pressure test		
	(iii) Non-spillability test		
6.	Scope of the Licence :		
	“Licence is granted to use Standard Mark as per IS 2512 : 1978 with the following scope:		
	Name of the product	Miners' Cap-Lamp Batteries (Lead-Acid Type)	
	Capacity	9 Ah / 12 Ah	

ANNEX A**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	Dimensions - Cl 4.2	Vernier Callipers
2	Mass - Cl 4.2	Weighing Scale
3	Air Pressure Test - Cl 6.6	Air Pressure Test Apparatus
		Stop Watch
4	Non-spillability Test - Cl 6.7	Clock
5	Capacity Test - Cl 6.8	Voltmeter
		Ammeter
		Thermometer
		Air Conditioner
		Clock
6	Life Test - Cl 6.9	Voltmeter
		Ammeter
		Thermometer
		Hour Meter
		Cycle Counter
		Air Conditioner
7	Drop Test - Cl 6.10	Drop Test Arrangement
		Voltmeter
		Ammeter
		Thermometer
		Clock
8	Specific Gravity - Cl 6.4.1	Hydrometer

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 – In addition to the requirements of IS 2512 : 1978, an instruction label shall be provided with the battery containing the following information :

- a) Manufacturers complete instruction regarding charging and maintenance.
- b) Code Number relating the production to the factory records.

4. 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.

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

5. 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				
3	Materials						
3.1	Rubber and plastics containers	IS 1146		S	Each Consignment	No testing is required, if accompanied with test certificate or ISI marked.	
3.2	Sulphuric Acid	IS 266		S			
3.3	Water	IS 1069		S			
4	Construction and General Requirements	4, 6.5	IS 2512	R	Each Battery	If batteries are normally supplied in a dry uncharged condition, requirement of mass shall be checked on samples taken for capacity test.	
6.6	Air Pressure Test	6.6	IS 2512	R	Each Battery		
6.7	Non-Spillability Test	6.7	IS 2512	R	4	Batteries of same type, design and rating, manufactured in a week	In case two or more samples fail the lot shall be rejected. If one sample fails, 4 more samples shall be drawn from the same lot and tested. If all the four samples pass lot may be marked.
6.8	Capacity Test	6.8	IS 2512	R	4		
6.10	Drop Test	6.10	IS 2512	R	3	Batteries of same type, design and rating, manufactured in 3 months	In case failure is observed, the future production shall not be dispatched from the factory until the results of the next lot are available and found satisfactory.
6.9	Life Test	6.9	IS 2512	S	2	Batteries of same type, design and rating, manufactured in a year	

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

Note-2: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification for approval by BO Head.