

STANDARDS AUSTRALIA

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**RECONFIRMATION**

**OF**

**AS 2331.4.5—2001**

**Methods of test for metallic and related coatings**

**Method 4.5: Physical tests—Electroplated plastics—Thermal cycling tests**

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**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

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## Methods of test for metallic and related coatings

### Method 4.5: Physical tests—Electroplated plastics—Thermal cycling tests

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#### 1 SCOPE

This Standard sets out two thermal cycling test procedures for assessing the adhesion of electroplated coatings on plastics items by inducing stresses in the coatings.

Although there is no restriction on the use of the two test procedures, Procedure A is suited to the testing of coated household items and Procedure B to the testing of automotive items.

#### 2 PRINCIPLE

Coated items are subjected to alternate hot and cold temperature cycles. Loss of coating adhesion is used as the criterion for assessment.

#### 3 REFERENCED DOCUMENT

The following document is referred to in this Standard:

AS

2331 Methods of test for metallic and related coatings  
2331.4.1 Method 4.1: Physical tests—Qualitative adhesion tests

#### 4 APPARATUS

The following apparatus is required:

- (a) An air oven capable of maintaining a temperature of  $85 \pm 2^\circ\text{C}$ .
- (b) A refrigerator capable of maintaining a temperature of  $-30 \pm 2^\circ\text{C}$ .

#### 5 PREPARATION OF ITEMS FOR THERMAL CYCLING

Items shall be allowed to stabilize at ambient temperature for at least 24 h following the electroplating process.

#### 6 THERMAL PROCEDURES

##### 6.1 General

Coated items shall be tested in accordance with either Procedure A or Procedure B.

##### 6.2 Procedure A

The test shall be conducted as follows:

- (a) Load the oven with the coated items. Heat the oven to  $85 \pm 2^\circ\text{C}$  and hold at this temperature for 1 h.
- (b) Remove the hot items from the oven and allow to stand at  $20 \pm 5^\circ\text{C}$  for at least 30 min.
- (c) Refrigerate the items at  $-10 \pm 2^\circ\text{C}$  for 1 h.