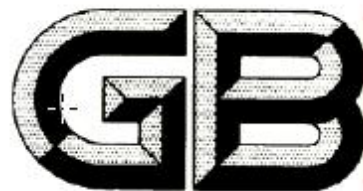


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**National Standard
of the People's Republic of China**

GB5237.3 - 200X
Replaces GB 5237.3-2004

**Wrought aluminium alloy extruded
profiles for architecture**

Part 3: Electrophoretic coating profiles

Draft for approval

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**Issued by the General Administration of Quality Supervision, Inspection and
Quarantine of the People's Republic of China and the
Standardisation Administration of the People's Republic of China (SAC)**

Foreword

Section 4.4.4 and the requirements for combined coating thickness set out in Table 2 of this standard are mandatory clauses, while the rest are recommended.

GB 5237, “Wrought aluminium alloy extruded profiles for architecture” is divided into six parts:

- Part 1: Untreated profiles
- Part 2: Anodised profiles
- Part 3: Electrophoretic coating profiles
- Part 4: Powder coating profiles
- Part 5: PVDF coating profiles
- Part 6: Thermal barrier profiles

This is Part 3 of GB 5237.

This Part replaces Part 3 of GB 5237.3 – 2004 “Wrought aluminium alloy extruded profiles for architecture – Part 3: Electrophoretic coating profiles”.

This Part has been revised with reference to Japanese JIS H 8601-1999, “Combined coatings of anodic oxide and organic coating on aluminium and aluminium alloys” and American AAMA 612-2002, “Voluntary specifications, performance requirements and test procedures for combined coatings of anodic oxide and transparent organic coatings on architectural aluminium.”

The main technical differences between this Part when compared to GB5237.3-2004 are:

- the contents of YS/T 459-2003, “Wrought aluminium alloy profiles for architecture with combined coatings of anodic and coloured organic coatings” have been adopted and revised;
- the requirements for the average thickness of anodic oxide coating have been withdrawn, and Grade A and Grade B local thickness of anodic oxide coating has been increased to “not less than 9• m”;
- Grade A, Grade B and Grade C wear resistance quota of falling sand test have been increased respectively to 3300g, 3000g and 2400g;
- the requirements set out in AAMA 612 have been consulted, and the requirements for hydrochloric acid corrosion resistance, mortar resistance and heat-humidity resistance have been added;
- the requirements for detergent resistance and solvent resistance have been added.
- Article 5.6 has been amended from “but from profile end in the range of 80mm allow locality areas no paint coating” to “but from profile end in the range of 80mm allow locality areas no coating.”

This Part is proposed by the China Non-ferrous Metals Industry Association.

Main organisations that participated in the drafting of this Part:

Guangdong JMA Aluminium Profile Factory Co., Ltd;

Guangdong Xingfa Aluminium Co., Ltd;

Chinese Industrial Standard of Non-ferrous Metal Measure Quality Research Institute;

Fujian Minfa Aluminium Industry Co., Ltd;
Fujian Nanping Aluminium Co., Ltd;
Participation drawing up units of this part:
Non-ferrous Metal Quality Supervision and Inspection Centre of the People's Republic of China;
Non-ferrous Metal Quality Supervision and Inspection Centre of South China;
Foshan Xinhe Aluminium Co., Ltd;
China Billion International Limited (CBIL);
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Main drafters of this Part: LuJiYan, GeLiXin, DaiYueXing, ZhuZuFang, XiaXiuQun, HuangXiWei,
XieZhiJun, ZhanHao, MaCunZhen.

This Part replaces the previously issued Standards:
-GB/T 5237.3- 2000, GB 5237.3-2004.

Wrought aluminium alloy extruded profiles for architecture

Part 3: Electrophoretic coating profiles

1 Scope

This Part sets the requirements for the testing methods, inspection rules, packaging, marking, transportation, storage and content of contracts (or orders) of electrophoretic coating profiles for architecture.

