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ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION

R 2128

SURFACE TREATMENT OF METALS

ANODISATION (ANODIC OXIDATION) OF ALUMINIUM AND ITS ALLOYS MEASUREMENT OF THICKNESS OF OXIDE COATINGS

NON-DESTRUCTIVE MEASUREMENT BY LIGHT SECTION MICROSCOPE

1st EDITION

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BRIEF HISTORY

The ISO Recommendation R 2128, *Surface treatment of metals – Anodisation (anodic oxidation) of aluminium and its alloys – Measurement of thickness of oxide coatings – Non-destructive measurement by light section microscope*, was drawn up by Technical Committee ISO/TC 79, *Light metals and their alloys*, the Secretariat of which is held by the Association Française de Normalisation (AFNOR).

Work on this question led to the adoption of Draft ISO Recommendation No. 2128, which was circulated to all the ISO Member Bodies for enquiry in October 1970. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Austria	Italy	Sweden
Belgium	Japan	Switzerland
Canada	New Zealand	Thailand
Finland	Norway	Turkey
France	Poland	United Kingdom
Germany	Portugal	U.S.A.
India	South Africa, Rep. of	U.S.S.R.
Israel	Spain	

The following Member Body opposed the approval of the Draft :

Netherlands

This Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided to accept it as an ISO RECOMMENDATION.

ISO Recommendation | R 2128 | August 1971

SURFACE TREATMENT OF METALS

ANODISATION (ANODIC OXIDATION) OF ALUMINIUM AND ITS ALLOYS MEASUREMENT OF THICKNESS OF OXIDE COATINGS

NON-DESTRUCTIVE MEASUREMENT BY LIGHT SECTION MICROSCOPE

1. SCOPE

This ISO Recommendation describes a non-destructive method of measurement, by light section microscope, of the thickness of oxide coatings obtained by anodisation (anodic oxidation) of aluminium and its alloys.

2. FIELD OF APPLICATION

The use of this method is limited by two factors :

- the opacity of the coating (measurement is impossible, for example, on coatings of dark colours);
- the roughness of the surface (measurement is impossible, for example, on deeply pitted surfaces);

and it is only possible if the two luminous lines are visible and distinctly separated.

However, the measurement is possible in most industrial cases for coating thicknesses of aluminium oxide above 10 μm, or from 5 μm when the surface is smooth.

3. DEFINITIONS

3.1 *Thickness of a coating of aluminium oxide.* The arithmetic mean of the thicknesses, measured at at least ten points of an inspection area.

3.2 *Inspection area.* The part of the surface (or of the line) on which, after agreement between the supplier and user, the specified properties are required.

4. PRINCIPLE

In the light section microscope, a parallel, lamellar beam of light (I) is directed obliquely, generally at an angle of incidence of 45°, onto the oxidized surface (see Figure).

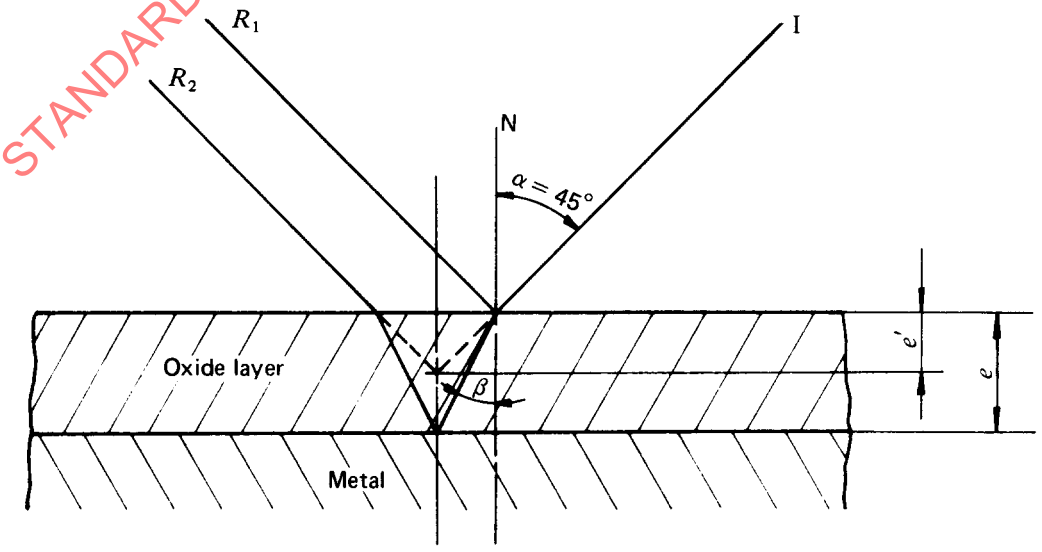

FIGURE – **Diagram of optical path**