



SLOVENSKI STANDARD

SIST EN 12721:1997

01-oktober-1997

Nadomešča:
SIST ISO 4211-2:1995

Pohištvo - Ugotavljanje odpornosti površine proti vlažni toploti

Furniture - Assessment of surface resistance to wet heat (ISO 4211-2:1993 modified)

Möbel - Bewertung der Beständigkeit von Oberflächen gegen feuchte Hitze (ISO 4211-2:1993 modifiziert)

Meubles - Evaluation de la résistance des surfaces à la chaleur humide (ISO 4211-2:1993 modifiée)

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Ta slovenski standard je istoveten z **EN 12721:1997**

ICS:

97.140

Pohištvo

Furniture

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en

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EUROPEAN STANDARD

EN 12721

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 1997

ICS 97.140

Descriptors: furnishings, furniture, finishing, areas, tests, damp heat tests, determination, thermal resistance

English version

**Furniture - Assessment of surface resistance to
wet heat (ISO 4211-2:1993 modified)**

Meubles - Evaluation de la résistance des
surfaces à la chaleur humide (ISO 4211-2:1993
modifiée)

Möbel - Bewertung der Beständigkeit von
Oberflächen gegen feuchte Hitze
(ISO 4211-2:1993 modifiziert)

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This European Standard was approved by CEN on 1997-07-26. CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

The European Standards exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 207 "Furniture", the secretariat of which is held by IBN.

The text is based on ISO 4211-2:1993.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 1998, and conflicting national standards shall be withdrawn at the latest by February 1998.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 SCOPE

This European Standard specifies a method of assessment of surface resistance to wet heat and relates to the rigid surfaces of all finished furniture, regardless of material, except for finishes on leather and fabrics which are excluded from this European Standard.

The test is generally carried out on finished furniture but may be carried out on test panels of the same material, finished in an identical manner to the finished product and on a size sufficient to meet the requirement of the test.

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2 NORMATIVE REFERENCES (standards.iteh.ai)

This European Standard incorporates by dated or undated reference, provisions from other publication. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard, only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

ISO 209-1, Wrought aluminium and aluminium alloys - Chemical composition and forms of products - Part 1: Chemical composition.

ISO 1770, Solid-stem general purpose thermometers.

ISO 3668, Paints and varnishes - Visual comparison of the colour of paints.

ISO/DIS 4287-1, Surface roughness terminology - Part 1: surface and its parameters.

ISO/DIS 4287-2, Surface roughness terminology - Part 2: Measurement of surface roughness parameters.

3 PRINCIPLE

A standard aluminium alloy block at a specified test temperature is placed on a damp cloth in contact with the surface of the test panel. After a specified period of time the block and damp cloth are removed. The test area is wiped dry and the test panel left undisturbed for at least 16 h. It is then examined under specified lighting conditions for signs of damage (discolouration, change in gloss and colour, blistering or other defects). The damage is assessed by reference to a descriptive numerical rating code.

4 DEFINITIONS

4.1 Test unit finished item of furniture.

4.2 Test surface part of the test unit, where the test area is included.

4.3 Test panel panel produced in the same way as the test surface; it shall be used when it is not possible to carry out the test directly on the test surface.

4.4 Test area area under the heat source described in 5.2.

4.5 test atmosphere atmosphere where the test is carried out.

4.6 conditioning atmosphere atmosphere where the test unit is placed just one week before testing.

4.7 ageing atmosphere atmosphere where the test unit is placed at least four weeks before testing (conditioning could be included)

5 APPARATUS AND MATERIALS

5.1 Thermometer, as specified in ISO 1770, capable of insertion to the bottom of the centre bore of the heat source (5.2) or other means of measuring the temperature of the heat source to an accuracy of $\pm 1^{\circ}\text{C}$.

5.2 Heat source, a block as shown in figure 1 manufactured from aluminium alloy according to ISO 209-1, Al Mg Si (alloy 6060). The roughness of bottom surface should be in the range from $12\mu\text{m}$ to $20\mu\text{m}$, according to ISO/DIS 4287-1 and ISO/DIS 4287-2.

