AS 2402.2.1—2005

Australian Standard™

Traction batteries—Lead-acid

Part 2.1: Valve-regulated cells—Requirements

STANDARDS AUSTRALIA

This Australian Standard was prepared by Committee EL-005, Secondary Batteries. It was approved on behalf of the Council of Standards Australia on 26 November 2004.
This Standard was published on 14 January 2005.

The following are represented on Committee EL-005:

Australian Automobile Association
Australian Automotive Aftermarket Association
Australian Chamber of Commerce and Industry
Australian Electrical and Electronic Manufacturers Association
Energy Supply Association of Australia
Engineers Australia

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about Standards can be found by visiting the Standards Web Shop at www.standards.com.au and looking up the relevant Standard in the on-line catalogue.

Alternatively, the printed Catalogue provides information current at 1 January each year, and the monthly magazine, *The Global Standard*, has a full listing of revisions and amendments published each month.

Australian Standards™ and other products and services developed by Standards Australia are published and distributed under contract by SAI Global, which operates the Standards Web Shop.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at mail@standards.org.au, or write to the Chief Executive, Standards Australia, GPO Box 5420, Sydney, NSW 2001.

This Standard was issued in draft form for comment as DR 04254.

Australian Standard™

Traction batteries—Lead-acid

Part 2.1: Valve-regulated cells—Requirements

Originated as AS 2402—1980.
Previous edition 1994.
Revised and redesignated in part as AS 2402.2.1—2005.

Published by Standards Australia GPO Box 5420, Sydney, NSW 2001, Australia

ISBN 0 7337 6447 9

PREFACE

This Standard was prepared by the Standards Australia Committee EL-005 on Secondary Batteries to supersede (in part) AS 2402—1994, *Lead-acid traction batteries.*

AS 2402—1994 has been split into four parts as follows:

Traction batteries—Lead-acid, Part 1.1 *Vented cells—Requirements*

Traction batteries—Lead-acid, Part 1.2 *Vented cells—Installation and usage*

Traction batteries—Lead-acid, Part 2.1 *Valve-regulated cells—Requirements*

Traction batteries—Lead-acid, Part 2.2 *Valve-regulated cells— Installation and usage*

It is intended that parts 1.2 and 2.2 will replace the relevant requirements in AS 2359, *Powered industrial trucks.*

In this Standard, the dimensions of traction battery cells, requirements for measuring instruments, rated capacity and the battery test life are based on IEC 60254-1, *Lead-acid traction batteries*, Part 1: *General requirements and methods of test*, and IEC 60254-2, *Lead-acid traction batteries*, Part 2: *Dimensions of cells and terminals and marking of polarity on cells*. Additional requirements not covered by these IEC publications have been included to cover Australian conditions. Acknowledgment is made of the assistance received from BS 2550, *Specification for lead-acid traction batteries.*

The useful life obtained from a battery is also dependent on the performance of the battery charger. Performance requirements for battery chargers for lead-acid batteries are specified in AS 2548.1, *Battery chargers for lead-acid traction batteries—Battery chargers for vented cells.*

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A ‘normative’ appendix is an integral part of a Standard, whereas an ‘informative’ appendix is only for information and guidance.

CONTENTS

Page

STANDARDS AUSTRALIA

Australian Standard
Traction batteries—Lead-acid

Part 2.1: Valve-regulated cells—Requirements

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for lead-acid batteries of the valve-regulated type intended for installation in electric traction vehicles, industrial trucks, mechanical handling equipment, semi-traction applications (e.g. golf buggies and wheelchairs) and other applications where deep cycling is required.

A complete battery consists of one or more self-contained units connected in series or parallel. Each unit consists of individual cells or monoblocs assembled into a battery tray.

NOTE: Recommendations for the design of battery trays are given in Appendix A.

1.2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard.

AS	
1349	Bourdon tube pressure and vacuum gauges
1915	Electrical equipment for explosive atmospheres—Battery-operated vehicles
2359	Powered industrial trucks
2359.1	Part 1: General requirements
2402	Traction batteries—Lead-acid
2402.1.1	Part 1.1: Vented cells—Requirements
AS/NZS	
5000	Electric cables—Polymeric insulated
5000.1	Part 1: For working voltages up to and including 0.6/1(1.2)kV
IEC	
60051	Direct acting indicating analogue electrical measuring instruments and their accessories
60051-2	Part 2: Special requirements for ammeters and voltmeters

1.3 DEFINITIONS

For the purpose of this Standard, the following definitions apply.

1.3.1 Actual capacity

The quantity of electricity, usually expressed in ampere hours (A.h), that a fully charged battery can deliver for a specific set of operating conditions, including discharge rate, temperature, initial state of charge, age and final voltage.

