AS 2026—1994

Australian Standard®

Density hydrometers

This Australian Standard was prepared by Committee CH/1, Laboratory Glassware and Related Apparatus. It was approved on behalf of the Council of Standards Australia on 11 March 1994 and published on 14 June 1994.

The following interests are represented on Committee CH/1:

Australian Chamber of Commerce and Industry

Australian Government Analytical Laboratories

National Association of Testing Authorities, Australia

National Standards Commission

N.S.W. Agriculture

Royal Australian Chemical Institute

Royal College of Pathologists of Australasia

Royal Melbourne Institute of Technology

University of Sydney

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PREFACE

This Standard was prepared by the Standards Australia Committee on Laboratory Glassware and Related Apparatus as a revision of AS 2026—1977 which it supersedes.

The objective of this Standard is to provide a document giving requirements for density hydrometers.

The main provisions of this Standard follow closely those of ISO/649—1981, *Laboratory glassware—Density hydrometers*, Part 1: *Specification*, and Part 2: *Test methods and use*, with minor differences in some technical details and in the units which are used. In ISO/649 densities are expressed in grams per cubic centimetre and surface tensions in dynes per centimetre, whereas in this Standard the corresponding units are kilograms per cubic metre and millinewtons per metre (mN/m).

NOTE: 1 millinewton per metre is equal to 1 dyne per centimetre.

Five series of hydrometers are specified, and dimensions were chosen that would lead to convenience in use and economy in manufacture.

To assist users who may, for special purposes, require a hydrometer which is not included in any of the five series specified, appendices are provided giving notes on the design and adjustment of hydrometers, a method for the determination of density, the measurement of liquid in bulk and for suitable vessels for use with hydrometers.

The Standard does not make provision for the high surface tension category for hydrometers.

The term ‘informative’ has been used in this Standard to define the application of the appendix to which it applies. An ‘informative’ appendix is only for information and guidance.

CONTENTS

STANDARDS AUSTRALIA

Australian Standard

Density hydrometers

1 SCOPE This specification sets out the requirements for five main series and three sub-series of glass hydrometers of constant mass which are graduated to indicate the density (mass per unit volume) of a liquid. The specification does not include hydrometers for use with liquefied petroleum gas or lead-acid batteries.

NOTES:

1 Appendix A provides information on the use of hydrometers.

2 Appendix B provides information on the design of hydrometers.

3 Appendix C provides information on vessels which may be used when making hydrometer measurements.

4 Appendix D provides information on the determination of hydrometer values for liquids in bulk.

2 REFERENCED DOCUMENTS The following documents are referred to in this Standard.

AS

2163 Graduated measuring cylinders

2849 Density of water—Numerical value

ISO

649-1 Laboratory glassware—Density hydrometers for general purposes
Part 1: Specification

3675 Crude petroleum and liquid petroleum products—Laboratory determination of density or relative density—Hydrometer method

3 DESIGNATION The five series of hydrometers are designated by the symbols L20, L50, M50, M100, and S50, where L, M, and S indicate long, medium, and short, respectively, and 20, 50, and 100 indicate the range of the scale on each hydrometer in the particular series.

The L50, M50 and S50 series contain the special sub-series designated by the suffix SP. These hydrometers are used mainly in petroleum technology.

4 RANGES

4.1 Main series Each main series of hydrometer shall cover the range of 600 kg/m^3 to 2000 kg/m^3 or 0.600 g/mL to 2.00 g/mL according to the scale marking.

4.2 Sub-series Each sub-series of hydrometer shall cover the range of 600 kg/m^3 to 1100 kg/m^3 or 0.600 g/mL to 1.100 g/mL according to the scale marking.

5 BASIS OF SCALE The basis of scale shall be density (mass per unit volume) in kilograms per cubic metre (kg/m^3). The use of g/cm^3, for which the symbol g/mL may be used, is acceptable.

NOTES:

1 The term millilitre (mL) is commonly used as a special name for cubic centimetre (cm^3), in accordance with a decision of the 12th conference Generale des Poids et Measures. The term millilitre, is acceptable, in general, for reference to capacities of volumetric glassware and is used in the present text.

2 If water is used for calibration, AS 2849 provides density values.