This Part applies to anodic oxide coating and electrophoretic coating (water soluble varnish or paint) combined treated aluminium alloy extruded profiles for architecture (hereafter referred to as electrophoretic coating profiles).

Other aluminium alloy materials that carry similar applications and similar surface treatments may refer to and adopt the content of this Part.

2 Normative References

The provisions of the following documents become provisions of this Part after being referenced. For dated reference documents, all later amendments (excluding corrigenda) and versions do not apply to this Part; however, the parties to the agreement are encouraged to study whether the latest versions of these documents are applicable. For undated reference documents, the latest versions apply to this Part.

GB/T 228-2002 Metallic materials – Tensile testing at ambient temperature;

GB/T 629 Chemical reagent – Sodium hydroxide;

GB/T 1740 Determination of resistance to heat and humidity of paint films;

GB/T 1766 Paints and varnishes – Rating schemes of degradation of coats;

GB/T 1865 – 1997 Paints and varnishes – Artificial weathering and exposure to artificial radiation – Filtered xenon-arc radiation;

GB/T 3199 Wrought aluminium and aluminium alloy products – Packing, marking, transporting and storing;

GB/T 4957 Non-conductive coatings on non-magnetic basic metals – Measurement of coating thickness – Eddy Current;

GB/T 5237.1 Wrought aluminium alloy extruded profiles for architecture - Part 1: Untreated profiles;

GB/T 5237.2 Wrought aluminium alloy extruded profiles for architecture – Part 2: Anodised coloured profiles;

GB/T 6461 Methods for corrosion testing of metallic and other inorganic coating on metallic substrates – Rating of test specimens and manufactured articles subjected to corrosion tests;

GB/T 6462 Metallic and oxide coating – Measurement of coating thickness Microscopical method;

GB/T 6682 Water for analytical laboratory use – specification and test methods;

GB/T 6379 Paint and varnishes – determination of film hardness by pencil test;

GB/T 8013.1-2007 Anodic oxide coatings and organic polymer coatings on aluminium and its alloys – Part 1: Anodic oxide coatings;

GB/T 8013.2 – 2007 Anodic oxide coatings and organic polymer coatings on aluminium and its alloys – Part 2: Combined anodic oxide coating;

GB/T 8014.1 Anodising of aluminium and its alloys – The measuring method of thickness of anodic oxide coatings – Part 1: The measuring principle;

GB/T 9276 Methods of exposure to natural weathering of coating;

GB/T 9286 Paints and varnishes – cross-cut test for films;

GB/T 9754 Paints and varnishes – Measurement of specular gloss of non-metallic paint films at 20⁰, 60⁰ and 85⁰;

GB/T 9761 Paints and varnishes – Visual comparison of colour of paints;

GB/T 9789 Metallic and other non-organic coatings – Sulphur dioxide test with general condensation of moisture;

GB/T 10125 Corrosion tests in artificial atmospheres – salt spray tests;

GB/T 11186.2 Methods for measuring the colour of paint films – Part 2: Colour measurement;

GB/T 11186.3 Methods for measuring the colour of paint films – Part 3: Calculation of colour differences;

GB/T 12967.1 Anodising of aluminium and aluminium alloys – Measurement of mean specific abrasion resistance of anodic oxidation coatings with an abrasive jet test apparatus;

GB/T 14952.3 Anodising of aluminium and its alloys. Determination of colour differences and appearance of coloured anodic oxide films – Viewing method;

GB/T 16585, Rubber, vulcanised – Test method of resistance to artificial weathering (Fluorescent UV lamp);

GB/T 20975 (all Parts), Chemical analysis methods of aluminium and aluminium alloys;

JC/T 480 Unslaked Lime for architecture.

3 Terms and definitions

The terms and definitions set out in GB/T 8013.2-2007 apply to this Part, as well as the following:

3.1 Exposed surfaces

Exposed surfaces refer to electrophoretic coating profiles that have been processed, manufactured and mounted onto a building; the surface of electrophoretic coating profiles which can still be seen either in an open or shut state.

