

Code of practice for

Testing venting systems and shields for lead-acid starter batteries

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Light Electrical Engineering Standards Policy Committee (LEL/-) to Technical Committee LEL/12, upon which the following bodies were represented:

- Association of Manufacturers Allied to the Electrical and Electronic Industry (BEAMA Ltd.)
- British Industrial Truck Association
- British Railways Board
- British Telecommunications plc
- Electric Vehicle Association of Great Britain
- Electricity Industry in United Kingdom
- Institute of Wastes Management
- Lighting Industry Federation Ltd.
- London Regional Transport
- Ministry of Defence
- Power Supply Manufacturers' Association — PSMA (BEAMA Ltd.)
- Society of British Battery Manufacturers
- Society of Motor Manufacturers and Traders Limited

This British Standard, having been prepared under the direction of the Light Electrical Engineering Standards Policy Committee, was published under the authority of the Standards Board and comes into effect on 28 February 1992

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Contents

	Page
Committees responsible	Inside front cover
Foreword	ii
1 Scope	1
2 Safety precautions	1
3 Preparation for testing	1
Appendix A Preconditioning	4
Appendix B Gassing test	4
Appendix C Spark test	4
Appendix D Explosion containment test	5
Appendix E Performance	5
Figure 1 — Test fixture	2
Figure 2 — Explosion test chamber (schematic)	3
Publication(s) referred to	Inside back cover

Foreword

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

The purpose of this British Standard is to indicate some of the means by which the hazards are reduced but it needs to be pointed out that some of the means can be defeated over a period of time by poor maintenance or arduous conditions. Future standards will cover other types of rechargeable cells and batteries.

The recommendations made in BS 6604 concerning the safe operation of starter batteries are always relevant.

Lead-acid starter batteries contain an aqueous electrolyte of dilute sulphuric acid. They can, and often do, emit hydrogen and/or oxygen gas during use, particularly during charging; hydrogen gas when mixed with air or oxygen will explode, if ignited over a wide range (approximately 4 % (V/V) to 96 % (V/V) hydrogen concentration). When such mixtures are ignited a violent explosion ensues and when the gas mixture is in the confines of the cells in a battery it explodes with sufficient force to shatter the container. Pieces of the container and droplets of electrolyte are ejected with considerable force and may cause serious damage to adjacent equipment and to people in the vicinity.

Ignition of the gases within a cell may be caused by an internal fault but in the majority of cases the ignition is initiated by a cause exterior to the battery. A commonly used preventive method is to fit remote venting which channels away the gas mixture from likely ignition sources to the external atmosphere via a gas-tight tube attached to the battery.

The use of an effective flame arrester in the venting system will, under normal circumstances, prevent an external explosion propagating into the battery and hence reduce the likelihood of the battery exploding.

In the event of an explosion from whatever cause, it is essential that damage to the person, particularly in the region of the eyes, be prevented. This is most positively achieved by a well ventilated permanent shield offering a mechanical barrier to the products of the explosion.

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.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 6, 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.