SLOVENSKI STANDARD
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Aerospace series - Test methods for aluminium alloys products - Part 5: Determination of cladding thickness and copper diffusion of clad semi-finished products

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Luft- und Raumfahrt - Prüfverfahren für Erzeugnisse aus Aluminium und Aluminiumlegierungen - Teil 5: Bestimmung der Plattierdicke und der Kupferdiffusion bei plattiertem Halbzeug

Série aérospatiale - Méthodes d'essais applicables aux produits en aluminium et alliages d'aluminium - Partie 5: Mesure de l'épaisseur du placage et de la diffusion du cuivre dans le placage des demi-produits plaqués

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English version

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This European Standard was approved by CEN on 1993-07-23. CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart,36 B-1050 Brussels

Foreword

This European Standard has been prepared by the European Association of Aerospace Manufacturers (AECMA).

After inquiries and votes carried out in accordance with the rules of this Association, this Standard has successively received the approval of the National Associations and the Official Services of the member countries of AECMA, prior to its presentation to CEN.

This standard was submitted for Formal Vote, and the result was positive.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 1994, and conflicting national standards shall be withdrawn at the latest by January 1994.

According to the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.

1 Scope

This standard specifies a method for the measurement of cladding thickness and of copper diffusion into the cladding of semi-finished products. It is applicable when referenced.

2 Preparation of samples

Sections shall be cut and prepared for examination. These sections shall be :

- perpendicular to the rolled surface and in the direction of rolling,
- polished and etched in the following reagent for a minimum of 20 s at a temperature between 15 °C and 30 °C :

- hydrochloric acid (d = 1,19)	: 1,5 ml;
- nitric acid (d = 1,38 to 1,40)	: 2,5 ml;
- hydrofluoric acid (d = 1,13)	: 0,5 ml to 1,0 ml;
- distilled water	: to give a volume of 100 ml.

3 Procedure

3.1 Measurement of cladding thickness

3.1.1 The sections shall be viewed at a suitable magnification (100 to 500 times).

On each side the cladding thickness shall be measured on at least five fields of view separated from each other by a distance of at least 2 mm.

The mean cladding thickness on each side is the arithmetic mean of the values obtained.

3.1.2 Other methods may be used, if specified, in the order or inspection schedule.

The method used shall be agreed between the manufacturer and the purchaser. It shall be referenced to standard samples where cladding thickness has been determined in accordance with 3.1.1.

The standard samples used shall be of the same material, thickness and condition as the semi-finished product under test.

3.2 Measurement of diffusion of copper into the cladding

The sections shall be viewed at a suitable magnification (250 to 500 times).
Any dark zones along the grain boundaries in the cladding show copper diffusion.
Other methods may be used provided that the same results are guaranteed.
The method defined in this standard shall be used in cases of dispute.

4 Test report

The test report shall include the following :

- reference to this standard;
- mean cladding thickness for each side of the semi-finished product;
- the maximum depth of copper diffusion for each sample.