INTERNATIONAL STANDARD

ISO 16983

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Wood-based panels — Determination of swelling in thickness after immersion in water

Panneaux à base de bois — Détermination du gonflement en épaisseur après immersion dans l'eau

Reference number
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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 16983 was prepared by Technical Committee ISO/TC 89, *Wood-based panels*. ISO 16983 is based on European Standard EN 317.

Wood-based panels — Determination of swelling in thickness after immersion in water

1 Scope

This International Standard specifies a method for determining the swelling in thickness of flat-pressed or drum-pressed particleboards, fibreboards, OSB, and cement-bonded particleboards, after immersion in water.

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.

ISO 9424, *Wood-based panels — Determination of dimensions of test pieces*

ISO 16999, *Wood-based panels — Sampling and cutting of test pieces*

3 Principle

Swelling in thickness is determined by measuring the increase in thickness of the test piece after complete immersion in water.

4 Apparatus

4.1 Micrometer, as specified in ISO 9424.

4.2 Thermostatically controlled water bath, capable of maintaining a temperature of (20 ± 1) °C and in which the test pieces can be maintained in the conditions specified in 6.2.

5 Test pieces

5.1 Sampling

Sampling and cutting of the test pieces shall be carried out according to ISO 16999.

5.2 Dimensions

The test pieces shall be square with a side length of (50 ± 1) mm.

5.3 Conditioning

Test pieces shall be conditioned to constant mass in an atmosphere with a mean relative humidity of (65 ± 5) % and a temperature of (20 ± 2) °C. Constant mass is considered as having been reached when the results of two successive weighing operations, carried out at an interval of 24 h, do not differ by more than 0,1 % of the mass of the test piece.

6 Procedure

6.1 Thickness measurement

Measure the thickness of each test piece to an accuracy of 0,01 mm at the intersection of the diagonals, according to ISO 9424 (see Figure 1).

Dimensions in millimetres

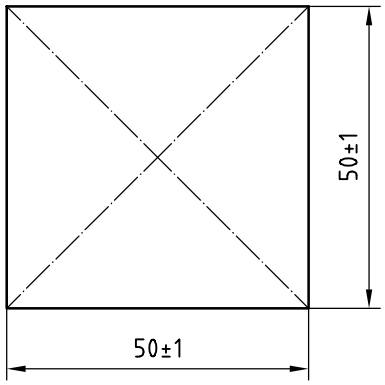

Figure 1 — Test piece for the measurement of swelling in thickness

6.2 Immersion

Immerse the test pieces with their faces vertical in clean water, having a pH of 7 ± 1 and a temperature of (20 ± 1) °C. This temperature shall be maintained throughout the test period. During the test, the test pieces shall be separated from each other and from the bottom and sides of the water bath by at least 15 mm. The upper edges of the test pieces shall be covered by (25 ± 5) mm of water throughout the test. The water shall be changed after each test.

The immersion times shall be as specified by the individual standards for the different panel types.

6.3 Further procedure

After the immersion time has elapsed, take the test pieces out of the water, remove excess water and measure the thickness of each test piece (see 6.1) within 10 min after removal from the water bath.

7 Expression of results

7.1 Test piece

The swelling in thickness of each test piece, G_t, expressed as a percentage of original thickness, shall be calculated according to the following equation:

$$G_t = \frac{t_2 - t_1}{t_1} \times 100$$

where

t_1 is the thickness of the test piece before immersion, in millimetres (mm);

t_2 is the thickness of the test piece after immersion, in millimetres (mm).

7.2 Panel

The swelling in thickness of a panel is the arithmetic mean of the results of all test pieces taken from that panel. Express these values, as a percentage, to one decimal place.

8 Test report

The test report shall contain the following information:

— name and address of test laboratory;

— sampling report according to ISO 16999;

— date of the test report;

— reference to this International Standard;

— type and thickness of the panel;

— relevant product specification;

— surface treatment, if relevant;

— specific apparatus used, in case of different possibilities allowed in this International Standard;

— test results expressed as stated in Clause 7;

— all deviations from this International Standard.

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