

AS 2562—1982

Australian Standard[®]

**HYDROMETERS—PORTABLE
SYRINGE-TYPE FOR
LEAD-ACID BATTERIES**

This Australian standard was prepared by Committee CH/1, Laboratory Glassware and Related Apparatus. It was approved on behalf of the Council of the Standards Association of Australia on 22 June 1982 and published on 11 October 1982.

The following interests were represented on the committee responsible for the preparation of this standard:

Australian Medical Association
Chambers of Commerce (N.S.W., Vic.)
Chief Secretary's Department, Victoria
Commonwealth Serum Laboratories
Confederation of Australian Industry
CSIRO, Division of Applied Physics
Department of Agriculture, N.S.W.
Department of Science and Technology
Government Chemical Laboratories, W.A.
National Standards Commission
Railways of Australia Committee
Royal Australian Chemical Institute
Telecom Australia
University of Sydney
Victorian State Laboratories

Review of Australian Standards. *To keep abreast of progress in industry, Australian Standards are subject to periodic review and are kept up to date by the issue of amendments or new editions as necessary. It is important therefore that Standards users ensure that they are in possession of the latest edition, and any amendments thereto.*

Full details of all Australian Standards and related publications will be found in the Standards Australia Catalogue of Publications; this information is supplemented each month by the magazine 'The Australian Standard', which subscribing members receive, and which gives details of new publications, new editions and amendments, and of withdrawn Standards.

Suggestions for improvements to Australian Standards, addressed to the head office of Standards Australia, are welcomed. Notification of any inaccuracy or ambiguity found in an Australian Standard should be made without delay in order that the matter may be investigated and appropriate action taken.

This standard was issued in draft form for comment as DR 79074.

AS 2562—1982

Australian Standard[®]

**HYDROMETERS—PORTABLE
SYRINGE-TYPE FOR
LEAD-ACID BATTERIES**

First published 1982

PUBLISHED BY STANDARDS AUSTRALIA
(STANDARDS ASSOCIATION OF AUSTRALIA)
1 THE CRESCENT, HOMEBUSH, NSW 2140

ISBN 0 7262 2675 0

PREFACE

This standard was prepared by the subcommittee on battery hydrometers of the Association's Committee on Laboratory Glassware and Related Apparatus under the direction of the Chemical Standards Board. It was prepared at the request of manufacturers and users of battery hydrometers in order to formalize the specifications for such instruments.

The standard is based on a draft submitted by Telecom Australia.

CONTENTS

	<i>Page</i>
SECTION 1. SCOPE AND GENERAL	
1.1 Scope	3
1.2 Application	3
1.3 Referenced Documents	3
1.4 Classification	3
1.5 Definitions	3
SECTION 2. DESIGN AND CONSTRUCTION	
2.1 Scope of Section	5
2.2 General Requirements	5
2.3 Float	5
2.4 Barrel	5
2.5 Elastomeric Components	5
2.6 Float Scale	6
SECTION 3. PERFORMANCE REQUIREMENTS	
3.1 Scope of Section	7
3.2 Float Accuracy	7
3.3 Elastic Bulb of Battery Hydrometer	7
3.4 Resistance of the Barrel to Thermal Shock	7
3.5 Resistance to Mechanical Shock	7
3.6 Elastomeric and Plastics Components	7
SECTION 4. PACKAGING AND MARKING	
4.1 Packaging	8
4.2 Marking	8
APPENDICES	
A Safety Precautions	9
B Procedure for Using a Battery Hydrometer	10
C Care of Hydrometers	11
D Method for Testing the Accuracy of a Hydrometer Float	12
E Method for Testing the Performance of the Elastomeric Components	14
F Method for Determining the Resistance of the Barrel to Thermal Shock	15
G Method for Determining the Resistance of a Packaged Battery Hydrometer to Mechanical Shock	16
H Accelerated Ageing Test for the Elastomeric and Plastics Components of a Battery Hydrometer	17
J Determination of Compliance of a Lot	19

© Copyright — STANDARDS AUSTRALIA

Users of Standards are reminded that copyright subsists in all Standards Australia publications and software. Except where the Copyright Act allows and except where provided for below no publications or software produced by Standards Australia may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing from Standards Australia. Permission may be conditional on an appropriate royalty payment. Requests for permission and information on commercial software royalties should be directed to the head office of Standards Australia.

