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

JT/T 1211.2-2019

**Rapid repairing material of cement concrete for highway
engineering - Part 2: Polymer resin repair material**

公路工程水泥混凝土用快速修补材料 第2部分：聚合物树脂修补材料 清晰版

(English Translation)

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Foreword

JT/T 1211 "Quick Repair Materials for Highway Engineering Cement Concrete" is divided into 2 parts.

--- Part 1. Cement-based repair materials;

--- Part 2. Polymer resin repair materials.

This part is part 2 of JT/T 1211.

This section is in accordance with GB/T Draft the rules given in 1-2009.

This section is proposed and managed by the National Technical Committee for Traffic Engineering Facilities (Highway) Standardization (SAC/TC 223).

1 Scope

This part of JT/T 1211 specifies the classification and code, technical requirements, Test methods, inspection rules, and marking, packaging, transportation, and storage requirements.

This section applies to the production, inspection and use of polymer resin repair materials for highway engineering cement concrete.

2 Normative references

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

GB/T 1767 Test method for cement mortar strength (ISO method) DL/T 5193 Technical Specification for Epoxy Resin Mortar JGJ/T 70 Standard Test Method for Basic Performance of Building Mortar

3 Terms and definitions

The following terms and definitions apply to this document.

Polymer resin rapid repair material polymer resin repair material (PRM) it is made of polymer resin, fine aggregate, fillers, additives, etc. in appropriate proportions, and is suitable for rapid highway engineering within 12 hours of open traffic.

Repair materials.

4 Classification and code

Polymer resin repair materials are classified into Type I and Type II according to their strength properties.

5 Technical requirements

The performance requirements of polymer resin repair materials shall meet the requirements of Table 1.

Table 1 Performance indicators of polymer resin repair materials

Item

Performance requirements Type II 1 curing time (h) ≤ 12 ≤ 12

2 Compressive strength (MPa) 12h ≥ 40 ≥ 30 1d ≥ 65 ≥ 45 7d ≥ 75 ≥ 55 JT/T 1211.2-2019

Table 1 (continued)

Item

Performance requirements Type II

3 Flexural strength (MPa) 12h ≥ 8.0 ≥ 7.0 1d ≥ 10.0 ≥ 9.0 7d ≥ 12.0 ≥ 12.0

4 Bonding strength (MPa) Untreated (1d) ≥ 2.5 ≥ 2.0 Water immersion ≥ 2.0 ≥ 1.5 Five Thermal aging ≥ 1.5 ≥ 1.0 25 freeze-thaw cycles ≥ 1.0 ≥ 0.8

5 Shrinkage (%) 48h ≤ 0.05 ≤ 0.05 Note. When measuring the bond strength, the test results are invalid when the failure form is the tensile jig and adhesive.

6 Test method

6.1

curing time

The test piece forming and test method shall be carried out in accordance with the relevant provisions of DL/T 5193.

6.2

Compressive strength the forming and test method of the test piece shall be carried out in accordance with the relevant regulations of GB/T 1767.

6.3

Flexural strength the forming and test method of the test piece shall be carried out in accordance with the relevant regulations of GB/T 1767.

6.4

Bonding strength

6.4.1

Bonding strength [Untreated (1d)] the formation of the test piece was carried out in accordance with the relevant regulations of JGJ/T 70. The size of the base cement mortar used for the test was 70 mm x 70 mm x 40 mm. With the test method is as follows.

- a) Determine the 1d tensile bond strength according to the method specified in JGJ/T 70;
- b) Remove the mold after 12h, stick the drawn joint to the test piece with a suitable high-strength adhesive, and continue to test the test piece under standard test conditions.

At 24h, the tensile bond strength at 1d was measured.

6.4.2

Bonding strength (soaked in water) the formation of the test piece was carried out in accordance with the relevant regulations of JGJ/T 70. The size of the base cement mortar used for the test was 70 mm x 70 mm x 40 mm. With the test method is as follows.

- a) The test specimens formed in accordance with JGJ/T 70 shall be cured for 7 days under standard test conditions;
- b) Then immerse it in water at $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 6 days, take it out of the water and dry the surface with a cloth, and use a suitable high-strength adhesive Knot pull connector
- c) After 7h, immerse the test piece in water at $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$, remove the test piece after soaking in water for 17h, and measure the tensile bond strength after drying the water stain on the surface.

6.4.3

Bonding strength (heat aging) the formation of the test piece was carried out in accordance with the relevant regulations of JGJ/T 70. The size of the base cement mortar used for the test was 70 mm x 70 mm x 40 mm. With JT/T 1211. 2-2019 the test method is as follows.

- a) The test specimens formed in accordance with JGJ/T 70 shall be cured for 7 days under standard test conditions;
- b) The test piece is then placed in a $70^{\circ}\text{C} \pm 2^{\circ}\text{C}$ blast oven for 6 days, removed from the oven, and allowed to air to room temperature;
- c) Use a suitable high-strength adhesive to adhere the drawn joint to the test piece, and continue to maintain the test piece in the oven under standard test conditions.

Twenty-four hours after removal, the tensile bond strength was measured.

6.4.4

Bonding strength (25 freeze-thaw cycles) the formation of the test piece was carried out in accordance with the relevant regulations of JGJ/T 70. The size of the base cement mortar used for the test was 70 mm x 70 mm x 40 mm. With Body test method. Cured for 7 days under standard test conditions, and then immersed in water at $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 1 day. Take out the test piece and perform freeze-thaw cycles.

Ring test, each cycle steps are as follows.

- a) Remove the test piece from the water, dry the surface with a cloth, and keep it at $-15^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for $2\text{h} \pm 20\text{min}$;
- b) immerse the test piece in $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for $2\text{h} \pm 20\text{min}$;
- c) Repeat the cycle 25 times. After the last cycle, place the test piece under standard test conditions for 4h, and bond with suitable high strength.

The adhesive is used to bond and pull the joint, and the test piece is further cured under standard test conditions to 14 days, and the tensile bond strength is measured.

6.5

shrinkage

The test piece forming and test method shall be carried out in accordance with the relevant provisions of DL/T 5193.

7 Inspection rules

7.1

Inspection classification