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Lead-acid stationary cells and batteries —

Part 2: Specification for lead-acid high performance Planté positive type

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- British Battery Makers' Society
- British Industrial Truck Association
- British Railways Board
- British Telecommunications
- Electric Vehicle Association of Great Britain
- Electricity Supply Industry in England and Wales
- GAMBICA (BEAMA Ltd.)
- Health and Safety Executive
- Institute of Wastes Management
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Foreword

This Part of this British Standard has been prepared under the direction of the Light Electrical Engineering Standards Committee.

This standard is Part 2 of a series of standards and specifies requirements for lead-acid high performance Planté positive type cells and batteries. Part 1 specifies general requirements for all types of stationary lead-acid cells and batteries. Parts 1 and 2 together supersede BS 440:1964, which is withdrawn.

The number of Parts to the standard is not defined as it is intended to produce subsequent standards according to the needs of the industry both within and outside the UK.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 8, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This Part of this British Standard specifies materials, design and performance requirements for stationary cells and batteries comprising individual lead-acid cells of the high performance Planté positive type.

It applies to cells and batteries that are designed for general electrical purposes.

Information on charge characteristics and applications is given in Appendix A and Appendix B.

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

2 Definitions

For the purposes of this Part of BS 6290, the definitions given in BS 6290-1 and BS 6133 apply, together with the following.

2.1

enclosed-type cell

a cell that is fitted with a cover and provided with a vent plug and in some cases also a filling plug. The cover is not intended to be readily removable

2.2

high performance Planté cell

an enclosed-type cell containing Planté type positive plates and pasted plate negative plates

2.3

group bar

a bar to which a plate or group of plates is attached

2.4

vent plug

a plug, provided with a gas vent or vents and suitably baffled to arrest acid spray, that is fitted in the vent hole in the cover of an enclosed-type cell. A vent plug normally also provides access for filling

2.5

filling plug

a plug, fitted in the cover of an enclosed-type cell, that can be removed for filling or topping-up. This type of plug is not normally provided with a gas exit vent

3 Materials and components

3.1 Positive plates. The positive plates shall be of the Planté lamelle type and shall be made of chemical lead not less than 99.97 % pure, which complies with the impurity levels of BS 334, type A with the amendments given in Table 1.

Table 1 — Impurity levels

Impurity	Maximum impurity level
	%
Bismuth	0.030
Iron	0.001
Silver	0.005
Tellurium	0.0005
Cadmium	} None allowed
Sulphur	
Zinc	

The minimum thickness and mass of the plates shall be as given in Table 2.

3.2 Negative plates. The negative plates shall be of the open grid type, pasted to sustain the positive plate performance given in Table 5. The minimum thickness of the plates shall be as given in Table 2. Intermediate negative plates shall have a capacity, at the C_3 rate, at least 20 % greater than the rated capacity of their associated positives. The width and length of the negative plates shall be not less than those of their associated positives.

3.3 Separators. The separators shall be made of a micro-porous material. They shall be designed to cover the facing surfaces of all the plates and to overlap the edges of the positive plates by no less than the dimensions given in Table 2.

3.4 Group bar. The group bar shall be made of pure lead, or when cast together with the cell pillars, of antimonial lead. Where more than one pillar/group bar assembly is used in the assembly of the plate section, electrical continuity between group bars of like polarity shall be achieved by tack welding.

The current density at the 1 min discharge rate shall not exceed 1.5 A/mm² in any part of a group bar.

3.5 Terminal pillars. The terminal pillars or pillar/group bar assemblies shall be cast in lead alloy. The alloy shall have a smooth surface finish, free from porosity or other defects, shall be compatible with the electrochemical conditions within the cell, and shall be suitable for mechanical connections. Two flat connection surfaces shall be provided on opposite faces, with a horizontal bolt hole between the face centres. The dimensions of the connection surfaces and bolt holes relative to the lead pillars, illustrated in Figure 1, shall comply with those given in Table 3.