Under Revision. See DR 91091 Dup

Superseded by AS 2345-1992

AS 2345—1980
UDC 669.35'5—191.2: 669.536.001.4

Australian Standard 2345—1980

AN ACCELERATED LABORATORY TEST METHOD FOR ASSESSMENT OF THE SUSCEPTIBILITY OF BRASS TO DEZINCIFICATION

STANDARDS ASSOCIATION OF AUSTRALIA
Incorporated by Royal Charter

c

STANDARDS ASSOCIATION OF AUSTRALIA SYDNEY LIBRARY

THE FOLLOWING SCIENTIFIC, INDUSTRIAL AND GOVERNMENTAL ORGANIZATIONS and departments were officially represented on the committee entrusted with the preparation of this standard:

Aluminium Development Council

Australasian Corrosion Association

Australasian Institute of Metal Finishing

Australian Gas Association

Australian Institute of Steel Construction

Australian Zinc Development Association

Bureau of Steel Manufacturers of Australia

Commonwealth Scientific and Industrial Research Organization

Confederation of Australian Industry

Copper and Brass Information Centre

Department of Defence

Electricity Supply Association of Australia

Engineering and Water Supply Department, South Australia

Geelong Water Works and Sewerage Trust

Manufacturers of brass fittings

National Association of Australian State Road Authorities

Railways of Australia Committee

Society of Automotive Engineers—Australasia

States Electrolysis Committees

Telecom Australia

The Australian Mineral Development Laboratories

University of New South Wales

This standard, prepared by Committee MT/14, Corrosion of Metals, was approved by the Metals Standards Board on behalf of the Council of the Standards Association of Australia on 13 May 1980, and was published on 1 September 1980.

To keep abreast of progress in industry, Australian standards are subject to continuous 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 their standards are up-to-date. Full details of all SAA publications will be found in the Annual List of Australian Standards; these details are supplemented by listings in the SAA monthly journal 'The Australian Standard'. Information on the Annual List and 'The Australian Standard' may be obtained from any sales office of the Association, where details are also available of the current status of individual standards. Suggestions for improvements to published standards, addressed to the head office of the Association, are welcomed.

This standard was issued in draft form for public review as DR 79075.

AUSTRALIAN STANDARD

AN ACCELERATED LABORATORY TEST METHOD FOR ASSESSMENT OF THE SUSCEPTIBILITY OF BRASS TO DEZINCIFICATION

AS 2345—1980

First published.....1980

PUBLISHED BY THE STANDARDS ASSOCIATION OF AUSTRALIA
STANDARDS HOUSE, 80 ARTHUR ST, NORTH SYDNEY, N.S.W.

ISBN 0 7262 1983 5

STANDARDS ASSOCIATION OF AUSTRALIA
SYDNEY
LIBRARY

PREFACE

This standard was prepared by the Association's Committee on Corrosion of Metals under the direction of the Metal Standards Board in order to provide a rapid method for assessing the susceptibility of different types of brass to dezincification.

Australian standards such as AS 1589*, AS 1590* and AS 1718* include details of a dezincification test for brass. The test relies on exposure of test pieces to immersion in a solution of copper(II) sulphate and ferric(III) chloride for a period of 2 weeks. Assessment of the susceptibility of the test pieces to dezincification is by comparison of attack against a control test piece of an arsenical alpha-brass exposed at the same time.

The method given in this standard does not rely on comparisons with arsenical alpha-brass for assessment of service life but upon the degree of attack which takes place. Furthermore, the method is rapid inasmuch as a result can be obtained within 2 days compared with tests which rely on comparisons with control test pieces of arsenical alpha-brass which take at least 2 weeks to perform.

The beta phase of an alpha-beta brass is always susceptible to dezincification. However, the use of modern production processes, with close control over microstructure, allows the production of alloys in which the beta phase is finely dispersed. Field testing of such alloys shows that the degree of dezincification may be reduced to acceptable levels in dezincification-risk waters.

During preparation of the standard the committee considered the work of ISO/TC 156, Corrosion of Metals, and resolved that this method should be aligned with the ISO standard as proposed by Sweden (DIS 6509).

