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

GB/T 18847-2026

Replacing GB/T 18847-2002

Film laminated metal plate for building decoration

建筑装饰用覆膜金属板

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5.1 Aluminum and aluminum alloy sheets

5.1.1 The chemical composition of aluminum and aluminum alloy sheets shall meet the requirements of GB/T 3190, and the mechanical properties shall meet the requirements of GB/T 3880.2. Dimensional tolerances should conform to the requirements of GB/T 3880.3. The aluminum alloy sheets used for outdoor aluminum clad panels should be from the 3xxx series or 5xxx series. Or 6xxx series aluminum alloy.

5.1.2 When aluminum and aluminum alloy sheets have a coating on the back, they should conform to the requirements of YS/T 431; when they have a polymer film on the back, they should conform to YB/T 4516. Requirements.

5.2 Steel Plate

5.2.1 Hot-dip galvanized steel and hot-dip aluminized zinc steel shall comply with the requirements of GB/T 2518; the quality of the zinc coating (double-sided) of hot-dip

galvanized steel shall not be lower than The zinc coating quality (double-sided) of hot-dip aluminum-zinc steel should not be less than 72 g/m².

5.2.2 Hot-dip galvanized aluminum-magnesium steel shall meet the requirements of YB/T 4761, and the quality of the galvanized layer (double-sided) shall not be less than 60 g/m².

5.2.3 Stainless steel shall meet the requirements of GB/T 3280.

5.2.4 When the back of the steel plate has a coating, it should conform to the requirements of GB/T 12754; when the back has a polymer film, it should conform to YB/T 4516. Require.

5.3 Metal Composite Panels It should meet the standard requirements of the corresponding metal composite panel products.

5.4 Surface Layer

5.4.1 Polyvinyl chloride (PVC) film shall meet the requirements of GB/T 3830.

5.4.2 Fluorocarbon membranes (PVDF, PVF) shall meet the requirements of

5.3 in JC/T 2605-2021.

5.4.3 Polyester film (PET) shall meet the requirements of QB/T 5709.

5.4.4 Polyolefin functional self-adhesive films (POFA) shall meet the requirements of Table 1.

6.4 Weather resistance When the product is used outdoors, its weather resistance should meet the requirements of Table 5.

6.5 Limits for Hazardous Substances The limits for hazardous substances in indoor coated metal panels should meet the requirements of Table 6.

6.6 Antibacterial and antifungal properties For indoor products with antibacterial and antifungal properties, the antibacterial and antifungal performance should meet the requirements of Table 7.

6.7 Thermal insulation performance For products with reflective heat insulation function, the reflective heat insulation performance should meet the requirements of Table 8.

6.8 Self-cleaning performance Outdoor products with hydrophobic self-cleaning function have a contact angle $\geq 90^\circ$.

6.9 Radiative Cooling Performance For products with radiative cooling function, the net radiative cooling power should not be less than 20 W/m².

6.10 Combustion performance When required by users, the product's flammability rating should be provided.

7 Test Methods

7.1 Test Environment The temperature was $23\text{ }^{\circ}\text{C}\pm 2\text{ }^{\circ}\text{C}$, and the relative humidity was $(50\pm 10)\%$.

7.2 Specimen Preparation Before sample preparation, the specimen should be placed in the test environment specified in

7.1 for at least 24 hours; the specimen should be taken from a location greater than Within a 50 mm area, the specimen surface should be flat, undamaged, and free of burrs at the edges; resistance to neutral salt spray, accelerated aging, and damp heat. The back and sides of the specimen should be sealed. The dimensions and quantity of the specimens are shown in Table 9.

7.3 Appearance Quality According to GB/T 9761, the test shall be conducted under natural light conditions, not direct sunlight. At least two samples from the same batch shall be randomly selected. (Total area not less than 1 m²) Arrange the panels side by side in the same production direction to form one panel, and visually inspect vertically from 3 m away from the center of the assembled panel. Extract and... The person placing the sample does not participate in the visual testing. For monochrome products, color difference evaluation shall be conducted in accordance with the provisions of GB/T 11186.

7.4 Dimensional tolerances

7.4.1 Length Use a steel tape measure with a minimum graduation of 1 mm to measure at positions 100 mm from the end and in the middle, taking at least three measurements on each specimen. The test results were obtained by taking the limit deviation between the measured values and the nominal values of the three specimen lengths at three locations.

7.4.2 Width Use a steel tape measure with a minimum graduation of 1 mm to measure at positions 100 mm from the end and in the middle, taking at least three measurements on each specimen. The test results were obtained by taking the limit deviation between the measured and nominal values of the width of the three specimens at three locations.

7.4.3 Difference between diagonals Use a steel tape measure with a minimum graduation of 1 mm to measure and calculate the difference in length between the two diagonals of the same specimen. (Using three specimens as an example...) The maximum difference measured is taken as the experimental result.

7.4.4 Flatness Place the specimen with the decorative side facing up on a horizontal platform. Place a 1000 mm long steel ruler perpendicular to the surface of the platform, with the ruler's surface perpendicular to the platform. The maximum gap between the steel ruler and the plate surface was measured using a feeler gauge. The maximum value among the three test specimens was taken as the test result.

7.4.5 Side Straightness Place the specimen flat on a level platform. Align the side of a 1000 mm long steel ruler with the edge of the plate, and then use a feeler gauge to measure the distance between the edge of the plate and the steel ruler. The maximum gap between the sides of the ruler. The maximum value among the three test measurements is taken as the inspection result.

7.5 film thickness Measurements were performed according to the metallographic microscopy method in Chapter 4 of GB/T 13448-2019. The film thickness measurements of three specimens were compared with the nominal values. The limit deviation between the three test specimens is taken as the test result; if there is no nominal value, the arithmetic mean of the film thickness of the three specimens is taken as the nominal thickness value.

7.6 Poor gloss According to GB/T 9754, measurements should be taken at an incident angle of 60°, and at least four corners 10 mm from the edge of each specimen should be measured. Five positions, including the center. The production direction of the sample should be kept consistent during the test. The maximum and minimum values among the three test specimens are used as the reference. The difference is taken as the experimental result.

7.7 Pencil Hardness The test was conducted according to GB/T 6739. The worst pencil hardness value among all specimens that showed plastic deformation was taken as the test result.

7.8 Fit Conduct the experiment according to Appendix A.

7.9 Cupping Test The cupping test shall be conducted according to Chapter 14 of GB/T 13448-2019. When the product is a metal composite coated plate, the preparation... The metal substrate with the coating is used as the test piece. The coating surface and adhesion must not be damaged during the preparation of the test piece.

7.10 Flexibility Leave a 13 mm to 20 mm clamping section at one end of the coated metal plate specimen, bend it outwards by more than 90° with the coated side facing outwards, and then use smooth pliers. The vise clamps the coated metal plate so that it adheres tightly to itself at a 180° angle, known as 0T. The coating is then observed under a 5x to 10x magnifying glass for any changes. If discoloration, cracking, or peeling occurs, continue to tightly adhere to the previously wrapped portion and bend it 180°, this is called 1T. Observe the coating again for any discoloration or cracking. Cracks or peeling. Repeat this process 2T, 3T, until the coating does not initially exhibit discoloration, cracking, or peeling.

(T-bending process) As shown in Figure 1, the maximum T value among the three test results is taken as the inspection result. When the product is a metal composite coated plate, the sample with... The coated metal substrate is the test piece, and the surface of the coating and the adhesion must not be damaged during the preparation of the test piece. The unit is millimeters. Figure