AS 2345—2006

Australian Standard™

Dezincification resistance of copper alloys

This Australian Standard was prepared by Committee MT-014, Corrosion of Metals. It was approved on behalf of the Council of Standards Australia on 25 May 2006. This Standard was published on 13 June 2006.

The following are represented on Committee MT-014:

Australian Corrosion Association
Australasian Institute of Metal Finishing
Australian Chamber of Commerce and Industry
Australian Electrolysis Committee
Australian Paint Manufacturer's Federation
Australian Paint Approval Scheme
Austroads
Bureau of Steel Manufacturers of Australia
Department of Defence
Division of Building, Construction and Engineering, CSIRO
Galvanizers Association of Australia
Telstra
United Water International
Water Corporation of Western Australia
Corrosion consultants
Water Services Association of Australia (WSAA)
Water Authority of Western Australia

This Standard was issued in draft form for comment as DR 06197.

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Originated as AS 2345—1980.
Previous edition 1992.
Third edition 2006.

Published by Standards Australia, GPO Box 476, Sydney, NSW 2001, Australia

ISBN 0 7337 7493 8

PREFACE

This Standard has been prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee MT-014, Corrosion of Metals, to supersede AS 2345—1992, *Dezincification resistance of copper alloys.*

After consultation with stakeholders in both counties, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

The objective of this revision is to reconfirm the procedures, and update the reference documents and formatting.

The test method given in Appendix C of this Standard is based on the International Organization for Standardization publication ISO 6509:1981, *Corrosion of metals and alloys—Determination of dezincification resistance of brass*, but contains more detailed information on the testing procedure especially in respect to the measurement of dezincification.

The terms ‘normative’ and ‘informative’ have been used in this Standard 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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FOREWORD

It is generally accepted that copper alloys that contain not more than 15 percent zinc and alpha brasses that are inhibited by the presence of adequate levels of arsenic or antimony are resistant to the corrosion phenomenon called ‘dezincification’ when in service in water or soil environments. In addition, some alpha-beta brasses can be dezincification resistant provided they have certain structural characteristics and the alpha phase is inhibited.

An accelerated test method is given in this Standard for the assessment of the susceptibility of brasses, and other copper alloys containing zinc, to dezincification. It enables the measurement of depth but does not give information on the mode of dezincification.

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Australian Standard
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1 SCOPE

This Standard specifies procedures for determining the resistance of copper-base alloys containing zinc to the form of corrosion termed 'dezincification', in two steps as follows:

(a) Alloys are categorized into two groups based on their chemical composition which is used to assess their susceptibility to dezincification.

(b) Alloys assessed to be resistant to dezincification on the basis of chemical composition do not require testing. Alloys considered to be susceptible can be further evaluated by testing them under accelerated laboratory conditions after the completion of all manufacturing stages. Following this test and where the specified acceptance criteria are met, such alloys can also be regarded as resistant to dezincification.

This Standard also specifies the acceptance criteria for the dezincification resistance of copper/zinc alloy components designed for use in contact with potable water or soils.

NOTE: Advice and recommendations on information to be supplied by the purchaser at the time of enquiry or order are contained in Appendix A.

2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS	
1565	Copper and copper alloys—Ingots and castings
1566	Copper and copper alloys—Rolled flat products
2738	Copper and copper alloys—Compositions and designations of refinery products, wrought products, ingots and castings
AS/NZS	
1567	Copper and copper alloys—Wrought rods, bars and sections
MP 52	Manual of authorization procedures for plumbing and drainage products

3 DEFINITIONS

For the purpose of this Standard, the definitions below apply.

3.1 Dezincification

Corrosion of copper/zinc alloys involving loss of zinc leaving a residue of spongy or porous copper.

3.2 Dezincification-resistant copper/zinc alloys

Alloys having the appropriate chemical composition and physical characteristics to enable them to meet the dezincification test requirements of this Standard.

3.3 Test piece

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