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NATIONAL STANDARD

OF THE PEOPLE'S REPUBLIC OF CHINA

GB 18580-2001

Indoor Decorating and Refurbishing Materials - Limit of Formaldehyde Emission of Wood-Based Panels and Finishing Products

Issued on: December 10, 2001 **Implemented on: January 01, 2002**

Issued by: General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China

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Foreword

Chapter 5 of this standard is mandatory. And the rest are voluntary.

This standard was developed by reference to European Standard EN 312-1-1997 "*Particleboards*", EMB/IB-I-II-III-1995 "*Medium Density Fibreboard*" of Technical Committee of European Medium Density Fibreboard Manufacturer Association (EMB), European Standard ENV717-1 "*Wood-based Panels-Determination of Formaldehyde Release-Formaldehyde Emission by the Chamber Method*", Japanese Agricultural Standard JAS MAFF, Notification No.920 "*Ordinary Plywood*", and Japanese Agricultural Standard JAS MAFF Notification No.990 "*Floorboard*".

Products produced by manufacturers shall implement this national standard from January 1, 2002. The transition period is six months. And products not meeting this national standard shall not be sold on the market from July 1, 2002.

This standard was proposed by State Bureau of Forestry.

This standard shall be under jurisdiction of National Technical Committee 41 on Timber of Standardization Administration of China.

Drafting organization of this standard: Research Institute of Wood Industry, Chinese Academy of Forestry.

Participating drafting organizations of this standard: Guangdong Zhaoqing Kanglan Medium Density Board Group, Shanghai Architectural Institute of Science and Technology, Dynea Chemical Industry (Shanghai) Co., Ltd., Global Wood Products Co., Ltd., and Xinxiang Pingyuan Wood-based Panel Plant.

Chief drafting staffs of this standard: Wang Weixin, Yang Fan, Xu Wen, Ma Hong, He Lixian, Li Benchu, Yang Hong, and Lou Minggang.

This standard was issued for the first time.

Indoor Decorating and Refurbishing Materials – Limit of Formaldehyde Emission of Wood-Based Panels and Finishing Products

1 Scope

This standard specifies the index values, test methods and inspection rules of formaldehyde emission of wood-based panels and finishing products (including floorboard and wallboard, etc.) used for indoor decorating and refurbishing.

This standard is applicable to various wood-based panels and finishing products for indoor decorating and refurbishing that release formaldehyde.

2 Normative References

The following standards contain provisions which, through reference in this standard, constitute provisions of this standard. For dated reference, the subsequent amendments (excluding corrigendum) or revisions of these publications do not apply. However, the parties who enter into agreement according to this standard are encouraged to study whether the latest editions of these documents are applicable. For undated references, the latest edition of the normative document is applicable to this standard.

GB/T 17657-1999 "Test Methods of Evaluating the Properties of Wood-based Panels and Surface Decorated Wood-based Panels"

3 Terms and Definitions

The following terms and definitions are applicable to this standard.

3.1

Formaldehyde emission — the perforator test value

The formaldehyde amount extracted from 100g of absolute dry wood-based panels that is determined by perforator method.

3.2

Formaldehyde emission — the desiccator test value

The formaldehyde amount released from the specimen into the absorption solution (distilled water) that is determined by desiccator method.

3.3

Formaldehyde emission — the chamber test value

The formaldehyde amount released from the specimen into the air under the stable state that is determined by the chamber specified in this standard.

3.4

Volume of the chamber

For the air sampling and analysis, firstly connect the air sampling system to the chamber's air outlet. Respectively fill 25ml of distilled water into 2 absorption bottles. Start the air pump. Control the pumping speed at about 2L/min. At least pump out 100L of air every time. Respectively take 10mL of absorption solution from each bottle and transfer it into 50mL volumetric flasks. Add 10mL of diacetone solution and 10mL ammonium acetate solution into each flask. Place the flask in 40°C water bath. Heat for 15min. Then keep the solution at dark place to let it cool down to the room temperature (about 1h). Measure the absorbance with the spectrophotometer set at 412nm. Meanwhile, carry out parallel determination of blank value with 10mL of distilled water, 10mL of diacetone solution and 10mL of ammonium acetate solution. The difference BETWEEN the absorbance test value of absorption solution AND the blank test value is multiplied by the slope of the calibration curve; then it is further multiplied by the volume of absorption solution; that is the formaldehyde amount in each absorption bottle. The formaldehyde amount in 2 absorption bottles is the total formaldehyde amount. The total formaldehyde amount is divided by the volume of air pumped-out, that is the formaldehyde concentration value in per cubic meter of air, expressed in milligrams per cubic meter (mg/m^3). As the air volume displayed on air meter is the air volume that is pumped-out at the test-chamber's temperature, and that is not the air volume at 23°C in chamber, therefore, the air sample volume shall be calibrated to the volume at the standard temperature 23°C in accordance with the gas equation.

The calibration curve for spectrophotometer and the determination of the slope of calibration curve shall be carried out in accordance with 4.11.5.5.2 of GB/T 17657-1999.

7 Inspection Rules

7.1 Inspection classification

Inspection items in this standard are of type inspection.

7.2 Sampling

3 samples specified in the test method shall be randomly sampled from the wood-based panels and finishing products, of the same place, same type and same specifications. And they shall be immediately sealed with such packing materials that it will not release or adsorb formaldehyde before the test. When sampling at manufacturer site, the samples must be taken from the products with quality certificate in the finished products storage. When sampling at distributor site, the samples must be taken from the products with quality certificate at the distribution site or in the distributors' finished products storage. When sampling at the construction or application site, samples must be randomly taken from the same kind of products at the same place.

7.3 Judgement rules and re-inspection rules

Any one sample shall be taken from the three randomly extracted samples to test the formaldehyde emission in accordance with those specified in this standard. If the test result meets the requirements stated in this standard, this product shall be judged as "qualified". If the test result fails to meet the requirements stated in this standard, then the additional 2 samples shall be tested. If the 2 samples meet the requirements, the product shall be judged as "qualified"; if only 1 of 2 meets the requirements or neither one meets the requirements, then the product shall be judged as "unqualified".

7.4 Inspection report

7.4.1 The inspection report shall include product name, specification, type, grade, manufacturing date, and the inspection based standard.

7.4.2 The inspection result, conclusion, and sample's moisture content.

7.4.3 Abnormal conditions appeared during the inspection and other problems that need to be explained.

8 Product Marking

The products shall be marked with product name, product standard number, trademark, manufacturer name, detailed address, origin of the product, product specification, model, grade, and marking of formaldehyde emission limit.

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