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NATIONAL STANDARD

OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 9780-2005

Replacing GB/T 9780-1988

Test method for dirt pickup resistance of film of architectural coatings and paints

建筑涂料涂层耐沾污性试验方法

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Standardization Administration of the People's Republic of China.

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Foreword

This standard replaces GB/T 9780-1988 “Test method for dirt pickup resistance of film of architectural coatings and paints".

Compared with GB/T 9780-1988, the differences of this standard are as follows:

- For pollutant source, it is changed from fly ash to the make-up ash;
- Add the different coating methods of coating and painting for the pollutant source;
- Add the assessments method for dirt pickup resistance of the different coatings;
- Modify the calculation formula for dirt pickup resistance.

This standard was proposed by China Building Material Industry Association.

This standard shall be administered by National Lightweight and Trimming Fitment Material Standardization Technology Committee (SAC/C 195).

Responsible drafting organizations of this standard: Shanghai Research Institute of Building Science, Rohmhaas (China) Co. Ltd., Shanghai Shenzhen Alijiatuo Paint Co. Ltd.

Participating drafting organizations of this standard: Changzhou Covering Material and Chemical Industry Research Institute of China National Chemical Construction Corporation, Shanghai Sto Co. Ltd., Nippon Paint (China) Co. Ltd, Shanghai Caoyang Adhesives Factory, Shangyu Xinli Chemical Industry Co., Ltd., Shanghai Linke Fanruid Triming Paint Co. Ltd., Shanghai Research institute of paint and coatings, Zhongnan Building Materials Company, Shanghai Yingjie Trimming Material Co. Ltd., Shijiazhuang Oil Paint Factory of Goldfish Group, and Jiangsu Jianke Engineering Material Quality Test Center.

The main drafters of this standard: Shen Lihua, Huang Xinhui, Mao Zichong, Lin Yiyi, Tian Yuan, Zhuang Jinhua, and Zhuang Hongbin.

This standard was first-time released in July 1998. This is the first revision.

4 Test instruments

4.1 Reflection ratio instrument: According to the specification of 4.3 in GB/T 9270-1988;

4.2 Balance: Sensitivity is 0.1 g;

4.3 Wolf-hair brush: Width is 35 mm;

4.4 Flusher: Made up by water tank, water pipe and test plate. The material is rust-proof material. See Figure 1;

4.5 Flat tray: The dimension is not smaller than 200 mm x 120 mm; the depth is not lower than 10 mm.

5 Pollutant source for test

The pollutant source for test adopts the make-up ash in which the main ingredient is graphite. Its parameters are:

- Fineness: 0.045 mm square-hole sieve. Sieve tolerance is (5.0 ± 2.0) %;
- Ignition loss: (12 ± 2) %;
- Density: (2.70 ± 0.20） g/cm^3;
- Specific surface area: (440 ± 20) m^2/kg;
- Reflection coefficient: (37 ± 3) %.

6 Standard test condition

Temperature (23 ± 2)℃; relative humidity (50 ± 5) %.

7 Samples

7.1 Sampling

Sampling according to the method specified by GB 3186.

7.2 Preparation of coating test plate

7.2.1 Adopt cement asbestos board according to the requirements of Class 1 plate (compression plate) in Table 2 of JC/T 412-1991. The dimension is 150mm x 70mm x (4 ~ 6)mm. Perform the treatment according to the provisions of 7.3 in GB/T 9271-1998.

A – The initial average reflection coefficient of the coating;

B - The initial average reflection coefficient, after the coating is tested by polluting test.

The result takes the arithmetical mean value of 3 test plates, accurate to 1%. The relative error of parallel measurement shall not be more than 15%.

8.2.2 Dipping method

It is applicable to the white or the light-color flat coating with asperities or rough surface, whose lightness value is 6 to 9 ($Y_{D65} \geq 31.26$) as specified in 4.3.2 of GB/T 15608-1995.

8.2.2.1 Operation step

Pour the pollution source suspending fluid prepared according to 8.1 into flat tray. Take the coating test plate prepared according to 7.2. The coated surface is downward. Place levelly in the flat tray to dip for 5 s. Take out. Under the standard test condition, after placing for 2 hours, place on the sample bracket of wash equipment (see Figure 1); open the valve of washing equipment filled with 15L of water to the maximum; and wash the coatings test plate. While washing, it shall move the coatings test plate continuously to wash each section evenly. Close the valve after washing for 1 minute. Place the coating test plate to the second day, under the standard test condition. This is deemed as 1 cycle, about 24 hours. Test continuously to 5 cycles according to above dipping and washing methods. Before washing the coating test plate each times, the water in water tank shall be added to 15L.

8.2.2.2 Result assessment

This standard adopts five levels of 0 ~ 4 to assess the test result. They correspond to 5 grades of 5, 4, 3, 2, 1 of the base gray card (GB 250) (see Table 1) respectively.

Take 2 pieces of coating plate that has been tested. Respectively compare with 1 piece of coating plate that has not been tested. Perform the colorimetric assessment grade according to the color difference of base gray card AND the normal method in visual colorimetry method in 7.1 of GB/T 9761-1988.

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