

AS 2548.1:2023



Battery chargers for lead-acid traction batteries

Part 1: Battery chargers for vented cells



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Preface

This document was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-005, Secondary Batteries, to supersede AS 2548.1—1998.

The objective of this document is to provide users and manufacturers of battery chargers for vented lead-acid traction batteries with definitions of terms, minimum performance requirements, and test methods to simplify their specification.

The electrical safety requirements for traction battery chargers are not covered by this document but are specified in AS/NZS 3100, *Approval and test specification — General requirements for electrical equipment*.

This document was revised with the objectives of updating the indicating instruments, reducing the allowable ripple current, and allowing for higher charge current output provided battery temperature can be managed for safety.

In this document, charger performance requirements have been included because the eventual life of a traction battery is dependent on the characteristics of the charger. Output characteristics of single taper, two-stage taper, and regulated chargers are covered.

Consideration has been given to the charging conditions that influence battery service life. The requirements stipulated are intended to ensure optimum battery life. Because the ripple content of the d.c. output of a battery charger is an important factor in battery service life, a ripple requirement has been stipulated.

The terms “normative” and “informative” have been used in this document 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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Australian Standard®

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Part 1: Battery chargers for vented cells

1 Scope

This document specifies the requirements for both regulated and unregulated a.c. mains-operated battery chargers designed for charging vented lead-acid traction batteries.

NOTE 1 Throughout this document battery charger(s) are referred to as “charger(s)”.

NOTE 2 It is recommended that a purchaser of a battery charger furnish the information given in [Appendix C](#) when placing an order.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document:

NOTE Documents for informative purposes are listed in the Bibliography.

AS/NZS 3100, *Approval and test specification — General requirements for electrical equipment*

IEC 60051-2, *Direct acting indicating analogue electrical measuring instruments and their accessories — Part 2: Special requirements for ammeters and voltmeters*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

NOTE ISO and IEC maintain terminological databases for use in standardization at the following addresses:

IEC Electropedia: available at <https://www.electropedia.org/>

ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1

capacity

C

quantity of electricity that a fully charged battery can deliver under specified conditions

Note 1 to entry: Capacity is measured in ampere hours (A.h).

Note 2 to entry: The specified conditions are rate of discharge, final voltage and temperature. AS 2402 requires batteries to be rated at C5 and 30°C to a final voltage of 1.7 V per cell.

Note 3 to entry: Capacity of a cell or battery is denoted by the symbol C. As the capacity varies with rate of discharge, the symbol C is followed by a numerical suffix giving the rate of discharge. Thus C₅ is the capacity in ampere hours (A.h) at the 5 h rate of discharge. The specified temperature is usually 30°C. The final voltage depends on battery type and conditions of service.

Capacity may be specified as follows:

- (a) *Actual capacity* — the quantity of electricity in ampere hours (A.h) that can be withdrawn from a cell or battery for a specific set of operating conditions including discharge rate, temperature, initial state of charge, age, and final voltage.
- (b) *Rated capacity* — the quantity of electricity in ampere hours (A.h), declared by the manufacturer, which a battery can deliver after a full charge under specified conditions.