AS 2402.1.1—2005

Australian Standard™

Traction batteries—Lead acid

Part 1.1: Vented cells—Requirements

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STANDARDS AUSTRALIA

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Australian Automobile Association
Australian Automotive Aftermarket Association
Australian Chamber of Commerce and Industry
Australian Electrical and Electronic Manufacturers Association
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Australian Standard™

Traction batteries—Lead acid

Part 1.1: Vented cells—Requirements

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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 254-1, *Lead-acid traction batteries*, Part 1: *General requirements and methods of test*, and IEC 254-2, *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.

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CONTENTS

Page

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STANDARDS AUSTRALIA

Australian Standard
Traction batteries—Lead-acid

Part 1.1: Vented cells—Requirements

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for lead-acid batteries of the vented type intended for installation in electric traction vehicles, industrial trucks, mechanical handling equipment, diesel locomotive starting applications, 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
2402.2.1 Part 2.1: Valve-regulated cells—Requirements

2668 Water for use in secondary batteries

2669 Sulphuric acid for use in lead-acid batteries

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.

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