

Australian Standard™

Traction batteries—Lead acid

**Part 2.2: Valve-regulated cells—
Installation and usage**

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 Standards may also be withdrawn.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 04255.

Australian Standard™

Traction batteries—Lead acid

**Part 2.2: Valve-regulated cells—
Installation and usage**

First published as AS 2402.2.2—2005.

COPYRIGHT

© Standards Australia

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher.

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

ISBN 0 7337 6446 0

PREFACE

This Standard was prepared by the Standards Australia Committee EL-005 on Secondary 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 3595 *Powered industrial trucks*.

CONTENTS

	<i>Page</i>
SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE	4
1.2 REFERENCED DOCUMENTS	4
1.3 DEFINITIONS	4
SECTION 2 INSTALLATION AND MAINTENANCE OF VALVE-REGULATED BATTERIES IN INDUSTRIAL TRUCKS	
2.1 BATTERY DISCHARGE INDICATOR	7
2.2 BATTERY CONNECTORS AND CABLES.....	7
2.3 IDENTIFICATION PLATES	7
2.4 BATTERY CHARGING AND CHANGING FOR THE USER	8
2.5 BATTERY CHARGING AND CHANGING FOR THE INDUSTRIAL TRUCK OPERATOR.....	10
SECTION 3 CHARGING AND ROUTINE MAINTENANCE OF VALVE-REGULATED BATTERIES	
3.1 SCOPE	12
3.2 ROUTINE CHARGING	12
3.3 OPPORTUNITY CHARGING	12
3.4 ACID SPILLS	12
3.5 ROUTINE DAILY INSPECTION	12
3.6 ROUTINE MONTHLY MAINTENANCE	13

STANDARDS AUSTRALIA

Australian Standard
Traction batteries—Lead-acid

Part 2.2: Valve-regulated cells—Installation and usage

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for the installation and usage of 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.

1.2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard.

AS

- | | |
|----------|---|
| 1482 | Electrical equipment for explosive atmospheres—Protection by ventilation—Type of protection ‘v’ |
| 2359 | Powered industrial trucks |
| 2359.1 | Part 1: General requirements |
| 2359.2 | Part 2: Operation |
| 2402 | Traction batteries—Lead-acid |
| 2402.2.1 | Part 2.1: Valve-regulated cells—Requirements |

AS/NZS

- | | |
|--------|---|
| 1337 | Eye protectors for industrial applications |
| 2210 | Occupational protective footwear |
| 2210.4 | Part 4: Specification for protective footwear |

IEC

- | | |
|-------|--|
| 61044 | Opportunity-charging of lead-acid traction batteries |
|-------|--|

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.

1.3.2 Authorized person

The person in charge of the premises, or other person appointed or selected by the person in charge of the premises, to perform certain duties associated with the traction batteries on the premises.