3.2 Local thickness

Measure the coating thickness any one inspection area of the exposed surface of the electrophoretic coating profile that is not larger than 1cm² several times (not less than 3 times); the local thickness is the average value of the measured coating thickness.

4 Requirements

4.1 Product classification

4.1.1 alloy grades, states, specifications

The alloy grades, supply states and specifications of electrophoretic coating profiles should conform to the requirements set out in GB 5237.1.

4.1.2 Thickness grades of the combined anodic oxide coatings, types of paint coatings, typical applications

The thickness grades of the combined anodic oxide coating, types of paint coatings, and typical applications should conform to the requirements set out in Table 1. The thickness grade of combined anodic oxide coatings should be clearly indicated in the contract.

Table 1

Coating Thickness Grade	Surface Paint Coating Type	Typical Application
A	Gloss or matt varnish	Outdoor construction parts under harsh environment
B		Outdoor constructions or vehicle components
C	Gloss or matt coloured paint	Outdoor constructions or vehicle components

4.1.3 Markings

The arrangement of the labelling of electrophoretic coating profiles should be presented in the following order: product name, alloy grade, supply state, profile specification (profile specification consists of the code name and the cut-length of the electrophoretic coating profile),

colour, coating thickness grade and the serial number of this part. An example of the label is shown below:

If the electrophoretic coating profile is made of 6063 aluminium alloy, its supply state is T5, its profile code name is 421001, its cut-length is 6000mm, its surface treatment used anode oxidation and electrolytic colouring with electrophoretic coating, it is bronze coloured, and its coating thickness grade is A, then the label should be:

Electrophoretic coating profile 6063-T5 421001x6000 Bronze A GB5237.3-200X.

Example 2:

If the electrophoretic coating profile is made of 6063 aluminium alloy, its supply state is T5, its profile code name is 421001, its cut-length is 6000mm, its surface treatment used anode oxidation and electrophoretic white coating, and its coating thickness grade is S, then the label should be:

Electrophoretic coating profile 6063-T5 421001x6000 White S GB5237.3-200X.

4.2 Chemical composition, mechanical properties

The chemical composition and mechanical properties of electrophoretic coating profiles in room temperature should conform to the requirements set out in GB 5237.1.

4.3 Dimension deviation

The dimension deviations of electrophoretic coating profiles (including combined anodic oxide coatings) should conform to the requirements set out in GB 5237.1.

4.4 Properties of the combined anodic oxide coating

4.4.1 Colour and chromaticism

The colour of the combined anodic oxide coatings should be primarily identical to the colour plate agreed between the suppliers and buyers, or within the restricted colour range of upper limit and lower limit decided through consultation between the suppliers and buyers.

If the buyers request the Instrumental Method be carried out to test the colours of the combined anodic oxide coatings, the allowable chromaticism value should be decided through consultation between the suppliers and the buyers.

4.4.2 Coating thickness

The thickness of the combined anodic coatings should conform to the requirements set out in Table 2.

Table 2

Coating Thickness Grade	Coating Thickness/• m		
	Local thickness of the anodic oxide coating	Local thickness of the paint coating	Local thickness of the combined anodic oxide coating
A	• 9	• 12	• 21
B	• 9	• 7	• 16
S	• 6	• 15	• 21

4.4.3 Hardness of the paint coating

After the Pencil Scratch Hardness test, the hardness of the paint coating for Grade A, Grade B should be at least 3H or more, and for Grade S at least 1H or more.

4.4.4 Adherence of paint coating

The dry adherence and wet adherence of the paint coating should both reach level 0.

4.4.5 Boiling water resistance

After the boiling water resistance test, no wrinkles, cracks, or bubbles should be apparent on the paint coating, no paint coating should come off and no colour change should be apparent.

4.4.6 Wear resistance

Carry out the Falling-sand Test to check wear resistance; the results of the Falling-sand Test should conform to the requirements set out in Table 3.

