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

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**Test specification stability for dimensional of wood and wood
based materials under moisture adsorption
(English Translation)**

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Table of Contents

Foreword
1 Scope
2 Normative references
3 Terms and definitions
4 Equipment
5 Sample production
5.1 Wood sample
5.2 Wood product samples
5.3 Wood-based material sample
6 Test method
7 Result calculation
8 Results presentation

Foreword

This document starts from the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1: Structure and Drafting Rules of Standardization Documents" grass.

1 Scope

This document specifies the terms and definitions, samples, test methods, and calculation methods for the moisture absorption dimensional stability of wood and wood-based materials.

This document applies to the equilibrium moisture content and the dimensional change rate in the length direction, width direction and thickness direction of wood and wood-based materials when they absorb moisture.

Determination. Modified wood and wood products can be implemented with reference to this standard.

2 Normative references

The contents of the following documents constitute the indispensable clauses of this document through normative references in the text. Among them, all dated quotations Only the version corresponding to that date is applicable to this document. For undated references, the latest version (including all amendments) is applicable to this document.

GB/T 1928-2009 General rules for wood physical and mechanical test methods GB/T 1931-2009 Method for determination of wood moisture content GB/T 1934.2-2009 Method for determination of wood swelling GB/T 35913-2018 Technical requirements for solid wood flooring for floor heating GB/T 17657 Test method for physical and chemical properties of wood-based panels and facing wood-based panels LY/T 1788 Terminology of wood properties

3 Terms and definitions

The following terms and definitions defined in LY/T 1788 and GB/T 17657 apply to this document.

Wood based materials Using wood as the main raw material, processing into various material units, applying (or not applying) adhesives and other additives, made panels or products Type products. Mainly include plywood, particle board, fiberboard, etc.

Adsorption equilibrium moisture content Dry wood or wood-based materials absorb moisture in a certain temperature and relative humidity environment, and reach the moisture content in a stable state.

Dimensional change of wood moisture absorption the percentage increase in size of wood or wood-based materials due to an increase in moisture content.

Hygroscopic expansion coefficient the average moisture absorption dimensional change rate for every 1% increase in moisture content of wood or wood-based materials.

4 Equipment

4.1

Dimension measuring tools. length measuring instruments such as vernier calipers, spiral micrometers, etc., with an accuracy of not less than 0.02mm.

4.2

Quality measurement tool. balance, accuracy not less than 0.01g.

4.3

Constant temperature and humidity box. allowable deviation of temperature $\pm 1^{\circ}\text{C}$; allowable deviation of humidity $\pm 3\%$.

4.4

Electric heating blast drying oven. the temperature range is not less than 150°C , and the allowable deviation is $\pm 1^{\circ}\text{C}$.

4.5

Glass dryer and weighing bottle.

5.1 Wood sample

The method of making wood samples shall be implemented in accordance with the provisions of GB/T 1934.2-2009. The sample is a cuboid, its chord direction (T), radial direction (R) and along the grain direction (L) size are not less than 20 mm.

The measuring line and measuring point should be marked in the center of the measuring surface. The center line should be parallel to the chord direction and the radial side of the specimen (as shown in Figure 1).

The end of the line is used as the reference point for dimension measurement in the chord, radial, and along-grain directions.

Figure 1 Schematic diagram of wood sample and its measurement reference point (unit: mm)

5.2 Wood product samples

The preparation method and size of wood product samples shall be implemented in accordance with the provisions of 6.2.1 in GB T 35913-2018. The sample is 200 mmx60 A rectangular parallelepiped of mmxH mm (lengthxwidthxthickness) (as shown in Figure 2), the length direction is along the grain direction, and the thickness is the natural thickness of the sheet.

The measuring line and measuring point should be marked in the center of the measuring surface. The center line should be parallel to the length and width sides of the sample (as shown in Figure 2), as a reference the end of the line serves as a reference point for length, width, and thickness measurement.

Figure 2 Schematic diagram of wood product sample and its measurement reference point (unit mm)

5.3 Wood-based material sample

The preparation of wood-based material samples shall be carried out in accordance with the provisions of 4.3 in GB/T 17657. The size of the sample is not less than 120 mmx120 mmx H mm (lengthxwidthxthickness) cuboid, the thickness is the natural thickness of the wood-based material.

The marking method of measuring line and measuring point is the same as 5.2.

6 Test method

6.1

The moisture content determination of wood samples, wood product samples and wood-based material samples shall be carried out in accordance with the test procedures specified in GB/T 1931-2009. ruler the measurement of length less than 3mm requires the use of a spiral micrometer.

6.2

Dry the sample to a moisture content within 10%, then move it to a constant temperature and humidity environment with a temperature of 20°C and a relative humidity of 65%, and place it in Constant quality. Measure the mass and the length of the reference line when the sample is dry and when it reaches a constant weight at a temperature of 20°C and a relative humidity of 65%.

The width and thickness of the reference point.

6.3

Move the sample that has completed the test in 6.2 to a constant temperature and humidity environment with a temperature of $(40 \pm 1)^{\circ}\text{C}$ and a relative humidity of $(90 \pm 3)\%$ to constant quality. Measure the mass when reaching a constant weight and the length and width of the reference line and the thickness of the reference point.

6.4

The samples that have completed the moisture absorption test in 6.3 are moved to a blast drying oven at a temperature of $(103 \pm 1)^{\circ}\text{C}$ and dried to a constant weight. Measurement Determine the quality of the sample when it reaches a constant weight and the length and width of the reference line and the thickness of the reference point.

6.5

The weighing and size measurement in 6.2, 6.3 and 6.4 must be carried out in the temperature and humidity environment set by humidity treatment and drying, or it should be completed within 5 minutes after taking it out of the constant temperature and humidity box or drying box (apparatus).

6.6

The method for determining the constant quality of the moisture absorption process is that the difference in the mass of the sample obtained from the two weighings at an interval of 24 hours does not exceed the mass of the test piece.

0.1%. The method for determining the constant quality of the drying process is that the difference in the mass of the sample obtained from two weighings separated by 2 hours does not exceed 0.1% of the mass of the test piece.