



## PRODUCT MANUAL FOR LEAD-ACID STORAGE BATTERIES FOR MOTOR VEHICLES ACCORDING TO IS 7372:1995

*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.	<b>Product</b>	:	IS 7372:1995
	<b>Title</b>	:	LEAD-ACID STORAGE BATTERIES FOR MOTOR VEHICLES
	<b>No. of Amendments</b>	:	3
2.	<b>Sampling Guidelines:</b>		
a)	<b>Raw material</b>	:	(a) Container & Lid- IS 1146 (b) Sealing Compound (if Bitumen based)- IS 3116 (c) Electrolyte- IS 266 (d) Water- IS 1069 (e) Separators- IS 6071
b)	<b>Grouping guidelines</b>	:	Please refer <u>ANNEX – A</u>
c)	<b>Sample Size</b>	:	6 nos of identical batteries from each voltage group
3.	<b>List of Test Equipment</b>	:	Please refer <u>ANNEX – B</u>
4.	<b>Scheme of Inspection and Testing</b>	:	Please refer <u>ANNEX – C</u>
5.	<b>Possible tests in a day :</b>		
	Physical Examination (cl 9.3), Dimension & Layout (cl 9.4), Markings (cl 9.5), Air pressure test (cl 9.6)		
6.	<b>Scope of the Licence :</b>		
	“Licence is granted to use Standard Mark as per IS 7372:1995 with the following scope:		
	Name of the product	Lead-Acid Storage batteries for Motor Vehicles	
	Category	Special (if applicable)	
	Rated Voltage (in volts)	6V and/or 12V	
	Capacity rating (in Ah)		

**ANNEX A**

**Grouping Guidelines**

1. For the purpose of GoL/ CSoL of Lead-acid storage batteries as per IS 7372, the following parameters shall be considering for grouping:
  - (i) Rated voltage
  - (ii) Rated Ah capacity
  - (iii) Category
2. Samples of each rated voltage i.e. 6V and 12V shall be tested separately. For a given voltage, samples of the highest capacity rating shall be tested to cover lower ratings also.
3. “Special” category batteries shall be tested separately.
4. The firm shall declare the varieties they intend to cover in the licence. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.
5. 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	Dimension & Layout (Cl. No. 9.4)	Vernier Calliper Steel Scale Measuring Tape Pie Tape
2	Air Pressure Test (Cl. No. 9.6)	Pressure Gauge Stop Watch
3	Capacity Test (Cl. No. 9.7)	Hydrometer Voltmeter Ammeter Thermometer
4	Vibration Test (Cl. No. 9.8)	Vibration Generator/Machine with characteristics as per IS 9000 (Part-8)
5	High Rate Discharge Test (Cl. No. 9.9, 9.10 & 9.11)	High Rate Discharge Test Apparatus
6	Retention of Charge test (Cl. No. 9.12)	Same as required for Cl. No. 9.7
7	Resistance to Overcharge Test (Cl. No. 9.13)	Power Source for Charging Water Tank Measuring tape Thermometer High Rate Discharge Test Apparatus
8	Life Test (Cl. No. 9.14)	Life test Apparatus
9	Storage Test (Cl. No. 9.15)	Humidity Chamber Same as required for Cl. No. 9.7 & 9.9
10	Storage Test for Dry Charge Batteries (Cl. No. 9.16)	Humidity Chamber Hydrometer Hygrometer Thermometer High Rate Discharge Test Apparatus
11	High-Rate Discharge capacity for Dry charge Battery (Cl. No. 9.17)	Same as required for Cl. No. 9.16

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

**ANNEX C**

**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 requirement of IS 7372:1995.

**4. CONTROL UNIT** – Batteries of same rated voltage and capacity rating 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				
<b>4</b>	<b>Materials</b>						
4	(a) Container & Lid (b) Sealing Compound (c) Terminals (d) Electrolyte (e) Water (e) Separators	4.1 4.2 4.3 4.4 4.5 4.7	IS 1146 IS 3116 IS 7372 IS 266 IS 1069 IS 6071	S	Each Consignment	No further testing is required, if accompanied with the test certificate or ISI Marked.	
<b>9</b>	<b>Type Tests &amp; Acceptance Tests</b>						
9.3	Physical Examination	9.3 & 4	IS 7372	R	-	Each Battery	In case of failure, the marking of the batteries of that voltage rating and capacity rating shall be stopped and the defect shall be rectified after thorough investigation. The marking shall be resumed when batteries of that voltage rating and capacity rating taken from the improved lot show conformity to the requirements.
9.4	Dimension & Layout	9.4 & 6	IS 7372	R	-	Each Battery	
9.5	Marking	9.5 & 8	IS 7372	-	-	Each Battery	
9.6	Air Pressure Test	9.6	IS 7372	R	-	Each Battery	
9.7	Capacity Test	9.7	IS 7372	S	Two	Once in Three month (for each voltage and capacity rating)	
9.8	Vibration Test	9.8	IS 9000(Part-8)	S	One	Once in a Year (for each voltage & capacity rating)	
9.9	High Rate Discharge Test at Normal Temperature	9.9	IS 7372	S	Two	Once in Three month (for each voltage and capacity rating)	

9.10	High Rate Discharge Test at Low Temperature	9.10	IS 7372	S	-do-	-do-	
9.11	High Rate Discharge Test at Normal Temperature for Batteries for Heavy Duty Application	9.11	IS 7372	S	-do-	-do-	
9.12	Retention of Charge test	9.12	IS 7372	S	-do-	Once in Six Months (for each voltage & capacity rating)	
9.13	Resistance to Overcharge Test	9.13	IS 7372	S	-do-	-do-	
9.14	Life Test	9.14	IS 7372	S	-do-	Once in a Year (for each voltage & capacity rating)	
9.15	Storage Test	9.15	IS 7372	S	One	-do-	
9.16	Storage Test (for Dry Charge Batteries)	9.16	IS 7372	S	-do-	-do-	
9.17	High-Rate Discharge capacity for Dry charge Battery	9.17	IS 7372	S	Two	Once in Three Months (for each voltage & capacity rating)	

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.