GB

NATIONAL STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

ICS 79.080
B 70

GB/T 18103-2013

Replacing GB/T 18103-2000

Engineered wood flooring

实木复合地板

Issued on: December 31, 2013 **Implemented on: June 22, 2014**

Issued by: General Administration of Quality Supervision, Inspection and Quarantine;

Standardization Administration Committee.

Table of Contents

Foreword

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

This Standard replaces GB/T 18103-2000 “Engineered wood flooring”. Compared with GB/T 18103-2000, the main technical changes are as follows:

- Modify the definition of engineered wood flooring (3.1 of this edition; 3.1 of edition 2000);
- Modify the classification of engineered wood flooring; delete the classification by formaldehyde emission (Clause 4 of this edition; Clause 4 of edition 2000);
- Modify the requirements for layer material of engineered wood flooring (5.2 of this edition; 5.2 of edition 2000);
- Modify the requirements for appearance qualify of engineered wood flooring and inspection methods (5.3 and 6.1 of this edition; 5.3 and 6.2 of edition 2000);
- Modify the size and size deviation of engineered wood flooring (5.4 of this edition; 5.4 of edition 2000);
- Modify the surface abrasion and formaldehyde emission indicators (5.5, 6.3.7 and 6.3.9 of this edition; 5.5.5, 5.5.7, 6.3.6 and 6.3.8 of edition 2000);
- Add paint film hardness index and test methods (5.5 and 6.3.6 of this edition).

This Standard was proposed by State Forestry Administration.

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

The drafting organizations of this Standard: Research Institute of Wood Industry, Chinese Academy of Forestry, Power Dekor Group, Kunshan Yingyi Nature Wood Industry Co., Ltd., Baroque Timber Industries (Zhongshan) Co. Ltd., Guangdong Yihua Timber Industry Co., Ltd., Zhejiang Shiyou Timber Co., Ltd., Treesun Flooring Co., Ltd., Zhejiang Fudeli Timber Industry Co., Ltd., Zhejiang Shenghua Yunfeng Greeneo Co., Ltd., Anhui Yangzi Flooring Incorporated Company, Zhejiang Biyork Wood Co., Ltd., Anxin Floor (Shanghai) Wood Co., Ltd., Der International Home Furnishing Co., Ltd., Guangdong Fu Lin Timber Technology Limited, Suzhou David Wood Industry Co., Ltd., Beijing Ruijia Ouya Timber Industry Co., Ltd., Arte Mundi (Shanghai) New Material Technology Co., Ltd., Zhejiang Yuhua Timber Co., Ltd., Jiangsu Kentier Wood Co., Ltd.,

Engineered wood flooring

1 Scope

This Standard specifies the terms and definitions, classification, requirements, inspection methods, inspection rules, mark, package, transport and storage of engineered wood flooring.

This Standard is applicable to the flooring that takes solid wood board or veneer (including recombinant decorative veneer) as panel; taking solid wood board, veneer or plywood as core layer or bottom layer; and is processed and laminated by different combinations of layers. This Standard is applicable to engineered wood flooring that complies with general requirements for indoor use.

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 2828.1-2012 Sampling procedures for inspection by attributes - Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection

GB/T 4823-1995 Defects in sawn timber

GB/T 4893.4-1985 Test of surface coatings of furniture - Part 4: Determination of adhesion - Cross cut

GB/T 6739-2006 Paints and varnishes - Determination of film hardness by pencil test

GB/T 15036.2-2009 Solid wood flooring - Part 2: Examination methods

GB/T 17657-1999 Test methods of evaluating the properties of wood-based panels and surface decorated wood-based panels

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

LY/T 1654-2006 Reconstituted decorative veneer

LY/T 1738 Plywood for solid wood composite flooring

3 Terms and definitions

The ones defined in GB/T 4823-1995 as well as the following terms and definitions are applicable to this Standard. For ease of use, the following terms and definitions in GB/T 4823-1995 are repeatedly listed out.

3.1 Engineered wood flooring

The flooring that takes solid wood board or veneer (including recombinant decorative veneer) as panel; taking solid wood board, veneer or plywood as core layer or bottom layer; and is processed and laminated by different combinations of layers. The names of flooring species are determined by panel species (except the parquet of which the panel is made of different species).

3.2 Two-layer engineered wood flooring

Two-layer engineered wood flooring that takes solid wood board or veneer as panel, solid wood board or veneer as bottom layer.

3.3 Three-layer engineered wood flooring

Three-layer engineered wood flooring that takes solid wood board or veneer as panel, solid wood board as core layer, and veneer as bottom layer.

