STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

METHODS FOR TESTING ANODIC OXIDATION COATINGS ON ALUMINIUM AND ALUMINIUM ALLOYS

PART 1—THICKNESS AND RELATED PROPERTY TESTS

AS 2039.1.4

AVERAGE THICKNESS OF ANODIC OXIDATION COATINGS BY EDDY CURRENT METHOD

1 SCOPE. This standard describes the procedure for the non-destructive measurement of the average thickness of anodic oxidation coatings on aluminium and aluminium alloys by the use of eddy currents.

2 APPLICATION. The method is suitable for the testing of all types of coating where the thickness is not less than 2 μm and the surface contour permits calibration of the appropriate instruments.

Under the best conditions the method is accurate to ± 0.7 μm or ± 10 percent of the thickness, whichever is the greater.

3 PRINCIPLE. High frequency electromagnetic field generated in a probe system produces eddy currents in a conductor over which the probe is placed. The amplitude and phase of these currents is a function of the separation between the conductor and the probe.

4 APPARATUS.

4.1 General. No limitations are placed on the type of instrument which may be used provided instruments operate in accordance with the principle outlined in Clause 3 and can be calibrated for a known thickness or thicknesses of coating.

4.2 Calibrated Test Specimens. Coated and uncoated control pieces are required for calibration purposes, and should, as far as possible, be of the same basis metal as the material being tested, have the same pretreatment and form within normal manufacturing tolerances. Control pieces should not be less than 50 mm long. Coating thickness on coated test specimens shall be determined in accordance with AS 2039.1.1.

5 PREPARATION OF TEST PIECES. Test pieces shall be free of foreign matter and if necessary shall be degreased in an organic solvent which does not attack the coating.

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