STANDARDS AUSTRALIA

RECONFIRMATION

OF
AS 2331.1.4—2001
Methods of test for metallic and related coatings
Method 1.4: Local thickness tests—Magnetic induction and eddy current methods

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 2331.1.4—2001
Reconfirmed 2017

Australian Standard™

AS 2331.1.4

Methods of test for metallic and related coatings

Method 1.4: Local thickness tests—Magnetic induction and eddy current methods

1 SCOPE

This Standard sets out the requirements for the following non-destructive methods for the measurement of the local thickness of metallic and non-metallic coatings:

(a) *Magnetic induction (low frequency) method*

The magnetic induction method is used for the thickness testing of non-magnetic and non-metallic coatings on magnetic substrates.

(b) *Eddy current (high performance) method*

The eddy current method is used for the thickness testing of —

(i) a non-conductive coating on a non-magnetic substrate; and

(ii) a metallic coating or a non-metallic coating on a substrate that has appreciably different conductivity.

These methods apply when the coating thickness is not less than 2 µm, and the surface contour permits calibration of the test instrument.

The magnetic induction (low frequency) method is suitable for the measurement of thickness of gold, silver, tin, cadmium, zinc, copper, chromium, lead and organic coatings, such as paints and plastics, on magnetic substrates.

The eddy current (high frequency) method is suitable for the measurement of thickness of oxide coatings on metals. Using selected frequencies, it is also possible to measure the thickness of various metallic coatings on either magnetic or non-magnetic substrates, e.g. tin-lead on copper, silver or nickel/silver, copper, zinc, cadmium or tin on steel, and copper or silver on a non-metallic base.

Under the best conditions of use, these methods are accurate to ±0.7 µm, or ±10%, whichever is the greater.

NOTES:

1 Factors affecting the accuracy of measurement are given in Appendix A.

2 The methods given in this Standard are not suitable for the measurement of chemical conversion coatings.

2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS

2331 Methods of test for metallic and related coatings

2331.1.1 Method 1.1: Local thickness tests—Micrographic examination of cross-sections

2331.2.1 Method 2.1: Tests for average coating mass per unit area or for thickness—Dissolution methods—Strip and weigh, and analytical