3.4 Multi-layer engineered wood flooring

The engineered wood flooring that takes solid wood board or veneer as panel, and plywood as base material.

3.5 Decay

Due to invasion of rot fungi, it gradually changes wood colour and cell structure to make wood cells subject to different degrees of damage, which results in significant change in wood physical and mechanical properties. Finally, it makes wood soft and friable; and appears sieve-like, fibrous, block split and powdered, etc.

Note: Rewrite the definition of 3.3 in GB/T 4823-1995.

3.6 Bore hole

The wood hole that is decayed by insects or marine boring animals.

[Definition of 3.4 in GB/T 4823-1995]

3.7 Fungus stain

Discoloration of wood due to erosion caused by fungus.

[Definition of 3.2.2 in GB/T 4823-1995]

3.8 Staining

Colour difference between part of surface colour and natural colour due to the influence of other substances.

3.9 Gap

Gap between adjacent wood blocks and veneers.

3.10 Cutted and chatter mark

Cutted and chatter mark of which the shape and the size are similar and regular left on the machined surface during cutting or sanding.

3.11 Exposed undercoat

There is no local paint film.

3.12 Blister

Bubbles of different sizes on the paint film surface.

3.13 Pin holes

Holes produced by shrinkage during drying process of paint film.

3.14 Wrinkling

Wrinkling on the surface made by paint film shrinkage.

3.15 Nib

Particulate debris adhered to paint film surface.

3.16 Abrasion resistance

Indicator of paint film's abrasive resistance on the surface of engineered wood flooring that is represented by paint film's abrasion loss after the grinding wheel of adherent abrasive cloth relatively rubs with paint film surface for certain numbers of revolutions.

3.17 Size of the surface layer

The length and width of surface layer of engineered wood flooring, excluding

tongue.

4 Classification

4.1 Classified by panel material:

- The engineered wood flooring of which the panel is natural whole-sheet veneer;
- The engineered wood flooring of which the panel is natural splicing veneer (including parquet);
- The engineered wood flooring of which the panel is reconstituted decorative veneer;
- The engineered wood flooring of which the panel is coloured veneer.

4.2 Classified by structure:

- Two-layer engineered wood flooring;
- Three-layer engineered wood flooring;
- Multi-layer engineered wood flooring.

4.3 Classified by coating mode:

- Oil finishing engineered wood flooring;
- Paint finishing engineered wood flooring;
- Unfinished engineered wood flooring.

5 Requirements

5.1 Grading

According to the appearance quality, the products are divided into superior products, first-class products and qualified products.

5.2 Material requirements

5.2.1 Panel

5.2.1.1 Panel species: oak, walnut wood, cherry wood, ash tree, birch, maple, catalpa, teak wood, cylindrical Africa Melia and other common species. The panel of parquet allows to use different species.

5.5 Physiochemical properties

Physiochemical properties shall comply with the requirements in Table 3.

Table 3 Requirements for physiochemical properties

Inspection item	Unit	Requirements
Impregnated peel	-	The cumulative length of any of either side of a plastic layer does not exceed 1/3 of the length of the layer. It shall be defined as qualified when 5 out of 6 specimens are qualified.
Static bending strength	MPa	≥ 30
Modulus of elasticity	MPa	≥ 4000
Moisture content	%	5 ~ 14
Adhesion of paint film	-	Peeling paints are allowed at cut marks at the intersection. A small amount of intermittent peelings are allowed on paint film along the cut marks.
Abrasion resistance of surface	g / 100 r	≤ 0.15 and paint film is not worn through.
Hardness of paint film	-	≥ 2H
Staining resistance of surface	-	No trace of stain
Formaldehyde emission	-	Comply with requirements in GB 18580

Note 1: For unpainted engineered wood flooring and oil finished engineered wood flooring, the adhesion of paint film, surface's abrasion resistance, hardness of paint film, and surface's staining resistance are exempted from testing.

Note 2: When using floating paving, the static bending strength and modulus of elasticity FOR two-layer engineered wood flooring of which the panel is perpendicular to the bottom layer texture AND the engineered wood flooring of which a lateral groove is in the back ARE exempted from testing.

6 Inspection methods

6.1 Appearance quality

6.1.1 Inspection and measuring tools

6.1.1.1 6X reading magnifying glass.

6.1.1.2 Steel ruler of which the division value is 0.5 mm.

6.1.2 Inspection and measuring methods

6.1.2.1 Adopt visual observation, inspection and measuring tools to successively inspect and measure the appearance quality of flooring surface.

6.1.2.2 When adopting visual observation, it shall be conducted under natural

Formaldehyde emission	Prepare at any part of rest samples according to the provisions in GB 18580.

