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AMENDMENT 6
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High-pressure decorative laminates — Sheets made from thermosetting resins —

Part 2: Determination of properties

AMENDMENT 6: Resistance to wet heat

*Stratifiés décoratifs haute pression — Plaques à base de résines
thermodurcissables —*

Partie 2: Détermination des caractéristiques

AMENDEMENT 6: Résistance à la chaleur humide



Reference number
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Foreword

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Amendment 6 to ISO 4586-2:1997 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 11, *Products*.

High-pressure decorative laminates — Sheets made from thermosetting resins —

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Update the normative references clause (Clause 2) as follows:

Replace ISO 4586-1:1995 by ISO 4586-1:1997 (same title).

Replace ISO 6506:1981 by ISO 6506-1:1999, *Metallic materials — Brinell hardness test — Part 1: Test method*.

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Add the following test method:

9 Resistance to wet heat

9.1 Principle

A specimen taken from the laminate under test (bonded to wood chipboard if necessary to simulate service conditions) is subjected to wet heat by contact for a specified period with a vessel containing hot water placed in a pool of boiling water which has been poured onto the surface of the specimen. Resistance to the test conditions is assessed by visual examination.

9.2 Materials

9.2.1 Distilled or de-ionized water.

9.2.2 Sheet of fine-faced wood particleboard, (230 ± 5) mm square, with a nominal thickness of 18 mm to 20 mm ($\pm 0,3$ mm), a density of (680 ± 20) kg/m³ and moisture content of (10 ± 3) %.

9.2.3 Urea-formaldehyde adhesive, containing approximately 15 % filler, or an equivalent adhesive.

9.2.4 Supply of clean, soft, white cloth.

9.3 Apparatus

9.3.1 Cylindrical aluminium or aluminium-alloy vessel, without a lid, the bottom of which has been machined flat. It shall have an external diameter of $(100 \pm 1,5)$ mm and an overall height of $(70 \pm 1,5)$ mm. The wall thickness shall be $(2,5 \pm 0,5)$ mm and the base thickness $2,5^{+0,5}_0$ mm.

9.3.2 Heat source, for heating the vessel (9.3.1) uniformly.

9.4 Test specimen

Prepare one specimen by uniformly bonding a piece (230 ± 5) mm square of the laminate under test to the particleboard (9.2.2), using the specified adhesive (9.2.3) evenly spread at 80 g/m^2 to 120 g/m^2 . Condition the bonded specimen for at least 72 h at $(23 \pm 2) ^\circ\text{C}$ and $(50 \pm 5) \%$ relative humidity before the test.

For materials of thickness greater than 2 mm, the effect of bonding the specimen is insignificant and the test may be conducted with the specimen resting in close contact with the chipboard. This technique is also acceptable for routine quality control testing of laminates less than 2 mm thick. However, in cases of dispute, laminates less than 2 mm thick shall be bonded to particleboard.

9.5 Procedure

Fill the vessel (9.3.1) to 12 mm from the rim with distilled or de-ionized water, and heat it until the water boils vigorously.

As water boils and evaporates, dissolved minerals are left behind and will adhere to the vessel walls, forming scale which is an effective insulator. Any such scale shall be removed periodically or the accuracy of the test may be compromised. The use of distilled or de-ionized water will minimize this problem.

Using tongs, or other suitable means, carefully remove the vessel from the hotplate, pour approximately 10 ml of boiling water onto the horizontal surface of the test specimen and immediately place the vessel containing the remainder of the boiling water on the surface in the pool of water.

Allow the vessel to remain in place for 20 min.

At the end of this period, remove the vessel and wipe the surface of the specimen dry, using a clean, soft cloth (9.2.4) to remove any residual contaminants. Allow the specimen to cool for a period of 45 min.

Examine the specimen surface for disturbance (for example blistering, crazing, discolouration or loss in gloss) visible to the naked eye, corrected if necessary, allowing the light to fall on the specimen at various angles of incidence.

9.6 Expression of results

Express the result of the examination in accordance with the following rating scale:

- Rating 5: No visible change
- Rating 4: Slight change in gloss and/or colour, only visible at certain viewing angles
- Rating 3: Moderate change in gloss and/or colour
- Rating 2: Marked change in gloss and/or colour
- Rating 1: Surface damage and/or blistering

9.7 Test report

The test report shall include the following information:

- a) a reference to this part of ISO 4586;
- b) the name, type, and nominal thickness of the product;
- c) the effect on the specimen, expressed in accordance with 9.6;