Table 3

Coating Thickness Grade	A	B	S
Sand Fallen Quantity	• 3300	• 3000	• 2400

4.4.7 Hydrochloric acid corrosion resistance

After the hydrochloric acid corrosion resistance test, perform a visual inspection to check the surface of the combined anodic oxide coating; no bubbles should appear and no other noticeable changes should be apparent.

4.4.8 Alkali resistance

After the alkali resistance test, the protection level (R) should be at least level 9.5 or more.

4.4.9 Mortar resistance

After the mortar resistance test, perform a visual inspection to check the surface of the combined anodic oxide coating; no paint coating should come off and there should be no other noticeable changes.

4.4.10 Solvent resistance

After the solvent resistance test, the differential value of pencil hardness should not be more than 1H.

4.4.11 Detergent resistance

After the detergent resistance test, there should be no bubbles, no coating should come off and there should be no other noticeable changes on the surface of the combined anodic oxide coating.

4.4.12 Salt spray corrosion resistance

The test results of the CASS (copper accelerated acetic acid salt spray test) should conform to the requirements set out in Table 4.

Table 4

Coating Grade	Thickness	Test Duration/hour	Protection Level (R)
A, S		48	• Level 9.5
B		24	• Level 9.5

4.4.13 Heat and humidity resistance

The combined anodic oxide coating after 4000 hours heat-humidity resistance test, its change should not be greater than level 1.

4.4.14 Weatherability

4.4.14.1 Accelerated weatherability

The duration of the artificial accelerated ageing test for accelerated weatherability, when illuminated with a xenon lamp, is divided into three levels - see Table 5. The level of accelerated weatherability should be decided by the buyers and clearly indicated in the purchase contract. If it is not indicated, then the goods should be delivered as level II.

Table 5

Weatherability Level	Test Duration (hour)	Test Result		
		Chalking Degree	Gloss Retention Rate ^a	Colour change Degree • E _{ab} [*]
IV	4000	Level 0	• 80	• Level 1
III	2000			
II	1000			

^a The gloss retention rate means the percentage of the gloss value after paint coating test comparatively to the gloss value before the tests.

4.4.14.2 Natural weatherability

If the buyer requests the natural weatherability test be carried out, then the test conditions, checking and acceptance standards should be decided through consultation between the supplier and buyer, and should be clearly indicated in the contract.

4.4.15 Others

4.4.15.1 If the buyer has special requests regarding boiling water resistance, wear resistance, alkali resistance, salt-spray corrosion resistance, heat and humidity resistance, and weatherability of the combined anodic oxide coating, both the supplier and buyer may consult each other whilst referring to the requirements set out in GB/T 8013.2-2007 in order to decide on the specific property requirements. The agreed test requirements should be clearly indicated in the purchase contract.

4.4.15.2 If the buyer requests further tests be carried out on other properties, the supplier and the buyer should refer to the requirements set out in GB/T 8013.2-2007 and come to a decision through mutual consultation.

4.5 Appearance quality

The appearance quality of the profiles before the painted coating should conform to the requirements set out in GB 5237.2. After painting, the paint coating should be even, smooth and free of any faults which may effect the use of the electrophoretic coating profiles, such as wrinkles, cracks, bubbles, flow marks, inclusions, stickiness or paint coating falling off. Coating is not allowed for profile ends in the range of 80mm allow locality areas.

5 Testing methods

5.1 Chemical composition

The reference analysis of chemical composition should be carried out in accordance with the methods specified in GB/T 20957.

5.2 Mechanical properties

The reference test of the mechanical properties should be carried out in accordance with the methods specified in GB/T 228-2002. The elongation percentage after fracture should be decided in accordance with the requirements set out in Section 11.1 of GB/T 228-2002.

5.3 Dimension deviation

The dimension deviation should be measured according to the methods specified in GB 5237.1.

5.4 The properties of the combined anodic oxide coatings

5.4.1 Colour, chromaticism

5.4.1.1 Visual inspection method

Inspection should be carried out in accordance with the requirements set out in GB/T 14952.3.

5.4.1.2 Instrumental method

Chromaticism measuring should be carried out according to the requirements set out in GB/T 11186.2 and GB/T 11186.3.

