# JG

BUILDING INDUSTRY STANDARD OF

THE PEOPLE'S REPUBLIC OF CHINA

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# JG/T 157-2009

Replacing JG/T 157-2004

# Putty for exterior wall

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# Table of Contents

# Foreword

This standard replaces JG/T 157-2004 “Putty for exterior wall”.

This standard is a revision of JG/T 157-2004 “Putty for exterior wall”. As compared with JG/T 157-2004, the main changes are as follows:

- For the scope of application of this standard, EXTEND the ordinary leveling putty for exterior wall to the putty used as the coating’s bottom layer of ordinary exterior wall and exterior wall thermal insulation.

- CHANGE the asbestos-cement board for testing purposes to non-asbestos fiber-cement board.

- CHANGE the classification from the original ordinary type (P type), flexible (R type) to three categories: ordinary type (P), flexible type (R), elastic type (T).

- CHANGE the putty flexible test method from the original single dynamic resistance to cracking to two types: the putty film flexibility and the dynamic resistance to cracking.

- CHANGE the initial resistance to dry-cracking to two types: thick-applied putty (product which has a single-pass thickness of more than 1.5 mm) and thinly-applied putty (product which has a single-pass thickness of not more than 1.5 mm).

- For the elastic (T) putty, CANCEL the technical indicators of rubbing properties.

- CHANGE the accuracy of the balance for water absorption test from 0.1 g to 0.01 g.

- IMPROVE the test method for the dynamic resistance to cracking.

- CHANGE the low-temperature stability method to “PLACE it at -5 °C for 18 h, PLACE it at standard conditions for 6 h, three cycles”.

Appendix A and Appendix B of this standard are normative appendixes.

This standard was proposed by the Institute of Standardization of the Ministry of Housing and Urban-Rural Development.

This standard shall be under the jurisdiction of the Technical Jurisdiction Organization of Building Engineering Standard of the Ministry of Housing and Urban-Rural Development.

# Putty for exterior wall

## 1 Scope

This standard specifies the requirements, test methods, inspection rules and markings, packaging and storage of putty for exterior walls of buildings.

This standard is applicable to the putty for exterior wall made of cement, polymer powder, synthetic resin emulsion and other materials as the main binder, added with fillers, additives, etc., for the paint's bottom layer of the ordinary exterior wall and exterior wall thermal insulation.

## 2 Normative references

The provisions in following documents become the provisions of this standard through reference in this standard. For the dated references, the subsequent amendments (excluding corrections) or revisions do not apply to this standard; however, parties who reach an agreement based on this standard are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest edition of the referenced document applies.

GB 175 Portland cement and ordinary Portland cement

GB/T 1728 Methods of test for drying time of coatings of paints and putties

GB/T 1733 Determination of resistance to water of films

GB/T 1748 Method of test for flexibility of putty coatings

GB/T 3186 Paints varnishes and raw materials for paints and varnishes - Sampling

GB/T 6682 Water for analytical laboratory use - Specification and test methods

GB/T 8170 Rules of rounding off for numerical values & expression and judgement of limiting values

GB/T 9265 Determination for alkali resistance of film of - Architectural paints and coatings

GB/T 9268-2008 Determination of freeze-thaw resistance of latex and emulsion paints

GB/T 9271 Paints and varnishes standard panels for testing

GB/T 9278 Temperature and humidity for conditioning and testing of paint specimens

GB/T 9750 Marks for package of coating products

GB/T 13491 General rule for packing of coatings

JC/T 412.1-2006 Fiber cement flat sheets - Part 1: Non-asbestos fiber cement flat sheets

JG/T 24-2001 Sand textured building coating based on synthetic resin emulsion

JG/T 25-1999 Determination for freeze-thaw resistance of film of building coatings

JGJ 52 Standard for technical requirements and test method of sand and crushed stone (or gravel) for ordinary concrete

# 3 Terms and definitions

The following terms and definitions apply to this standard.

**3.1**

**Putty for exterior wall**

Before the finishing work, the surface treatment material of the base layer which is applied to the exterior wall of the building, for the main purposes of leveling and cracking resistance.

**3.2**

**Dynamic resistance to cracking**

The ability of the surface material to resist crack propagation in the base layer.

**3.3**

**Thinly-applied putty**

An exterior wall putty which has a single-pass thickness of less than or equal to 1.5 mm.

**3.4**

**Thick-applied putty**

An exterior wall putty which has a single-pass thickness of more than 1.5 mm.

# 4 Classification and marking

## 4.1 Category

It is classified into three categories by the putty film flexibility or the dynamic resistance to cracking:

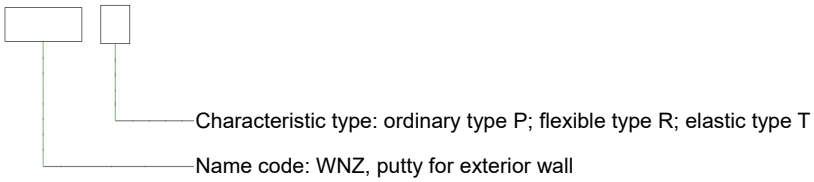
Ordinary type - Ordinary putty for exterior wall of building, which is suitable for the finishing work for the exterior wall of ordinary building (not suitable for the finishing work for the external thermal insulation of exterior wall).

Flexible type - Flexible putty for exterior wall of building, which is suitable for the finishing work for the ordinary exterior wall and the external thermal insulation of exterior wall of building which has the requirements for resistance to cracking.

