

# STORAGE BATTERY

## 1. INTRODUCTION

Lead acid storage battery is a device which produces Electrical energy through Electro chemical changes of active material within a cell. it is one of the most popular type of secondary battery which can be recharged a no. of times repeatedly for storing energy. It is very widely used as an energy source in automobiles, telephone exchanges, train lighting and in various other fields. Electrically driven vehicle as an alternative to petrol driven cars and trolleys have been introduced recently and in those vehicles, storage battery is used as energy source for the drive.

## 2. RAW MATERIALS

Battery plates, hard rubber containers with cell lid, vent plugs etc., antimonial lead , PVC seperators, Sulfuric acid, miscellaneous items such as sealing compound, packing materials etc.

## 3. MANUFACTURING PROCESS

The lead acid battery used in automobiles consists of three or six cells of 2 volts each. In each cell that are connected in parallel, there are dissimilar plates, called electrodes consisting of perforated grids into which lead oxide is pasted or pressed. A group of plates consisting of grids coated with lead oxide paste or connected to the positive terminal of the cell while another group of plates consisting of grids coated with lead oxide containing extenders are connected to the negative terminal of the cell. Each group of plates is held together by a post strap to which individual plates are welded. PVC separators are placed between positive and negative plates to prevent them from coming into direct electrical contact. The whole system is placed in a container made of hard rubber or PVC which is resistant to acid. The solution of sulfuric acid and distilled water is added to a certain level and in the battery is sealed with bitumen compound. Before using the battery , it is fully charged.

## 4. MANPOWER REQUIREMENT : 8

## 5. PROJECT COST

	Amt (Rs.)
a. Fixed capital	1,95,000
b. Working capital	12,47,625
<b>Total capital investment</b>	<b>14,42,625</b>

## 6. COST OF PRODUCTION / PROFIT

Total sales	58,05,000
Cost of production	52,26,000
Net profit	5,79,000

### Market potential :

The transport industry is expanding at a rapid rate. The no. of heavy vehicles, motor cars as well as two wheelers coming on the road are increasing year after year. As a result of liberalisation of economic policy a no. of foreign automobile firms have set up units for the manufacture of fuel efficient heavy vehicles as well as passenger cars and this has boosted the demand for these items in the country. The average life span of automobile battery is assumed to be 12 months in the case of heavy vehicles and 18 months in the case of passenger cars. Considering the large number of old vehicles already on the road and a good no. of new vehicles coming out of the factories every year, there is good demand for storage batteries for replacement alone. The Small Scale units located at different places will be able to provide better service to the local customers and pick-up market for their products.

### Production capacity : (per annum)

1	6 Volts 19/21 plates	600 nos.
2	12 Volts 7 plates	300 nos.
3	12 Volts 9 plates	600 nos.
4	12 Volts 11 plates	600 nos.
5	12 Volts 13 plates	600 nos.
6	12 Volts 19 plates	150 nos.
7	12 Volts 21 plates	150 nos.

**List of Plant, Machinery & equipment :**

- 1 Lead melting furnace.
- 2 Battery charger
- 3 Gas welding set
- 4 Moulds for cell connectors, pillar post etc
- 5 Distilled water plant
- 6 Miscellaneous items such as hydrometer, Cell Tester, thermometer hand tools etc.
- 7 Testing panel consisting of ammeter, voltmeter rheostat etc.
- 8 Installation, electrification charges
- 9 Work benches, office furniture and equipment

