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FORESTRY STANDARD

OF THE PEOPLE'S REPUBLIC OF CHINA

ICS 79.060.20

B 70

LY/T 1580-2010

Replacing LY/T 1580-2000

Oriented strand board

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Issued on: February 09, 2010

Implemented on: June 01, 2010

Issued by: State Forestry Administration

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Foreword

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

This standard is the revision of the LY/T 1580-2000 "Oriented strand board". As compared with LY/T 1580-2000, the main technical changes of this standard are as follows:

- MODIFY the definition of oriented strand board;
- MODIFY formaldehyde emission test methods and limited value;
- ADD the physical and mechanical property requirements for the two series products with the loaded OSB thickness > 25 mm, < 32mm and 32 mm ~ 40 mm;
- INCLUDE the OSB water resistance under wet conditions into the necessary measured indicators;
- DELETE the Appendix A and Appendix B from the original standard.

This standard, through modification, adopts ISO/FDIS 16894:2009 "Wood-based panels - Oriented strand board (OSB) - Definitions, classification and specifications".

The technical differences between this standard and ISO/FDIS 16894:2009 and the reasons are as follows:

- MODIFY the average density deviation indicator of the board; MAINTAIN the indicators of the original standard;
- ADD the test methods and inspection rules, in order to be consistent with the relevant domestic standards.

This standard was proposed by AND shall be under the jurisdiction of the National Standardization Technical Committee for Wood-based Panel (SAC/TC 198).

The responsible drafting organization of this standard: Nanjing Forestry University.

The participating drafting organizations of this standard: Beixin Building Materials (Group) Co., Ltd., Inner Mongolia Agricultural University, Luli Group Co., Ltd., Hubei Baoyuan Wood Industry Co., Ltd., Daya Wood-based Panel Group Co., Ltd.

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This Standard replaces the standard previously issued as follows:

- LY/T 1580-2000.

Oriented strand board

1 Scope

This standard specifies the classification, requirements, test methods, results calculation and judgment methods, inspection rules and marking, packaging, transportation and storage of oriented strand board.

This standard applies to the multi-layer structured oriented strand board made from the large wood shavings of specified shape and thickness through glue application, oriented paving, and pressing.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this Standard.

GB/T 17657 Test method 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

GB/T 19367 Wood-based panels - Determination of dimensions of panels

3 Terms and definitions

The following terms and definitions apply to this document.

3.1

Oriented strand board, OSB

It refers to the multi-layer structured board made from the large wood shavings of specified shape and thickness through glue application, oriented paving, and hot pressing, with its surface shavings arranged in an oriented manner along the length or width direction of the board.

3.2

Dry condition

It refers to the indoor environment or the outdoor environment with protective measures. It generally refers to the environment condition of the temperature of 20 °C AND the relative humidity of not more than 65% or more than 65% in only a few weeks of a year.

3.3

Humid condition

It refers to the indoor environment or the outdoor environment with protective measures. It generally refers to the environment condition of the temperature of 20 °C AND the relative humidity of more than 65% but less than 85% or otherwise more than 85% in only a few weeks of a year.

4 Classification

Oriented strand board can be divided into four types based on the conditions of use:

OSB/1 - General purpose unloaded board, for interior decoration materials and furniture under dry condition;

OSB/2 - Loaded board, for dry condition;

OSB/3 - Loaded board, for wet condition;

OSB/4 - Heavy loaded board, for wet condition.

5 Requirements

5.1 Basic requirements

When the OSB is exist-factory, the OSB of all types shall comply with the basic performance requirements as listed in Table 1.

Table 1 Basic performance requirements of OSB

No.	Performances		Requirements
1	Dimensional deviation	Thickness (polished), inner-board and inter-board	± 0.3 mm
		Thickness (not polished), inner-board and inter-board	± 0.8 mm
		Length and width	± 3.0 mm
2	Edge non-straightness		1.5 mm/m

CONDUCT it in accordance with the provisions on internal bonding strength of GB/T 17657.

6.3.9 Determination of grip screw force

CONDUCT it in accordance with the provisions on grip screw force of GB/T 17657.

6.3.10 Determination of 24 h water absorption thickness expansion rate

CONDUCT it in accordance with the provisions on 24 h water absorption thickness expansion rate of GB/T 17657.

6.3.11 Determination of static bending strength after cyclic test

After the test specimen is taken out from the constant temperature and humidity box, immediately PLACE it vertically into the water of temperature $20\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ for $72\text{ h} \pm 1\text{ h}$; FREEZE the test specimen in the refrigerator of $-12\text{ }^{\circ}\text{C} \sim -20\text{ }^{\circ}\text{C}$ for $24\text{ h} \pm 0.25\text{ h}$. After freezing, PLACE it into the drying box of $70\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$ to dry it for $72\text{ h} \pm 1\text{ h}$; after three cycles, CONDUCT the static bending strength determination.

6.3.12 Determination of internal bonding strength after cyclic test

Cyclic treatment conditions are same as those in 6.3.11; and CONDUCT the internal bonding strength determination after cyclic treatment.

6.3.13 Determination of internal bonding strength after boiling test

After the test specimen is subjected to mass constant treatment, PLACE it vertically in the boiling water for 2 h; TAKE it out and IMMERSE it in the water of $20\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$ for 1 h; PLACE it into the drying box of $70\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ to dry it for 16 h; TAKE it out and DETERMINE its internal bonding strength.

7 Results calculation and judgment method

7.1 Result calculation

7.1.1 Average value

The average value of a board is the arithmetic average of the test values of n test specimens from this board, which is calculated in accordance with the equation (1):

$$\bar{X} = \frac{1}{n} (X_1 + X_2 + \dots + X_n) = \frac{1}{n} \sum_{i=1}^n X_i \quad \dots\dots\dots (1)$$

b) Specification;

c) Physical and chemical properties: density, moisture content, water absorption thickness expansion rate, internal bonding strength, static bending strength, and free formaldehyde emission.

8.1.2 Type inspection includes all items of the exit-factory inspection, with the following additional items:

- Bending elastic modulus.

8.1.3 A type test shall be carried out in any of the following cases:

a) When the raw and auxiliary materials and production processes have changed greatly;

b) When the production is restored after a long-term production suspension;

c) During normal production, at least four type inspections per year;

d) When the quality supervision institute proposes the type inspection request.

8.2 Specification inspection

The specification shall, in accordance with Table 9, adopt the secondary normal inspection sampling plan, with the inspection level of S-4. USE the AQL=4.0 to conduct inspection against the sample n_1 , and it is accepted when the number of disqualified products $d_1 \leq Ac_1$ AND rejected when $d_1 \geq Re_1$. If $Ac_1 < d_1 < Re_1$, then the sample n_2 will be inspected, and it is accepted when the number of disqualified products $d_1 + d_2 \leq Ac_2$ in the two samples AND rejected when $d_1 + d_2 \geq Re_2$.

The warehousing-in product is stamped with a mark indicating the specification, date of manufacture, and inspector code.

9.2 Packaging

Products shall be respectively packaged based on model and specifications. Each package shall be accompanied with a label indicating the name of the product, the name of the manufacturer, the address of the manufacturer, the reference standard, trademarks, specifications, pieces, moisture proof, and qualification chop.

9.3 Transportation and storage

Products shall, in the transportation and storage process, be avoided of moisture, rain, sun and deformation.

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