Standards Australia will permit up to 10 percent of the technical content pages of a Standard to be copied for use exclusively in-house by purchasers of the Standard without payment of a royalty or advice to Standards Australia.

Standards Australia will also permit the inclusion of its copyright material in computer software programs for no royalty payment provided such programs are used exclusively in-house by the creators of the programs.

Care should be taken to ensure that material used is from the current edition of the Standard and that it is updated whenever the Standard is amended or revised. The number and date of the Standard should therefore be clearly identified.

The use of material in print form or in computer software programs to be used commercially, with or without payment, or in commercial contracts is subject to the payment of a royalty. This policy may be varied by Standards Australia at any time.

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

for

HYDROMETERS—PORTABLE SYRINGE—TYPE FOR LEAD-ACID BATTERIES

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This standard specifies requirements for the design, construction and testing of portable syringe-type hydrometers for use in the determination of the density of the electrolyte* in lead-acid storage batteries within the normal range of ambient temperature experienced in Australia. A separate standard will be published to specify thermometers for use in conjunction with battery hydrometers.

Notes on safety precautions to be observed when using hydrometers and notes for the care of hydrometers are given in Appendices A and C respectively.

1.2 APPLICATION. This standard was drawn up to apply to accurate hydrometers used to evaluate batteries where high reliability and long life are essential; for example, those used with computers and in telephone exchanges. However, this may include emergency lighting use and marine and automotive applications.

1.3 REFERENCED DOCUMENTS. The following documents are referred to in this standard:

AS 1199	Sampling Procedures and Tables for Inspection by Attributes
AS 1336	Code of Practice for Industrial Eye Protection
AS 1337	Eye Protectors for Industrial Applications
AS 1338	Filters for Eye Protectors
AS 1399	Guide to AS 1199, Sampling Procedures and Tables for Inspection by Attributes
AS 1520	Fibreboard Containers for General Purposes
AS 1821 to 1823	Suppliers Quality Control Systems—Levels 1, 2 and 3
AS 2000	Guide to AS 1821—1823, Suppliers Quality Control Systems
AS 2026	Density Hydrometers
AS 2210	Safety Footwear
AS 2225	Rubber Gloves for Electrical Purposes
AS 2433	Plastics—Method for Exposure to Ultraviolet Lamps
AS C60	Sulphuric Acid for Use in Secondary Batteries
AS K185	Colours for Specific Purposes

AS CK15 Code of Recommended Practice for the Storage of Vulcanized Elastomers

ASTM D 543 Test for Resistance of Plastics to Chemical Reagents

1.4 CLASSIFICATION. Hydrometers shall be classified as follows:

Class 1: General purpose—range 1140 kg/m³ to 1300 kg/m³, scale graduations each 5 kg/m³. May be fitted with an integral thermometer.

Class 2: General purpose—range 1140 kg/m³ to 1300 kg/m³, scale graduations each 10 kg/m³ (with colour bands, if required, as specified in Clause 2.6.4).

Class 3: Special purpose hydrometer of small dimensions—range 1140 kg/m³ to 1300 kg/m³, scale graduations each 20 kg/m³ (with colour bands, if required, as specified in Clause 2.6.4).

1.5 DEFINITIONS. For the purpose of this standard, the following definitions apply:

1.5.1 Hydrometer float—a sealed glass or plastics float, consisting of a weighted bulb and calibrated stem, which floats vertically in a fluid to an immersion depth dependent on the density of the fluid. The calibration on the stem coincident with the immersion level indicates the density of the fluid. A typical float is shown in Fig. 1.1.

1.5.2 Battery hydrometer—a portable apparatus for measuring the density of the electrolyte solution contained in a 'lead-acid' battery or accumulator. It consists of—

- a clear, transparent glass or plastics *barrel* containing the hydrometer float;
- a hydrometer float as described in Clause 1.5.1;
- a rubber or plastics, flexible *nozzle* fitted snugly onto the lower end of the barrel;
- a compressible, elastic *bulb* which makes an airtight fit over the upper end of the barrel;
- a perforated plug or equivalent device, which allows free passage of air but prevents the float from entering the bulb.

A typical battery hydrometer is shown in Fig. 1.2, in which the terms printed above, in italics, are indicated.

*As prepared from the ingredients specified in AS C60 (under revision).

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
 - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-