5.4.2 Coating thickness

5.4.2.1 Determination of local thickness for anodic oxide coating and combined anodic oxide coatings

According to the measuring principles specified in GB/T 8014.1, adopt either the Eddy Current Testing method specified in GB/T 4957 or the Microscopical Method – Measurement of Coating Thickness specified in GB/T 6462 to measure the local thickness of the anodic oxide coating and the local thickness of the combined anodic oxide coating. The outcome should be determined according to GB/T 6462.

5.4.2.2 Determination of local thickness for paint coating

According to the measuring principles specified in GB/T 8014.1, adopt either the Eddy Current Testing method specified in GB/T 4957 or the Microscopical Method – Measurement of Coating Thickness method specified in GB/T 6462 to determine the measurements. The outcome should be determined according to GB/T 6462. When Eddy Current Testing method is adopted, the determination for the local thickness of the paint coating may be carried out using of the methods below:

- a) measure the local thickness of the combined anodic oxide coating first, then remove the local thickness of the anodic oxide coating that was measured in 5.4.2.1 - the differential value is regarded as the local thickness of the paint coating;
- b) first, measure the local thickness of the combined anodic oxide coating, then use a peeling agent or relative tool to remove the surface paint coating, again measure the local thickness of the anodic oxide coating, the differential value between these two measured local thickness is regarded as the local thickness of the paint coating.

5.4.3 Hardness of the paint coating

Carry out the Pencil Scratch Hardness Test according to the test method specified in GB/T 6739; the test results can be evaluated on the basis of the scratched situation of the paint coating surface.

5.4.4 Adherence of paint coating

5.4.4.1 Dry adherence

5.4.4.1.1 Draw squares according to the cross-cut test method specified in GB/T 9286; the interval of each square should be 1mm.

5.4.4.1.2 Cover the square drawing paint coating with adhesive tape^D; the adhesive force for the tape should be greater than 10N/25mm. Press the tape down tightly to remove any air from underneath the tape, pull off the tape quickly at a vertical angle from the paint coating surface, then carry out the evaluation.

(^D The suitable adhesive tapes on the market are Scotch Premium Cellophane tape 610 or Permacel P-99 adhesive tape. We list this product information here for the convenience of people who use this Part of Standard, we do not necessarily give acceptance to the products.)

5.4.4.2 Wet adherence

According to the requirements set out in 5.4.4.1.1 draw squares on the sample, using third grade water as specified in GB/T 6682. With a temperature of $38\text{C}\pm 5\text{C}$, soak the sample for 24 hours. Remove the sample and wipe it dry. Carry out test and evaluation within 5 minutes, as according to 5.4.4.1.2.

5.4.5 Boiling water resistance

5.4.5.1 Pour around 80ml third grade water into a beaker as specified in GB/T 6682, then place 2 - 3 pieces of clean broken porcelain into the beaker, heating the water from the beaker bottom until the water boils.

5.4.5.2 Hang the sample in the water to boil for 5 hours. The sample should be 10mm under the water surface, but it may not touch the bottom of the beaker. During the test, the water temperature should be kept at least at 95°C ; whenever necessary add boiled third grade water specified in GB/T 6682 into the beaker to maintain the depth of the water height as not lower than 80mm.

5.4.5.3 Remove the sample and wipe it dry, then perform a visual inspection to check the paint coating surface of after the boiling water test (surrounding part of the sample is not included).

5.4.6 Wear resistance

Carry out the Falling-sand Test to measure the abrasive resistance of the paint coating according to the requirements set out in Appendix A to GB/T 8013.1-2007.

5.4.7 Hydrochloric acid corrosion resistance

Use chemical hydrochloric acid ($\bullet 1.19\text{g/ml}$) and third grade water as specified in GB/T 6682 to mix the hydrochloric acid test solution (hydrochloric acid and water as 1:9). Drip 10 drops of this hydrochloric acid test solution onto the paint coating surface of the sample, cover up with a watch glass, then leave it in an environment with a temperature of $18^{\circ}\text{C} - 27^{\circ}\text{C}$ for 15 minutes. Rinse clean under tap water, air dry, then perform a visual investigation to check the paint coating surface.

