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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 12967.6-2022

Replacing GB/T 12967.6-2008

**Test methods for anodic oxidation coatings and organic
polymer coatings on aluminium and aluminium alloys - Part 6:
Determination of color and appearance**

铝及铝合金阳极氧化膜及有机聚合物膜检测方法 第6部分：色差和外观质量

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part

1. Structure and Drafting Rules of Standardization Documents" drafted. This document is part 6 of GB/T 12967 "Testing Methods for Anodic Oxidation Films and Organic Polymer Films of Aluminum and Aluminum Alloys". GB/T 12967 has released the following parts.

1. Determination of abrasion resistance;

3. Salt spray test;

4. Determination of light and heat resistance;

5. Determination of rupture resistance;

6. Color difference and appearance quality. This document replaces GB/T 12967.6-2008 "Test methods for anodic oxide films of aluminum and aluminum alloys - Part

6. Inspection by visual observation method" Color difference and appearance quality of colored anodized film", compared with GB/T 12967.6-2008, except for structural adjustment and editorial changes, the main technical The changes are as follows:

--- Changed the applicable object of "scope", adding aluminum and aluminum alloy anodized composite films and organic polymer films (see Chapter 1, Chapter 1 of the.2008 edition);

--- Changed the "normative references" (see Chapter 2, Chapter 2 of the.2008 edition);

--- In "Terms and Definitions", "reference sample" (see 3.1) was added, "visual color difference" (see

4.1 of the.2008 edition) and "color difference" were deleted. Standard" (see

4.2 of the.2008 edition);

--- Changed "Method Overview" (see Chapter 4, Chapter 3 of the.2008 edition);

1 Scope

GB/T 12967.6-2022 is the Chinese national standard on test methods for anodic oxidation coatings and organic polymer coatings on aluminium and aluminium alloys - part 6: determination of color and appearance, in the field of manufacturing engineering. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 9 March 2022 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 October 2022. Classification: ICS 25.220.20, CCS H20. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

2.Mass loss method, GB/T 8014.3 "Measurement method of thickness of anodic oxide film of aluminum and aluminum alloy Part

3.Spectral beam microscopy, GB/T 8752 "Continuity test method for anodized thin anodic oxide films of aluminum and aluminum alloys" Acid copper method", GB/T 8753.1 "Evaluation method for sealing quality of anodized oxide films of aluminum and aluminum alloys - Part

1.Acid etching weight loss Law", GB/T 8753.3 "Assessment Method for Sealing Quality of Anodized Oxidation Films of Aluminum and Aluminum Alloys Part

3.Admittance Method", GB/T 8753.4 "Assessment Method for Sealing Quality of Anodized Oxidation Films of Aluminum and Aluminum Alloys Part

4.Staining Spots After Acid Treatment Law", GB/T 8754 "Determination of Insulation Properties of Anodized Films of Aluminum and Aluminum Alloys and Organic Polymer Films", GB/T 20503 "Aluminum and Aluminum Alloys" Determination of Specular Reflectance and Specular Gloss of Anodized Anodized Films", GB/T 20504 "Aluminium and Aluminum Alloy Anodic Oxidation Standard method for the determination of image clarity of chemical film", GB/T 20505 "Determination of surface reflection characteristics of anodized anodic oxide film of aluminum and aluminum alloys" The Definite Integrating Sphere Method together constitutes the standard system of detection methods for aluminum and aluminum alloy anodic oxide films and organic polymer films. GB/T 12967 consists of five parts.

1.Determination of abrasion resistance. The purpose is to establish a method for evaluating

the wear resistance of the anodic oxide film and the organic polymer film layer.

3.Salt spray test. The purpose is to establish a method for evaluating the salt spray resistance of the anodic oxide film and the organic polymer film layer.

4.Determination of light and heat resistance. The purpose is to establish the weather resistance and resistance of the anodic oxide film and the organic polymer film layer. Thermal performance evaluation method.

5.Determination of rupture resistance. The purpose is to establish the evaluation of crack resistance of anodic oxide film and organic polymer film layer method.

6.Color difference and appearance quality. The purpose is to establish the color difference and appearance quality of the anodized film and organic polymer film layer Evaluation method. In.1994, my country formulated GB/T 14952.3-1994 "Aluminum and aluminum alloy anodized coloring anodized film color difference and external appearance for the first time. Visual Quality Inspection Method Visual Observation Method. In.2008, my country revised and adopted ISO /T R8125.1984 "Aluminum and Aluminum Alloy Anodizing" Determination of Color and Color Difference of Colored Anodized Films-Visual Observation Method, published GB/T 12967.6-2008 Film inspection methods - Part

6.Visual inspection for color difference and appearance quality of pigmented anodic oxide films. GB/T 12967.6-2008 and The content of GB/T 14952.3-1994 was added, and the requirements for the visual method of the colorimetric box and the test report were added. In recent years, with various surface films The anodic oxide film or organic polymer texture film made of layer preparation technology and texture processing method is more and more widely used in aluminum alloy products. And the development prospect is broad, the existing standards cannot meet the evaluation of color difference and appearance quality of different types of films, so it is necessary to use GB/T 12967.6 The evaluation methods for the color difference and appearance quality of different types of film layers are specified in this document to meet the performance testing and evaluation needs of different film layers. This document focuses on supplementing the evaluation methods for color difference and appearance quality of anodized composite films and organic polymer films. Aluminum and aluminum alloy anodized films and organic polymer films Inspection Methods Part

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, dated citations documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to this document.

GB/T 8005.3 Terms of Aluminum and Aluminum Alloys Part

3.Surface Treatment JJG2029 Chromaticity Measuring Instrument Verification System Table

3 Terms and Definitions

GB/T 8005.3 and the following terms and definitions apply to this document.

3.1 reference sample A sample agreed upon by the supplier and buyer to define the appearance or color of the product.

3.2 significant surface Covered with anodized film and/or organic polymer film, marked on the technical drawing, and lifted for the suitability and/or appearance of the object To function, the surface of the object that meets the specified performance requirements of the product.

4 Method overview

Under the specified conditions, visually observe or use instruments to measure the color and participation of aluminum and aluminum alloy anodic oxide films and organic polymer film products. The degree of difference compared to the sample; visual observation or comparative observation of the anodic oxide film of aluminum and aluminum alloy and the organic polymer film based on the reference sample Surface condition to evaluate the appearance quality of the product. The instrumental method of measuring chromatic aberration does not apply to textured films.

5.1 Light source

5.1.1 Natural light source. Diffuse sunlight from 3 hours after sunrise to 3 hours before sunset on a sunny day.

5.1.2 Artificial light source. choose the artificial D65 standard light source or the light source agreed by the supplier and the buyer, and the illuminance during artificial lighting should be greater than 600lx. back