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

GB/T 20503-2026

Replacing GB/T 20503-2006

**Anodic oxide coatings and organic polymer coatings on
aluminium and its alloys - Measurement of specular reflectance
and specular gloss**

铝及铝合金阳极氧化膜及有机聚合物膜 镜面反射率和镜面光泽度的测定

(English Translation)

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document replaces GB/T 20503-2006 "Specular Reflectance and Specular Gloss of Anodized Films on Aluminum and Aluminum Alloys".

"Determination of Angles at 20°, 45°, 60°, and 85°", compared with GB/T 20503-2006, has undergone structural adjustments and editorial changes, with the main technical changes being...

The following is an explanation.

- a) The scope has been changed (see Chapter 1, Chapter 1 of the 2006 edition);
- b) Terms and definitions have been changed (see Chapter 3, Chapter 2 of the 2006 edition);
- c) The method overview has been revised (see Chapter 4, Chapter 3 of the 2006 edition);
- d) The instruments and equipment were changed (see Chapter 5, Chapter 4 of the 2006 edition);
- e) Additional sample requirements have been added (see Chapter 7);
- f) Additional test preparation was added (see 8.1);
- g) The determination of specular reflectance has been modified (see 8.3, 7.2 in the 2006 edition);
- h) The determination of specular gloss has been modified (see 8.4, 7.3 in the 2006 edition);
- i) The calibration of the gloss meter was changed (see A.3, Chapter 6 of the 2006 edition).

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the China Nonferrous Metals Industry Association.

This document is under the jurisdiction of the National Technical Committee on Standardization of Nonferrous Metals (SAC/TC243).

1 Scope

This document describes the specular reflectance and specular gloss of anodic oxide films and organic polymer films (hereinafter referred to as "films") on aluminum and aluminum alloys.

The determination method.

This document applies to the anodizing films and organic oxide films of aluminum and aluminum alloy products used in the automotive, home furnishing, building materials, electronics, and sanitary ware industries.

The determination of specular reflectance and specular gloss of polymer films shall be performed in accordance with the same procedure for inorganic films and other film layers.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

GB/T 8005.3 Aluminum and Aluminum Alloys Terminology Part 3: Surface Treatment GB/T 8170 Rules for rounding off numerical values and the representation and determination of limiting values GB/T 11186-2025 Method for measuring the color of coatings

3 Terms and Definitions

The terms and definitions defined in GB/T 8005.3 apply to this document.

4 Method Overview

The specular reflectance and specular gloss of the film were measured under incident angles of 20°, 45°, 60°, and 85°; alternatively, the incident angles could be adjusted.

The specular reflectivity of the film was measured under the condition of a narrow receiving angle of 45°.

---Specular reflectance is typically measured using a gloss meter equipped with specular reflectance measurement capabilities. Under a standard light source, with a fixed input...

The incident light is irradiated onto the surface of the film at an angle of incidence, and the specular reflected light is received by a receiver. The ratio of the reflected light intensity to the incident light intensity represents the specular reflection.

Reflectivity.

---Specular gloss is measured using a gloss meter. The incident angle is selected based on the expected specular gloss range of the film surface, and the measurement is specified.

The luminous flux of the film layer in the specular reflection direction at the incident angle is compared with the luminous flux of the black glass standard sample in the same specular reflection direction.

The ratio is expressed in gloss units (GU).

5 Instruments and Equipment

The gloss meter shall meet the requirements of Appendix A.