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

GB/T 5237.4-2017

**Wrought aluminium alloy extruded profiles for architecture -
Part 4: Powder coating profiles**

铝合金建筑型材 第4部分：喷粉型材

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Foreword

GB/T 5237 "Aluminum Alloy Building Profile" is divided into 6 parts.

--- Part 1. Substrate;

---Part 2. Anodized profiles;

---Part 3. Electrophoretic paint profiles;

---Part 4. Spray profiles;

---Part 5. Painting profiles;

--- Part 6. Thermal insulation profiles. This part is the fourth part of GB/T 5237. This part is drafted in accordance with the rules given in GB/T 1.1-2009. This part replaces GB 5237.4-2008 "Aluminum alloy building profiles Part 4. Powder coating profiles". This part and GB 5237.4- Compared with.2008, the main technical changes except editorial changes are as follows:

--- Modified the standard name (see cover, cover of the.2008 edition);

--- Deleted the statement in the preface that "this section 4.5.3.1,

4.5.5 is mandatory, and the remaining clauses are recommended" (see.2008 edition) Preface)

--- Revised the applicable "scope" of this section (see Chapter 1, Chapter 1 of the.2008 edition);

--- Removed the normative reference document GB/T 228-2002 (see Chapters 2 and 5.2 of the.2008 edition);

--- Removed the normative reference document JC/T 480 (see Chapters 2 and

1 Scope

Part 4 of China's national standard for architectural aluminium alloy extruded profiles, covering powder coated material. Powder coating applies a dry thermoset powder electrostatically and then fuses it in an oven, so there is no solvent, no run and almost no waste - which is why it displaced wet paint for architectural aluminium. The coating chemistry is what determines how long the colour lasts outdoors, and the standard names the field precisely: thermosetting polyester, polyurethane and fluoroethylene vinyl ether powders, and thermoplastic polyvinylidene fluoride. They are not interchangeable in service. Polyester is the volume product and holds colour for a decade or so; FEVE and PVDF cost several times as much and hold it for thirty years or more, which is why they appear on buildings whose facades will not be repainted. The part specifies the terms and definitions, requirements, test methods, inspection rules, marking, packaging, transport, storage, quality certificates and order contents.

This part of GB/T 5237 specifies the terms and definitions, requirements, test methods, inspection rules, marking, packaging, transportation, Storage, quality certificate and order form (or contract) content. This section applies to thermosetting polyester, polyurethane, chlorotrifluoroethylene-vinyl ether (FEVE) powder and thermoplastic polyvinylidene fluoride Epoxy (PVDF) powder is used as a coating for electrostatic powder coating (hereinafter referred to as profile). Other aluminum alloy processed materials with the same application and surface treatment methods can also be referred to in this section.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article. Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 1732 paint film impact resistance test method

GB/T 1740 paint film moisture resistance test

GB/T 1865-2009 Painted and varnish artificial weathering and artificial radiation exposure

filtered xenon arc radiation

GB/T 3199 Aluminum and aluminum alloy processing products packaging, marking, transportation, storage

GB/T 4957 Non-conductive coating on non-magnetic base metal, thickness measurement of eddy current method

GB/T 5237.1 aluminium alloy building profiles - Part 1.

GB/T 5237.2 aluminium alloy building profiles - part 2. anodized profiles

GB/T 6682 Analytical laboratory water specifications and test methods

GB/T 6742 Paint and varnish bending test (cylindrical shaft)

GB/T 8005.3 Aluminium and aluminium alloys - Part 3. Surface treatment Aluminium and aluminium alloy anodized films and organic polymeric films - Part 3

GB/T 9275 Paint and varnish Buckholtz indentation test

GB/T 9276 coating natural weather exposure test method

GB/T 9286 color and varnish paint film cross-cut test

3 Terms and definitions

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

3.1 Decorative surface exposed surfaces Profiles that are processed, assembled into articles and mounted on buildings, visually visible surfaces (including in an open or closed state).

4.1 Product Classification

4.1.1 Grade, Status and Size Specifications The grade, condition and size specifications shall comply with the provisions of GB/T 5237.1.

4.1.2 Types of membrane layers and characteristics of membrane layers The type of film layer and the characteristics of the film layer are shown in Table 1. Table

1 Types and characteristics of the film layer Film type film layer code a film characteristics Polyester powder coating GA

40 The film layer is sprayed and solidified by a powder coating of saturated carboxylated polyester as a main component, which has good corrosion protection. Performance and weather resistance Polyurethane powder coating GU

40 The film layer is spray-cured from a powder coating of saturated hydroxy polyester as a main component, and has high wear resistance. Can, and the film is smooth, fine texture.

For thermal transfer, ink permeability is superior to polyester film Fluorocarbon powder coating GF

40 The film layer is sprayed and cured by a powder coating of thermosetting FEVE resin as the main component, or by thermoplastic The PVDF resin is formed by spraying a powder coating of the main component. Has better weather resistance, Suitable for environments with severe corrosive atmospheres and strong solar radiation Other powder coatings GO

40 See YS/T 680-2016 a The first English letter in the film code indicates dusting; the second English letter indicates powder type, where A indicates polyester powder, U table The polyurethane powder is shown, F is a fluorocarbon powder, and O is another powder; the Arabic numerals following the letters indicate the minimum local film thickness limit.

4.1.3 Film appearance effect The appearance of the film layer is shown in Table 2. Table

2 Film appearance effect Membrane appearance effect note The flat effect has a variety of glossy layers of low light, flat light and high light. The surface of the film is smooth and rich in color. Table 2 (continued) Membrane appearance effect note Texture effect Sand grain The surface of the film has a three-dimensional effect. Suitable for most aluminum door and window profiles, the film gloss should not be less than 5 gloss unit. It is difficult to guarantee the film performance when the film gloss is lower than 5. Wood grain Including heat transfer wood grain and double-spray wood grain, it has the appearance of wood texture. Thermal transfer wood grain layer currently It is mainly suitable for environments with low pollution and weak UV radiation and indoors. When applied outdoors, it should pay more attention to powder. Strict control of quality, ink quality and process. Double-spray wood grain has a three-dimensional effect and can be applied outdoors Hammer, wrinkles, Dali Stone pattern, three-dimensional color carving The surface of the film presents a variety of good three-dimensional or artistic effects. However, the weather resistance and acid and alkali resistance of this type of film are slightly Poor, currently used mainly indoors Metal effect The surface of the film highlights the effect of metallic texture or metallic flicker. However, the variety and dosage of pigments have certain limitations. Sex, the film of aluminum pigment is slightly alkaline

4.1.4 Membrane performance level and applicable environment of corresponding profiles The performance level of the film layer is divided into I grade, II grade and III grade according to the test results of accelerated weather resistance. The performance level of the film shall be agreed between the supplier and the buyer, and In the order form (or contract), if it is not specified, it will be supplied in Class I. See Table 3 for the applicable environment of the film performance level corresponding to the profile. Table

3 Applicable environment of the film performance level corresponding to the profile Film performance level profile applicable environment Class III excellent weather resistance for environments with strong solar radiation Class II good weatherability, suitable for environments with strong solar radiation Class I general weather resistance, suitable for