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NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA

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GB/T 14732-2017

Replacing GB/T 14732-2006

**Wood adhesives: urea-formaldehyde, phenol-
formaldehyde and melamine-formaldehyde resins**

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China.**

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Foreword

This Standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB/T 14732-2006 "Wood adhesives: Urea formaldehyde, phenol formaldehyde and melamine formaldehyde resins". Compared with GB/T 14732-2006, the main differences are as follows:

- Modified the term "urea-melamine formaldehyde resin". (see 3.8);
- Modified the free formaldehyde content indicator of urea-formaldehyde resins for cold pressing (see chapter 5, Table 1);
- Added the technical indicators of impregnation peel strength (see chapter 5, Table 1);
- Modified the free phenol content indicator of phenol-formaldehyde resin (see chapter 5, Table 2);
- Added "Conduct the formaldehyde emission test according to the specifications. Test immediately after 7 d placement of the specimen after preparation " in the test method.(see chapter 6);
- Modified the contents of the type inspection from "including all" to "selecting all the items in Table 1, Table 2 or Table 3 according to the type of the product" and added the timing of the type inspection (see 7.1.2);
- Deleted of the content of timing of the type inspection (see chapter 7);
- Modified the contents of the packing marks (see 8.1.1 and 8.1.2).

Please note that some of the contents of this document may be patented. The publisher of this document shall not be responsible for the identification of these patents.

This Standard was proposed by the State Forestry Administration.

This Standard shall be under the jurisdiction of the National Technical Committee of the Standardization of Wood-based panels (SAC/TC 198).

Drafting organizations of this Standard: South China Agricultural University, Guangzhou Chang'an adhesive manufacturing Co., Ltd., Guangzhou Haohanghao Decoration Material Manufacturing Co., Ltd., Linyi Xinyan Chemical Co., Ltd.,

Wood adhesives: urea-formaldehyde, phenol-formaldehyde and melamine-formaldehyde resins

1 Scope

This Standard specifies the terms and definitions, classification, requirements, test methods, inspection rules, marks, packaging, transportation and storage of urea-formaldehyde, phenol-formaldehyde and melamine-formaldehyde resins for wood adhesives.

This Standard is applicable to all kinds of wood adhesives and synthetic resins for impregnation synthesized by condensation polymerization with formaldehyde and urea or phenol and melamine as the main raw materials. It also applies to synthetic resin of polycondensation from the substitution of melamine and phenol, urea or using resorcinol to replace part of phenol.

This Standard is not applicable to emulsion phenolic resin.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 4897-2015 Particleboard

GB/T 5849-2006 Blockboard

GB/T 9846-2015 Plywood for general use

GB/T 11718-2009 Medium density fibreboard

GB/T 14074-2017 Testing methods for wood adhesives and their resins

GB 18580 Indoor decorating and refurbishing materials. Limit of formaldehyde emission of wood-based panels and finishing products

3 Terms and definitions

The following terms and definitions apply to this document.

with the shear stress, and the resulting viscosity is called the apparent viscosity under the corresponding shear.

Note 2: The unit is milli-Pa second (mPa·s).

3.11 Solids content

Under specified test conditions, percentage of the mass of non-volatile substances in the total mass of the resin (or adhesive).

Note: solid content is also called conventional solid content.

3.12 pH value

The negative logarithm of hydrogen ion concentration in solution.

Note: the pH value indicates the acidity or alkalinity of the substance and the extent to which it is strong or weak.

3.13 Water miscibility; miscibility with water

Under the specified test conditions, when the micro-insoluble resin appears in the water, the ratio of the water mass to the resin mass. It is expressed in multiple.

3.14 Free formaldehyde content

The percentage of the mass of formaldehyde existing in a free state such as formaldehyde, formaldehyde hydrate etc., in polycondensation resin accounts for the total mass of the resin.

3.15 Free phenol content

The percentage of the mass of phenols in phenol-formaldehyde resin that did not take part in reaction accounts for the total mass of the resins.

3.16 Brominable substance content

The percentage of the mass of phenol converted from the mass of brominable active groups in the phenolic resin to the total mass of the resin.

3.17 Hydroxymethyl group content; methylol content

The percentage of the mass of the active group in the form of hydroxymethyl (-CH₂OH) in the resin accounts for the total mass of the resin.

3.18 Pot life; working life

The longest period of time for the prepared adhesive or active resin to maintain its

3.29 Impregnating

The process of infiltrating resin or adhesives into porous materials (such as textiles, paper, wood, etc.).

3.30 Internal bond strength

The ratio of the maximum tensile force to destroy the test piece perpendicular to the piece surface to the material area of the test piece.

4 Classification

4.1 By main synthetic raw materials:

- Urea-formaldehyde resin;
- Phenol-formaldehyde resin;
- Melamine formaldehyde resin.

4.2 By adhered unit:

- Veneer types, such as plywood and blockboard;
- Fibres, such as medium density fibreboard;
- Shavings, such as particleboard.

4.3 By process of the resin:

- Hot-pressing resins;
- Cold-pressing resin.

4.4 By function of the resin:

- Adhesive resin;
- Impregnating resin.

5 Requirements

5.1 For technical requirements of urea-formaldehyde resin, melamine modified urea-formaldehyde resin see Table 1.

representativeness. The number of samples drawn from each unit shall be basically the same. The total number of samples shall be no less than the amount required for three tests. If retaining samples is required, the amount of samples to be retained shall be added.

7.4 Determination of results

7.4.1 If all properties of factory inspection meet the requirements of this type of resin, the resin is qualified. If any one of the indicators does not meet the requirements, the resin is unqualified.

If all the properties of type inspection meet the requirements of this type of resin, the resin is qualified. If any one of the indicators does not meet the requirements, the resin is unqualified.

7.4.2 If the Buyer requires inspecting the product dispatched in batches, the request shall be put forward within the storage period agreed between the parties and the result shall be determined in accordance with 7.4.1.

8 Marking, packaging, transportation and storage

8.1 Packing marks

8.1.1 The packaging of resin shall indicate the following contents: product name, manufacturer's name, factory location, trademark, quantity(net weight and gross weight), production date or batch number and executed standard number.

8.1.2 Each batch of products shall be provided with a product inspection report, in which the main contents shall include: free formaldehyde content, product executed standard number, signature of inspector, factory stamp or inspection department stamp.

8.2 Packaging

The resin shall be packed in a sealed container that meets the quality requirements.

8.3 Transport and storage

8.3.1 Before storage and transportation of the product, verify that the packaging is intact and does not leak.

8.3.2 Handle gently during transportation, loading and unloading.

8.3.3 Containers containing resin shall be stored in a dry and ventilated place. The storage temperature of urea-formaldehyde resin and phenolic resin is 10°C ~ 30°C.

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