

ICS 79.060.01
CCS B 70



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

GB/T 17657-2013

Replacing GB/T 17657-1999

**Test Methods of Evaluating the Properties of Wood-based
Panels and Surface Decorated Wood-based Panels**

人造板及饰面人造板理化性能试验方法

Issued on: November 12, 2013

Implemented on: November 4, 2014

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

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Foreword

This Standard was drafted according to the rules given in GB/T 1.1-2009.

This Standard is a revision to GB/T 17657-1999 "Test Methods of Evaluating the Properties of Wood-based Panels and Surface Decorated Wood-based Panels".

Compared with GB/T 17657-1999, the main technical differences of this Standard are as follows:

1) 17 test methods were added: "Determination of Thickness Swelling Rate of Water Absorption - Method 2", "Determination of Static Bending Strength and Elastic Modulus (Four-Point Bending)", "Static Bending Strength Determination after Water Immersion at 70°C and 100°C", "Determination of Humidity Resistance - Water Boiling Test", "Determination of Resistance to Stripping Force", "Determination of Surface Resistance to Abrasion - Method 2", "Determination of Surface Resistance to Abrasion - Method 3", "Determination of Accelerated Aging Property", "Determination of Color Fastness to Light", "Determination of Color Difference", "Determination of Surface Resistance to Dry Heat - Method 2", "Determination of Surface Resistance to Heat and Humidity - Method 1", "Determination of Surface Resistance to Heat and Humidity - Method 2", "Determination of Adhesive Force of Film", "Determination of Film Hardness", "Determination of Formaldehyde Emission - 1m³ Climate Box Method", "Determination of Formaldehyde Emission - Gas Analysis Method".

2) The four test methods — "Determination of Expansion Ratio of Limiting Volume", "Determination of Thickness Expansion Ratio after Water Absorbing", "Hardness Determination" and "Determination of Ageing Resistance" — were deleted.

Different specimen dimensions; different thickness measuring points, from 25mm from both sides to the diagonal intersection of specimen; specimen dimensions specified for hollow structure plates, e.g. porous and honeycomb, were added.

The specimen dimension was cancelled, and it was specified that the mass of specimen shall not be less than 20 g, the thickness of specimen is the plate thickness and the shape is unlimited.

The time for thickness measurement was changed from 30 min to 10 min after the immersion completed.

The loading roll and support roll diameters were modified: inspections on the static bending strength and elasticity modulus of extrusion plate and honeycomb plate were added.

"Internal bond strength" was changed to "internal bonding (bond) strength"; the bonding condition between the specimen and the chuck was detailed; hardwood and hardwood plywood chucks were added.

Where the specimen thickness is less than 10 mm, the measurement is performed by such methods as bonding with steel plates; the ring groove was modified in terms of the inside diameter and groove depth, etc.

Where the specimen thickness is less than 8mm, the measurement is performed by such methods as bonding with steel plates.

For the pretreatment of specimen, the four conditions — 24 h cold water soaking, hot water soaking, boiling-drying-boiling and 72 h boiling — are selected according to ISO 12466-1:2007 "Plywood--Bonding Quality — Part 1: Test Methods"; for specimen preparation, ISO 12466-1:2007 shall apply.

The specimen dimensions were modified; the screw depth was changed to be full thread; the test fixtures were changed.

The fixtures and specimen dimensions were changed.

Specimen bracket made of metal wires was added; the surface resistance to water vapour of specimen was characterized in 5 grades.

The crazing grading was changed from 3 grades to 5 grades.

The magnitude of load as well as the number of scratching cycles was determined upon the product standard.

The range of contaminant options was expanded. The six contaminants — acetone, coffee, sodium hydroxide (25 % solution), hydrogen peroxide (30% solution), shoe polish and citric acid (10% solution) — were adopted as contaminants for routine tests, and the product resistance to other contaminants was considered for reference only.

The contaminants were modified. Two representative contaminants — acetone and black coffee — were adopted as contaminants for routine tests, and the product resistance to other contaminants was considered for reference only.

Balancing process and calibration of abrasive cloth were added; the model of abrasive cloth is changed.

The three types of cigarette designated in the former standard were changed to any three domestic types of flue-cured cigarette.

The heating medium was changed from glycerin to glycerol tristearate; the dimensions of the aluminium container for hot oil was changed; the aluminium container for hot oil shall not be covered when placed on specimen surface.

The height for falling ball is determined according to the product standard; whether the specimens are to be fixed on fixtures or provided with cushioning was addressed in the products standards regarding the specific product.

The specimen dimensions and fixtures were changed.

The details were completely different with the former.

The iodometric quantification of formaldehyde content was cancelled; a blank test was added; treatment conditions of specimens for internal quality control and other purposes were added; the temperature and duration of water bath were changed, etc.

A blank test was added; a balancing process was added to specimen; the storage conditions and time of the formaldehyde absorption liquid were specified; the calculation formula of formaldehyde emission was corrected by the total surface area of specimen 1 800 cm²; the temperature and duration of water bath were changed.

This Standard, in terms of the test methods and technical contents, references to multiple ISO standards and advanced standards of other countries and regions, see Appendix A.

Attention is drawn to the possibility that some of the contents of this document may be subject to patent rights. The issuance organization of this Standard shall not be held responsible for identifying any or all such patent rights.

This Standard was proposed by the State Forestry Administration (SFA).

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

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This Standard was initially issued in 1999, and this is the first revision.

1 Scope

This Standard specifies the methods for testing the physical and chemical properties of wood-based panels and surface decorated wood-based panels.

This Standard is applicable to wood-based panels and surface decorated wood-based panels, and their products.

2 Normative References

The following referenced documents are indispensable for the application of this document.