Elastic type - Elastic putty for the exterior wall of building, which is suitable for the finishing work for the exterior wall of building which has higher requirements for resistance to cracking.

## 4.2 Marking

The model of putty for the exterior wall consists of the name code and the characteristic code.




## 4.3 Examples of marking

Example 1: Ordinary putty for exterior wall, WNZ P

Example 2: Flexible putty for exterior wall, WNZ R

Example 3: Elastic putty for exterior wall, WNZ T

# 5 Requirements

Technical indicators shall meet the requirements of Table 1.

same method to apply the second pass of specimen, about 1 mm thickness, check again whether there is barrier during coating work. When all the coating is flat and free from pinholes or curling, it is considered to be “barrier-free during coating”.

### 6.7 Drying time

It is performed in accordance with the provisions of the method B in GB/T 1728.

### 6.8 Initial resistance to dry cracking

It is performed in accordance with the method in clause 6.8 of JG/T 24-2001.

### 6.9 Rubbing property

After the board is dried in the standard environment for 1 d, use the No.0 (120 mesh) dry abrasive paper to hand-rub the putty coating. If the powder can be rubbed down, the rubbing property is considered to be qualified; otherwise, the rubbing property is considered disqualified.

### 6.10 Water absorption

The test method for the water absorption shall comply with the provisions of Appendix A.

### 6.11 Alkali resistance

It is performed in accordance with the provisions of GB/T 9265. If two of the three test plates have no foaming, cracking or powder drop, it is considered to be “no abnormality after 48 h of alkali resistance”.

### 6.12 Water resistance

It is performed in accordance with the provisions of GB/T 1733. If two of the three test plates have no foaming, cracking or powder drop, it is considered to be “no abnormality after 96 h of water resistance”.

### 6.13 Bond strength

#### 6.13.1 Preparation of test blocks

**6.13.1.1** Carefully select the 70 mm x 70 mm x 20 mm mortar block which is prepared in accordance with clause 6.3.2. The forming surface of the test block shall be flat, without pits, holes, missing corners or missing edges.

**6.13.1.2** Use the No.0 dry abrasive paper to rub the forming surface flat of the test block, to remove the surface dust.

#### 6.13.2 Bond strength under standard status

### 6.14 Putty film flexibility

The preparation and curing of the template shall be carried out in accordance with clause 6.4.1. Before the test, use the No.320 ~ 500 sandpaper to rub the putty film. After rubbing, the dry film thickness of the putty shall be within the range of 0.80 mm ~ 1.00 mm. The test shall be carried out in accordance with the provisions of GB/T 1748.

### 6.15 Dynamic resistance to cracking

Dynamic resistance to cracking shall comply with the provisions of Appendix B.

### 6.16 Storage stability at low-temperature

It is performed in accordance with the method A of GB/T 9268-2008.

## 7 Inspection rules

### 7.1 Inspection classification

Product inspection is divided into exit-factory inspection and type inspection.

**7.1.1** The exit-factory inspection items include: status in the container, workability, drying time, rubbing property, initial resistance to dry cracking.

**7.1.2** Type inspection items include all technical requirements listed in this standard.

**7.1.2.1** Under normal production conditions, the type inspection item is inspected once a year.

**7.1.2.2** Type inspection shall be carried out in one of the following cases:

a) When the trial production of new product is finalized;

b) When there are major changes in the use amount of main raw materials or the production process;

c) When the production is restored after suspension for more than half a year;

d) When the national quality technical supervision agency proposes a type inspection.

### 7.2 Determination of test results

**7.2.1** The determination of the results of the single test shall be carried out in accordance with the numerical rounding rules in GB/T 8170.

# Appendix A

## (Normative)

### Test method of water absorption

**A.1 Test environment**

It is performed in accordance with the provisions of GB/T 9278: temperature 23 °C ± 2 °C, relative humidity 50% ± 5%.

**A.2 Test equipment**

**A.2.1** Balance: accuracy 0.01 g;

**A.2.2** Sink;

**A.2.3** Triangular bracket;

**A.2.4** Medium-speed qualitative filter paper: diameter 12.5 cm;

**A.2.5** Steel ruler: accuracy 1 mm;

**A.2.6** Stopwatch.

**A.3 Test methods**

**A.3.1** Fully apply the specimen onto the 70 mm x 70 mm x 20 mm mortar block as described in clause 6.3.2, control the wet film thickness at 2 mm, make its surface flat and free from air bubble. After curing it in standard environment for 7 d, use the 1:1 mixture of rosin and paraffin to immerse and coat the 4 side surfaces and the bottom surface of the test block, the coating shall be uniform and free from holiday or contamination to putty surface, it shall ensure the length of each side of the test surface is not less than 64 mm, place it in standard environment for 1 d. Prepare 5 blocks of specimens simultaneously from each sample.

**A.3.2 Test procedure**

Use medical gauze to remove the surface ash from the putty layer's surface, weigh the test block's mass $W_0$. As shown in Figure 1, put the test block such that the putty surface faces downwards, hold it on two triangular brackets in the sink, let the bracket be in linear contact to the putty layer. Maintain the test block horizontally, add distilled water (complying with the grade III water requirements in GB/T 6682), use the gauge to control the test block's immersion-depth at 15 mm. After timekeeping for 10 min, take the test block out of water, use a piece

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