AS 2410—1981

Australian Standard®

LABORATORY GLASSWARE INTERCHANGEABLE SPHERICAL GROUND GLASS JOINTS

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The following industrial, scientific and governmental organizations and departments were officially represented on the committee entrusted with 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 the Environment
Government Chemical Laboratories, W.A.
National Standards Commission
Railways of Australia Committee
Royal Australian Chemical Institute
University of Sydney
Victorian State Laboratories

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INTERCHANGEABLE SPHERICAL GROUND GLASS JOINTS

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PREFACE

This standard was prepared by the Association's Committee on Laboratory Glassware and Related Apparatus under the direction of the Chemical Standards Board as one of a series for general laboratory glassware. It is based on ISO 641—Laboratory Glassware—Interchangeable Spherical Ground Joints.

This standard is intended to ensure interchangeability between spherical ground glass joints, irrespective of where they are manufactured.

Limiting dimensions for the ground glass zone and the external diameter of adjacent tubing, which will ensure interchangeability, are given in Table 1. The finish of the ground surface is also specified, and this is similar to the finish specified in AS 2409, Interchangeable Conical Ground Glass Joints.

A conventional designation is adopted, which consists of the code letter 'S' in conjunction with the approximate spherical diameter of the joint in millimetres. The bore diameter which may be employed with each size of joint is controlled, for the purpose of this standard, only by the maximum diameter at the narrow end of the ground zone.

This standard requires reference to the following standards:

AS 1100 Drawing Practice
Part 11—Indication of Surface Texture

AS 1349 Bourdon Tube Pressure and Vacuum Gauges.

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard for INTERCHANGEABLE SPHERICAL GROUND GLASS JOINTS

1 SCOPE. This standard specifies the essential geometric requirements for interchangeability in relation to a series of 10 spherical ground glass joints for incorporation in laboratory glassware. The joints range in size from a nominal diameter of 7 mm to a nominal diameter of 102 mm.

NOTE: Spherical ground glass joints are normally assembled with the use of an appropriate clamp. Details of clamps are not included in this standard.

2 NOMINAL SPHERICAL GROUND JOINT DIAMETER. The diameter of the ground spherical zone shall conform to the dimensions specified in Table 1, columns 2, 3 and 4.

NOTE: The tolerances ensure that the diameter of the inner component (or ball member) is not greater than the nominal diameter, and that the diameter of the outer component (or cup member) is not less than the nominal diameter.

3 DIMENSIONS. The diameter at the wide end of the ground zone shall be not less than the corresponding dimension given in Table 1, column 5, and the diameter at the narrow end of the ground zone shall be not greater than the corresponding dimension given in Table 1, column 6.

NOTE: The relationship of the dimensions is illustrated in Fig. 1.

4 DIAMETER OF TUBING. The external diameter of tubing adjacent to the joint shall not exceed the dimensions given in Table 1, column 7.

NOTE: It is important to limit the external diameter of the tubing in order to facilitate interchangeability of appropriate clamps.

5 SURFACE FINISH OF GROUND GLASS JOINTS. The centre-line-average-height of the ground surface shall not exceed 1 μm and should preferably be less than 0.5 μm.

NOTE: The 'centre-line-average-height' of the ground surface is the average value of R_a of the roughness as defined in AS 1100, Part 11.

6 TESTING OF INNER AND OUTER COMPONENTS (BALL AND CUP) OF SPHERICAL JOINTS. For checking of conformity to the dimensional tolerances, normal engineering techniques (including pneumatic or radius gauges) shall be used.

NOTE: For joints conforming to the tolerances in Table 1, practical experience shows that when the leakage test specified in Appendix A is carried out, the following values should not be exceeded:

(a) For sizes S13 and smaller; an increase in pressure greater than 1 kPa/min.

(b) For sizes larger than S13; an increase in pressure greater than 2 kPa/min.