5.4.8 Alkali resistance

5.4.8.1 Using ethyl alcohol carefully wipe off the dirt on the sample surface, use Vaseline or paraffin wax to fix an inner diameter 32mm, height 30mm glass (or synthetic resin) ring onto the prepared surface of the sample, and seal around the outside

5.4.8.2 Use sodium hydroxide specified in GB/T 629 and third grade water as specified in GB/T 6682 to mix sodium hydroxide test solution with concentration of 5g/l.

5.4.8.3 Keep the sample level and under the test temperature of $20^{\circ}\text{C}\pm 2^{\circ}\text{C}$, pour the sodium hydroxide test solution up to the halfway point in the glass ring, then cover with a glass lid or synthetic resin lid. After 24 hours, take off the glass ring, carefully rinse the sample clean with water, and then leave it indoors. After one hour, draw a diameter of 30mm, with the same centre as the glass ring circle. Use a 10 - 15 times magnifying glass to observe the corrosion situation inside of the circle, carrying out the evaluation according to GB/T 6461. The protection levels correspond to the percentages for different total defect areas, as in Table 6.

5.4.9 Mortar resistance

5.4.9.1 Take 75g lime powder as specified in JC/T 480 and 225g Standard Sand as specified in Section A.5.2 in Appendix A to GB 5237.4-2008, then add into about 100g third grade water as specified in GB/T 6682 and mix into a lime and sand paste mortar.

5.4.9.2 Put the paste mortar onto the surface of the sample, pile up to a cylinder with diameter of 15mm and thickness of 6mm. Leave in an environment with a temperature of $38^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and relative humidity of $95\% \pm 5\%$ for 24 hours.

5.4.9.3 Remove the paste mortar from the sample and, using a wet cloth, clean the residue off the surface, then air dry. Perform a visual investigation to check the surface of the paint coating after the test.

5.4.10 Solvent resistance

5.4.10.1 First carry out the Pencil Scratch Hardness Test in accordance with the requirements specified in GB/T 6379; the evaluation of the test results should be taken on the basis of the scratched condition of the paint coating surface. For paint coating surfaces that are not scratched by the pencils, place a piece of cotton soaked with xylene for 30 seconds

5.4.10.2 Remove the cotton and immediately rinse the sample clean using tap water, then wipe dry, leave at room temperature for 2 hours, then carry out Pencil Scratch Hardness Test according to GB/T 6379 on the surface area that was covered up with the cotton.

5.4.10.3 The evaluation of the test results should be taken on the basis of the scratched condition of the paint coating surface.

5.4.11 Detergent resistance

5.4.11.1 Use detergent (for composition see Table 6) and third grade water as specified in GB/T 6682 to mix a detergent test solution with a concentration of 30g/l. Soak the sample in the detergent test solution with temperature of $38^{\circ}\text{C} \pm 1^{\circ}\text{C}$ for 72 hours, take the sample out and wipe it dry.

5.4.11.2 Immediately use adhesive tape with adhesive force of 10N/25mm to cover up the surface of the paint coating, press the tape down tightly to remove any air from underneath the tape, then pull off the tape quickly at a vertical angle from the paint coating surface. Perform a visual inspection to check the paint coating surface.

Table 6

Composition	Content (Weight) %
Tetrasodium Pyrophosphate	53
Sodium Sulphate Anhydrous	19
Sodium Linear alkylarylsulfonate	20
Sodium Metasilicate Hydrated	7
Sodium Carbonate Anhydrous	1
Total	100

5.4.12 Salt spray corrosion resistance

Carry out CASS test according to GB/T 10125. When the required test duration is complete, evaluate of the test results according to GB/T 6461. The protection levels that correspond to the percentages of different total defect areas are shown in Table 7.

