STANDARDS AUSTRALIA

RECONFIRMATION

OF

AS 2331.3.7—2004

Methods of test for metallic and related coatings

Method 3.7: Corrosion and related property tests—Corrodkote (Corr) test

(ISO 4541:1978, MOD)

RECONFIRMATION NOTICE

Technical Committee MT-009 has reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

Certain documents referenced in the publication may have been amended since the original date of publication. Users are advised to ensure that they are using the latest versions of such documents as appropriate, unless advised otherwise in this Reconfirmation Notice.

Approved for reconfirmation in accordance with Standards Australia procedures for reconfirmation on 20 March 2017.

The following are represented on Technical Committee MT-009:

Australasian Institute of Surface Finishing
Australian Chamber of Commerce and Industry
Australian Industry Group
Australian Steel Institute
Bureau of Steel Manufacturers of Australia
Galvanizers Association of Australia
Galvanizing Association of New Zealand
New Zealand Metal Roofing Manufacturers

NOTES

AS 2331.3.7—2004
Reconfirmed 2017

Australian Standard™

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PREFACE

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee MT-009, Metal finishing to supersede AS 2331.3.7—1981.

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.

This Standard is an adoption with national modifications and is reproduced from ISO 4541:1978, *Metallic and other non-organic coatings—Corrodkote corrosion test (CORR test)*.

Variations to the ISO text for Australia are set out in Appendix ZZ. Changes to the ISO text are indicated by a marginal bar.

This Standard is a modification of ISO 4541 in which the ISO Clause 13 has been changed to conform with established Australian practices for the corrodkote corrosion test (CORR test).

As this Standard is reproduced from an International Standard, the following applies:

(a) Its number does not appear on each page of text and its identity is shown only on the cover.

(b) In the source text, ‘this International Standard’ should read ‘this Australian Standard’.

(c) A full point substitutes for a comma when referring to a decimal marker.

The term ‘normative’ has been used in this Standard to define the application of the appendix to which it applies. A ‘normative’ appendix is an integral part of a Standard.

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0 INTRODUCTION

In many instances, there is no direct relation between the results of an accelerated corrosion test and the resistance to corrosion in other media, because several factors which influence the progress of corrosion, such as the formation of protective films, vary greatly with the conditions encountered. The results obtained in the test should not, therefore, be regarded as a direct guide to the corrosion resistance of the tested materials in all environments where these materials may be used. Furthermore, performance of different materials in the test cannot always be taken as a direct guide to the relative corrosion resistance of these materials in service.

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the reagent, the apparatus and the procedure for assessment of the quality of metallic and related coatings by the Corrodkote procedure.

The method is primarily applicable to copper-nickel-chromium or nickel-chromium electroplated parts.

2 REFERENCES

ISO 1462, *Metallic coatings — Coatings other than those anodic to the basis metal — Accelerated corrosion tests — Method for evaluation of the results.*

ISO 3768, *Metallic coatings — Neutral salt spray test (NSS test).*

3 PRINCIPLE

Application of a slurry containing corrosive salts to test specimens, allowing the slurry to dry, and exposure of the coated specimens to a high relative humidity for a specified period of time.

4 CORRODKOTE SLURRY

Prepare the Corrodkote slurry in a glass beaker by dissolving 0,035 g of reagent grade copper(II) nitrate trihydrate [$Cu(NO_3)_2.3H_2O$], 0,165 g of reagent grade iron(III) chloride hexahydrate ($FeCl_3.6H_2O$), and 1,0 g of reagent grade ammonium chloride (NH_4Cl) in 50,0 ml of distilled water and stirring into the solution 30,0 g of water-washed ceramic grade kaolin. Mix the slurry thoroughly with a glass stirring rod and allow it to stand for about 2 min so that the kaolin becomes saturated. Mix the slurry thoroughly with a glass stirring rod just before using.

NOTES

1 An alternative method of preparing the Corrodkote slurry is as follows: Weigh 2,50 g of copper(II) nitrate trihydrate [$Cu(NO_3)_2.3H_2O$] and dilute with distilled water to the mark in a 500 ml one-mark volumetric flask. Weigh 2,50 g of iron(III) chloride hexahydrate ($FeCl_3.6H_2O$), and dilute with distilled water to the mark in a 500 ml one-mark volumetric flask. Weigh 50,0 g of ammonium chloride (NH_4Cl) and dilute with distilled water to the mark in a 500 ml one-mark volumetric flask. Then transfer exactly 7,0 ml of the copper(II) nitrate solution, 33,0 ml of the iron(III) chloride solution and 10,0 ml of the ammonium chloride solution to a beaker and add 30,0 g of kaolin. Stir with a glass stirring rod.

2 Keep the iron(III) chloride solution in the dark in a flask fitted with a rubber or glass stopper. The iron(III) chloride solution shall not be more than 2 weeks old, since older solutions become unstable.

5 APPARATUS

5.1 The apparatus shall consist of a humidity chamber, specimen supports, provision for heating the chamber and provision for air circulation in the chamber.

5.2 The design shall be such that drops of moisture which might accumulate on the roof or walls of the chamber, or on the specimen supports, do not fall on the test specimens.

5.3 The materials of construction shall be such as not to affect the test.

6 TEST SPECIMENS

6.1 Select the type and number of test specimens to be used, as well as the criteria for evaluation of the test results, according to the specification for the coating or products being tested.

6.2 The test specimens may be solvent cleaned prior to testing, using a suitable solvent such as ethanol, diethyl ether, acetone or light petroleum. Do not use solvents that are corrosive or that deposit protective films.