---

*AS 1589 Copper and Copper Based Alloy Fittings for use in Sanitary Plumbing Installations.
AS 1590 Copper Alloy Threaded Pipe Fittings for use with Tubes Threaded with Pipe Threads of Whitworth Form.
AS 1718 Copper Alloy Draw-off Taps, Stop Taps, and Ferrule or Main Taps for use in Water Supply and Hot Water Services.

©Copyright — STANDARDS ASSOCIATION OF AUSTRALIA 1980
Users of standards are reminded that copyright subsists in all SAA publications. No part of this publication may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing of the Standards Association of Australia.

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

for

AN ACCELERATED LABORATORY TEST METHOD FOR ASSESSMENT OF THE SUSCEPTIBILITY OF BRASS TO DEZINCIFICATION

FOREWORD

The test method included in this standard provides a rapid laboratory test for assessing the susceptibility of brass to dezincification. However, unlike comparative testing using arsenical alpha-brass for the same purpose, this test enables the measurement of the depth of dezincification, identification of the types of dezincification, and the mode of the dezincification for all types of brasses including arsenical alpha-brass.

1 SCOPE. This standard sets out an accelerated laboratory test method for assessment of the susceptibility of brass to dezincification.

NOTES:

1. Additional information required to augment the method is given in Appendix A.
2. This standard does not set limits for the type or depth of dezincification; such limits are normally set in the product standard or determined by agreement.

2 APPLICATION. The method is suitable for assessing the susceptibility of any type of brass to dezincification in dezincification-risk waters.

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

Test sample—a portion of metal or a group of items selected from a batch or consignment by a sampling procedure.

Test specimen—a portion of metal or a single item taken from the test sample for the purpose of applying a particular test.

Test piece—a piece prepared for testing and made from a test specimen by some mechanical operation.

Dezincification—corrosion of copper-zinc alloys involving the loss of zinc and the formation of a spongy and/or porous copper.

4 PRINCIPLE. Prepared test pieces are exposed to a hot aqueous solution of copper(II) chloride. Any dezincification is assessed by examination under a microscope.

5 REAGENTS. The following test reagents are required:

(a) Water, distilled or demineralized.

(b) Copper(II) chloride test solution. Dissolve 12.8 g of analytical grade $CuCl_2.2H_2O$ in water and make up to 1 L.

(c) Ethanol or methanol, commercial grade.

6 APPARATUS. The following apparatus is required:

(a) A glass vessel covered with a plastics film which is secured with an elastic cord or other seal of non-metallic material (see Fig. 1).

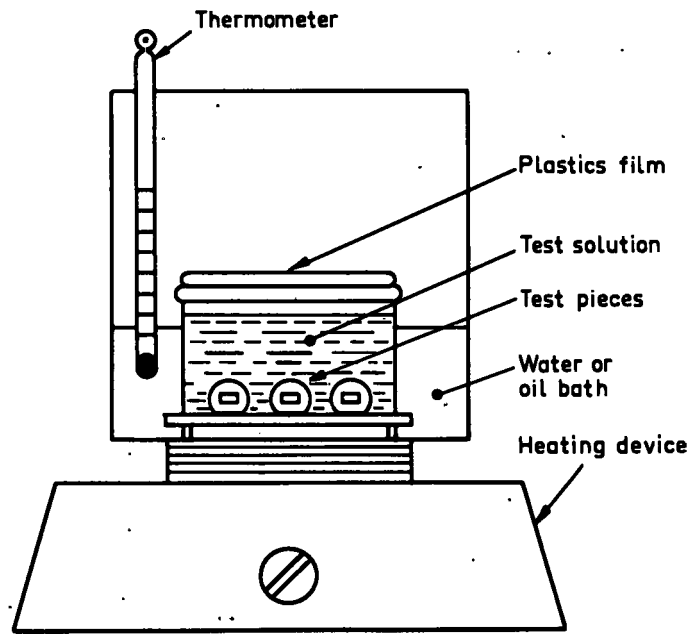

Fig. 1. ARRANGEMENT OF THERMOSTATICALLY CONTROLLED BATH TESTING EQUIPMENT

COPYRIGHT