Table 7

Defect Area Percentage after Test %	Protection Level (R)	Defect Area Percentage after Test %	Protection Level (R)
None	10	>0.05 ~ 0.07	9.3
<0.02	9.8	>0.07 ~ 0.10	9
>0.02 ~ 0.05	9.5	>0.10 ~ 0.25	8

5.4.13 Heat-humidity resistance

Carry out heat-humidity resistance test according to the rules specified in GB/T 1740. The test temperature should be $47^{\circ}\text{C} \pm 1^{\circ}\text{C}$.

5.4.14 Weatherability

5.4.14.1 Accelerated weatherability

Carry out the xenon lamp accelerated weatherability test according to method 1 specified in GB/T 1865-1997. According to GB/T 9754 to measure the gloss value. Evaluate the chalking degree and colour change degree according to GB/T 1766.

5.4.14.2 Natural weatherability

Carry out natural weatherability test according to the stipulations of GB/T 9276.

Note: among the atmospheric corrosion test stations in China, the only test station in which the atmospheric conditions are very near to the specified Florida Atmospheric in international Standards is the Qionghai Exposure Test Station.

5.4.15 Others

Tests on other properties should be performed according to test methods specified in GB/T 8013.2 – 2007 or in accordance with the method agreed between the suppliers and the buyers.

5.5 Appearance quality

The examination for appearance quality should be carried out under diffuse sunlight (diffuse sunlight refers to the 3 hours following sunrise to 3 hours before sunset), and according to the provisions set out in GB/T 9761. The required luminance level for artificial illumination should be above 1000lx and the light source should be a D65 standard light source. The background should be matt black or grey; a coloured background cannot be used.

6 Inspection rules

6.1 Examination and checking acceptance

6.1.1 An examination of the electrophoretic coating profiles should be carried out by the suppliers so as to ensure that the quality of the electrophoretic coating profiles conform to the requirements set out in this Part (or purchase contract), and the quality certificate should also be completed by them.

6.1.2 Buyers may carry out examinations that are specified in this Part regarding the electrophoretic coating profiles they receive. If the examination results do not conform to the requirements set out in this Part or in the purchase contract, the buyer may submit the disagreement in writing to the supplier, in order to come to an agreement through mutual consultation. If the disagreement is related to appearance quality and dimension deviation, the buyer should submit the problems within one month of the date on which the electrophoretic coating profiles were received. If the disagreement is related to other properties, then the buyer may submit the problems within three months of receiving the electrophoretic coating profiles. If a negotiation is required, the suppliers should provide the agreed samples and the problem should be resolved between the supplier and buyer together.

6.2 Batch approval

The electrophoretic coating profiles should be submitted to gain approval and acceptance in batches, the electrophoretic coating profiles which is the same alloy, have same supply states, same specifications, same grades of coating thickness can form a batch. The quantity of each batch of electrophoretic coating profiles is unrestricted.

6.3 Inspection item

Inspections of chemical composition, mechanics properties, dimension deviation, colour and chromaticism, local thickness of the combined anodic oxide coating, hardness of the paint coating, adhesive force of the paint coating, and appearance quality should be carried out on every batch of electrophoretic coating profiles. Inspections of other properties are not usually carried out (the suppliers carry out these types of inspections at least once every three years), but the supplier should ensure these properties conform to the requirements set out in this Part. If the buyer requests to carry out inspection on these properties, then these requests should be clearly indicated in the contract.

6.4 Sampling

Electrophoretic coating profile sampling procedures carried out in accordance with the provisions set out in Table 8.