6.3.2 Impregnated peel

6.3.2.1 Principle

After the test piece is immersed and dried, whether the adhesive layer is peeled off or not.

6.3.2.2 Instruments and measuring tools

a) Constant temperature water bath: adjustable temperature range is 30°C ~ 100°C; accuracy is ± 3°C;

b) Air convection oven: the temperature can be adjusted to 63°C± 3°C;

c) Steel ruler: division value is 0.5 mm.

6.3.2.3 Test method

Immerse the test piece in 70°C± 3°C hot water for 2h. Take it out and place it in 60°C± 3°C drying oven for 3h. When immersing the test piece, it shall be completely immersed in the water.

6.3.2.4 Calculation and presentation of test results

a) Carefully observe the adhesive layer to see if there is peeling and delamination;

b) Use steel ruler to respectively measure the length of peeling part of each adhesive layer on each side of test piece. If the peeling part of any adhesive layer is divided into several sections, it shall cumulatively sum the lengths (disregard if each section is less than 3 mm), accurate to 1 mm.

c) It shall not be regarded as peeling if the peeling part is caused by timber defects, such as cracking, knot, etc. during measuring.

6.3.3 Moisture content

6.3.3.1 The determination of engineered wood flooring's moisture content is conducted according to the provisions in 4.3 of GB/T 17657-1999. Test four test pieces. The moisture content of sample for testing is the arithmetic average value of four test pieces' moisture content, accurate to 0.1%.

6.3.4 Static bending strength and modulus of elasticity

6.3.9 Formaldehyde emission

Conduct according to the provisions in GB 18580.

7 Inspection rules

7.1 Inspection classification

7.1.1 Product inspection is divided into factory inspection and type inspection.

7.1.2 Factory inspection items include:

a) Appearance quality;

b) Size;

c) Moisture content, impregnated peel and formaldehyde emission in physiochemical properties.

7.1.3 Type inspection includes all test items.

7.1.4 In normal production, conduct type inspection at least once a year. Under one of the following conditions, type inspection shall be carried out:

a) When significant changes take place in raw and auxiliary materials, production;

b) When production is resumed after it is discontinued for a long time;

c) When quality supervision agency requests for type inspection.

7.2 Sampling and determining methods

7.2.1 Basic requirements

For product quality inspection of engineered wood flooring, the sampling shall be conducted among products of same batch, same size and same category. Successively inspect the samples. Count samples by piece.

7.2.2 Appearance quality

7.2.2.1 Adopt the normal inspection secondary sampling - “General inspection level II” and “Acceptance quality limit (AQL) is 4” of GB/T 2828.1-2012. Sampling scheme is shown in Table 5.

modulus of elasticity of this flooring shall be determined as qualified; otherwise, it shall be determined as unqualified.

7.2.4.2.2 When flooring sample's average value of static bending strength meets standard requirements and the minimum value is not less than 80% of the standard value, then the static bending strength of this flooring sample shall be determined as qualified; otherwise, it shall be determined as unqualified.

7.2.4.2.3 When flooring sample's impregnated peel, adhesion of paint film, abrasion resistance, resistance to surface staining, hardness of paint film and formaldehyde emission all meet standard requirements, then those properties of this flooring sample shall be determined as qualified; otherwise, it shall be determined as unqualified.

7.3 Comprehensive determination

When sample's appearance quality, size, physiochemical properties inspection results all meet requirements of corresponding grade, then this batch of products shall be determined as qualified; otherwise, it shall be unqualified.

7.4 Inspection report

Inspection report shall include:

a) Name, category and grade of product for inspection, inspection standard, inspection category, inspection item, etc.;

b) Inspection result and conclusion;

c) Various anomalies that occur during inspection AND problems that need to be explained.

8 Mark, package, transport and storage

8.1 Mark

8.1.1 Product mark

Before product storage, traceable information of product shall be marked in the appropriate parts of the product.

8.1.2 Package label

On the package label, there shall have manufacturer's name, address, contact information; product name, implementation standard number, production date, panel species (except the engineered wood flooring of which the panel is parquet or recombinant decorative veneer), panel thickness, quantity, grade,

etc.

8.2 Package

When products leave the factory, they shall be respectively packed according to product category, size and grade. Product certificate shall be included in the package. Keep the package from bumping, scratching and staining. Package requirements can be agreed by both parties.

8.3 Transport and storage

Products shall be properly stacked during transport and storage; it shall be kept from staining, moisture, rain and strong sunlight. During storage, respectively stack products according to category, size and grade. Each group shall have a corresponding mark.

_____ END _____

This is an excerpt of the PDF (Some pages are marked off intentionally)

------ The End ------