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

LY/T 3133-2019

**Water-based coating for exterior wood
(English Translation)**

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Foreword

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

This standard was proposed and managed by the National Timber Standardization Technical Committee (SAC/TC 41).

This standard was drafted. Institute of Wood Industry, Chinese Academy of Forestry, National Quality Supervision and Inspection Center of Wood-based Panels and Wood and Bamboo Products, National Coatings Product Quality Supervision and Inspection Center (Guangdong), Southwest Forestry University, Northeast Forestry University, Dongguan City, Guangdong Province Center, School of Applied Chemical Technology, Shunde Vocational and Technical College, PPG Coatings (Tianjin) Co., Ltd., Hebei Chenyang Industry and Trade Group Co., Ltd., Jiabaoli Chemical Group Co., Ltd., Qingdao Zhanchen New Materials Co., Ltd., Sankeshu Coating Co., Ltd., Shanghai Banbaihe Coatings Co., Ltd., Qingdao Xingguo Coating Co., Ltd., Dongguan Jiamei Environmental Coating Co., Ltd., Umitech (Beijing) Environmental Material Technology Co., Ltd.

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1 Scope

This standard specifies the terms and definitions, classification, requirements, inspection methods, inspection rules, signs, and packaging of waterborne wood coatings for outdoor use.

Loading, storage and transportation.

This standard applies to outdoor wood coatings.

2 Normative references

The following documents are essential for the application of this document. For dated references, only the dated version applies to this document.

For undated references, the latest version (including all amendments) applies to this document.

GB/T 1724-1979 Coating fineness determination method GB/T 1725-2007 Determination of nonvolatile matter in paints, varnishes and plastics GB/T 1728-1979 Determination of drying time of paint film and putty film GB/T 1748-1979 Putty film flexibility test method GB/T 3186 Sampling of raw materials for paints, varnishes and paints and varnishes GB/T 4893.1-2005 Furniture surface cold water resistance method GB/T 4893.4-2013 Furniture surface paint film physical and chemical properties test Part 4. Cross-cut determination method for adhesion GB/T 6682-2008 Analytical laboratory water specifications and test methods GB/T 9268-2008 Determination of freeze-thaw resistance of latex paint GB/T 9271 Paint and Varnish Standard Test Panel GB/T 9278 Temperature and humidity of paint sample condition adjustment and test GB/T 9750 Coating Product Packaging Mark GB/T 9754-2007 Paints and varnishes. Determination of 20 °, 60 ° and 85 ° specular gloss of paint films without metallic pigments.

GB/T 13452.2-2008 Determination of film thickness of paints and varnishes GB/T 13491 General rules for packaging of coating products GB/T 23982-2009 Method for determination of blocking resistance of wood coatings GB/T 23983-2009 Determination of yellowing resistance of wood coatings GB 24410 Limit of harmful substances in waterborne wood coatings for interior decoration materials GB/T 33568-2017 Weathering grade and evaluation method for outdoor wood finishing surface JG/T 25-2017 Test method for temperature resistance of architectural coatings LY/T xxxx -201 x Artificial aging test method for outdoor wood coatings (request for approval, item number..2014-LY -077)

3 Terms and definitions

The following terms and definitions apply to this document.

Water-based wood coating Water is used as a dispersion medium, and it is used for the decoration and protection of the surface of wooden substrates.

Water-based coating for exterior wood Waterborne wood coating for outdoor wood finishing.

4 Classification

4.1

By appearance

a) colored paint;

- b) transparent (color) paint;
- c) varnish.

4.2 According to coating structure

- a) primer;
- a) intermediate paint;
- b) Topcoat.

4.3 According to artificial aging performance

- a) Type I. The artificial aging test is exposed for 12 weeks;
- b) Type II. Artificial aging test exposure time is 6 weeks.

4.4 By Application

- a) Class A. It is suitable for painting on the surface of woodware (such as wooden doors and windows, garden furniture) that allows small changes in size;
- b) Class B. Suitable for coating on woodware that allows a partial change in size (such as sound-absorbing barriers, wooden frames, cladding with tongue and groove splicing) surface;
- c) Category C. Suitable for painting on the surface of wooden utensils (such as fences, garden sheds, rain sheds, overlapped cladding) that do not require dimensional changes.

5.1 General performance requirements

General performance should meet the requirements of Table 1.

Table 1 General performance requirements

Inspection items. top coat, top coat Stir-free in the container Fineness/ μm ≤ 35
 ≤ 40 -Non-volatile matter /% varnish and transparent color paint ≥ 30 ; color paint
 ≥ 40 -Storage stability [$(50 \pm 3) ^\circ\text{C}$, 7 d] No abnormality Freeze-thaw resistance does not
deteriorate the appearance of the coating film is normal--Gloss (60°) Agreed--Adhesion (2
mm grid spacing)/level ≤ 1 Anti-blocking property [500 g, $(50 \pm 2) ^\circ\text{C}/4$ h] (Only factory
production time test) MM. A-0 MB. A-0

Drying time

Surface dry/min ≤ 60 Hard dry/h single component ≤ 6 ; two components ≤ 24 Water
resistance (room temperature, 96 h) No abnormality--Alkali resistance (50 g/L NaHCO_3 , 1
h) No abnormality--Temperature resistance a) No abnormality-Flexibility a) 50 mm diameter
without cracks-Coating resistance to yellowing (168 h, ΔE^*) (Limited to products with