Table 8

Test Item	Sampling Rules	Requested Clause Number	The Clause Number of Test Method
Chemical composition, mechanics properties, dimension deviation,	According to the rules specified in GB 5237.1	4.3, 4.4	5.1, 5.2, 5.3
Colour, chromaticism, appearance quality	The inspection of the profiles should be carry out one by one with the products	4.4.1, 4.5	5.4.1, 5.5
Coating thickness	Sampling according to Table 9	4.4.2	5.4.2
Hardness, adherence,	Take 2 pieces of electrophoretic	4.4.3, 4.4.4,	5.4.3, 5.4.4,

boiling water resistance, wear resistance, hydrochloric acid corrosion resistance, alkali resistance, mortar resistance, solvent resistance, detergent resistance, salt-spray corrosion resistance, heat-humidity resistance and weatherability of the paint coating	coating profiles per test item from each batch, when the paint coating solidified and left for another 24 hours later, cut one sample from each piece profile.	4.4.5, 4.4.6, 4.4.7, 4.4.8, 4.4.9, 4.4.10, 4.4.11, 4.4.12, 4.4.13, 4.4.14	5.4.5, 5.4.6, 5.4.7, 5.4.8, 5.4.9, 5.4.10, 5.4.11, 5.4.12, 5.4.13, 5.4.14
Others	According to GB/T 8013.2 – 2007 or decide by agreement between the buyer and the supplier.	4.4.15	5.4.15

6.5 Determination of inspection results

6.5.1 If the inspection for chemical composition does not meet the required standard, then this batch of electrophoretic coating profiles is deemed as not qualified.

6.5.2 If any one of the samples fails to meet the required standard during the inspection for mechanical properties, re-sampling should take place using double the original number of test samples from this batch of profiles (including the original unqualified sample). If the repeated test results qualify, then this batch of electrophoretic coating profiles is deemed to be qualified. If any of the repeated test results continues to fail to meet the required standard, then this batch is deemed as not qualified.

6.5.3 If dimension deviation does not meet the required standard, then the batch of electrophoretic coating profiles is deemed to be not qualified. The pieces may, however, be tested one by one, and pieces that qualify may be delivered.

6.5.4 If the colour, chromaticism or appearance quality does not meet the required standard, then this batch of electrophoretic coating profiles is deemed as not qualified.

6.5.5 If the number of unqualified coating thickness exceeds the specified allowable unqualified upper limit numbers shown in Table 9, then this batch of electrophoretic coating profiles is deemed as not qualified. The supplier may, however carry out individual testing, and the qualified pieces may be delivered.

Table 9

Quantity Range in Each Batch	Random Sampling	Upper Limit of Unqualified Items
1 ~ 10	Entire Batch	0
11 ~ 200	10	1
201 ~ 300	15	1

301 ~ 500	20	2
501 ~ 800	30	3
Over 800	40	4

7 Labels, packaging, transportation, storage

7.1 The label (or quality certificate) on the qualified electrophoretic coating profiles should contain the following information:

- a) the name and address of the supplier;
- b) the examination stamp from department of quality control of supplier;
- c) alloy grade and state;
- d) the name and specification of the product;
- e) coating thickness grade, colour and the grade of weatherability;
- f) production date or batch number;
- g) serial number from this Part;
- h) production license number and QS mark.

7.2 The package symbol of the electrophoretic coating profiles should conform to the requirements set out in GB/T 3199.

7.3 The profiles should be bundled up and packed in paper, and the exposed surfaces of the profiles should be protected with paper padding or bubble wrap.

7.4 The transportation and storage of the electrophoretic coating profiles should conform to the provisions set out in GB/T 3199.

7.5 A copy of the quality certificate should be attached to each batch of electrophoretic coating profiles, on which the following should be clearly indicated:

- a) the name of the supplier;
- b) profile name and specification;
- c) alloy grade and state;
- d) coating thickness grade, colour, weatherability grade;
- e) batch number or production date;
- f) weight or quantity;
- g) the serial number of this part;
- h) every analysed inspection results and the examination stamp from department of quality control of supplier;
- I) production license number;
- j) factory shipment date (or package date).

8 The contents of the contract (or order list)

The contract (or the order list) to purchase listed materials in this part should contain the following information:

- a) product names
- b) alloy grades;
- c) supply states;

- d) profiles specifications;
- e) accuracy grades of allowable dimension deviation;
- f) coating thickness grades, colour and weatherability grades;
- g) weight or quantities;
- h) serial number of this Part;
- i) other special requests.