

Australian Standard<sup>®</sup>

**Corrosion of metals—Dissimilar metals  
in contact in seawater**



This Australian Standard® was prepared by Committee MT-014, Corrosion of Metals. It was approved on behalf of the Council of Standards Australia on 19 September 2006. This Standard was published on 17 October 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 06130.

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through public comment period.

---

### **Keeping Standards up-to-date**

Australian Standards® are living documents that reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued.

Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments that may have been published since the Standard was published.

Detailed information about Australian Standards, drafts, amendments and new projects can be found by visiting **[www.standards.org.au](http://www.standards.org.au)**

Standards Australia welcomes suggestions for improvements, and encourages readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at **[mail@standards.org.au](mailto:mail@standards.org.au)**, or write to Standards Australia, GPO Box 476, Sydney, NSW 2001.

---

AS 4036—2006

Australian Standard<sup>®</sup>

## **Corrosion of metals—Dissimilar metals in contact in seawater**

Originated as AS 4036—1992.  
Second edition 2006.

### **COPYRIGHT**

© Standards Australia

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher.

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

ISBN 0 7337 7772 4

## 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 4036—1992, *Corrosion of metals—Dissimilar metals in contact in seawater*.

After consultation with stakeholders in both countries, 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 Standard is to provide a test method to determine the corrosion rate of dissimilar metals when immersed in stagnant artificial seawater.

The objective of this revision is to update the reference documents, to apply current editorial style and to revise the test methods for determining the corrosion of dissimilar metals in stagnant artificial seawater.

This Standard provides a test method to derive the ratings of galvanic corrosion activity of metallic couples immersed in artificial seawater, based on their current/time relationships.

It also lists the galvanic series comprising a number of individual metals and alloys after immersion for one hour and also for a 28 day period, in artificial seawater.

The Committee determined that there were no International Standards (ISO) which were suitable to be used as an Australian Standard.

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.

## CONTENTS

	<i>Page</i>
FOREWORD.....	4
SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE .....	5
1.2 REFERENCED DOCUMENTS .....	5
1.3 DEFINITIONS .....	5
SECTION 2 FACTORS INFLUENCING GALVANIC CORROSION	
2.1 SCOPE OF SECTION .....	6
2.2 POTENTIAL DIFFERENCE BETWEEN DISSIMILAR METALS.....	6
2.3 NATURE OF THE ELECTROLYTE .....	7
2.4 DEFECTS IN METALLIC COATINGS .....	8
2.5 NOBLE (CATHODIC) METAL ION CONTAMINATION.....	9
2.6 CARBONACEOUS MATERIALS.....	9
2.7 MOVEMENT OF ELECTROLYTE.....	9
2.8 NATURE OF CATHODE REACTIONS.....	9
2.9 POLARITY REVERSAL .....	10
2.10 TEMPERATURE .....	10
SECTION 3 CONTROL OF GALVANIC CORROSION	
3.1 SCOPE OF SECTION .....	11
3.2 FEATURES OF DESIGN.....	11
3.3 INSULATION .....	11
3.4 CATHODIC PROTECTION .....	11
3.5 COATINGS .....	12
3.6 PASSIVATION OF THE METAL SURFACE.....	12
3.7 INHIBITORS .....	12
APPENDICES	
A TEST METHOD FOR THE DETERMINATION OF ELECTROCHEMICAL CORROSION RATINGS FOR PAIRS OF DISSIMILAR METALS IMMERSSED IN ARTIFICIAL SEAWATER.....	13
B GUIDE TO COMPATIBILITY OF DISSIMILAR METALS IN CONTACT .....	26
C BASIC THEORY OF GALVANIC CORROSION .....	29

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
-