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Dimensions in millimeters

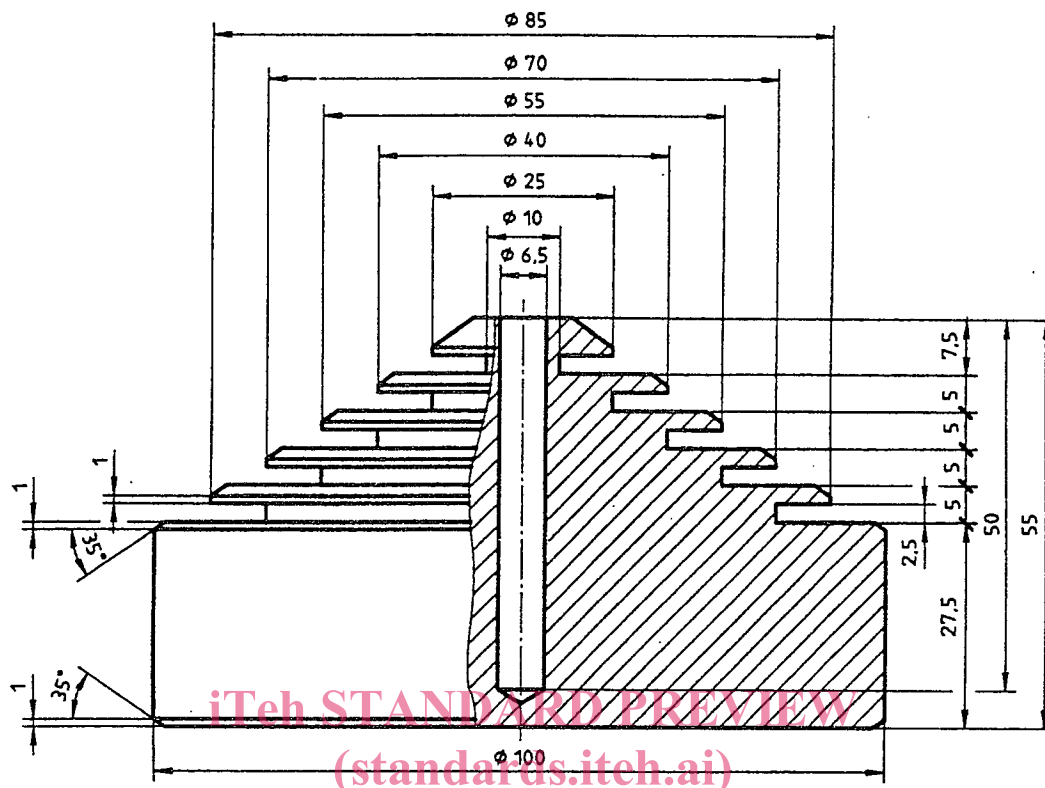


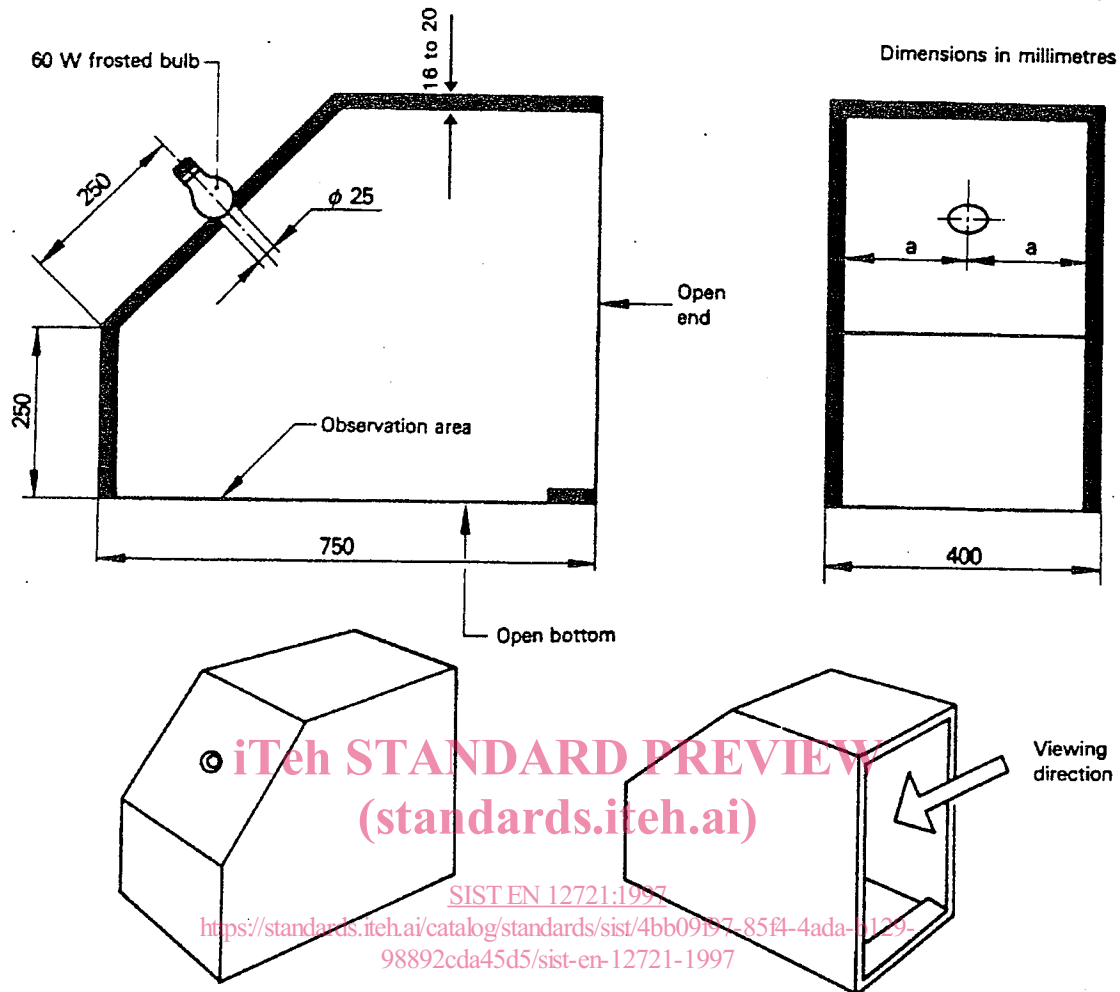
Figure 1 — Aluminium block used as heat source

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- 5.3 Oven**, in order to heat the heat source to a temperature higher than the test temperature.
- 5.4 White soft absorbent cloths.**
- 5.5 White polyamide fibre cloth**, in plain weave having approximately 40 threads/cm in both warp and weft direction, weighing approximately 50 g/m², and cut (120 ± 3) mm square.
- 5.6 Distilled or deionized water**, temperature (23 ± 2) °C.
- 5.7 Heat-insulating foam**, a melamine foam, with the following characteristics: density between 8,5 kg/m³ and 11,5 kg/m³; heat conductivity, less than 0,035 W/mK; compression set, 50%/70°C/22h, between 10% and 20%; temperature index, IEC 216, maximum 150°C. This foam shall be conditioned in atmospheric conditions to reach equilibrium: (23 ± 2) °C and (50 ± 5) % R.H.
- 5.8 Diffuse light source**, providing evenly diffused light giving an illumination on the test area between 2.000 lx and 5.000 lx. This may either be diffused daylight or be diffused artificial light.

NOTE: The daylight should be unaffected by surrounding trees, buildings, etc. When artificial light is used it is recommended that it should have a correlated colour temperature of (6500 ± 50) K and an R_a greater than 92, by using a colour matching booth in accordance with ISO 3668.

NOTE : One way to perform the assessment is to use a viewing cabinet as shown in figure 2.



NOTE – Interior surfaces are painted black.

Figure 2 – Viewing cabinet
(All dimensions are approximate)

6 PREPARATION AND CONDITIONING OF TEST UNITS.

Unless otherwise agreed, the test unit shall be allowed to age and be conditioned.

For ageing, the test unit shall be stored at a temperature not less than 15 °C and not more than 30 °C with free access of air. Ageing including conditioning before test shall be not less than four weeks.

Conditioning shall begin one week before testing and should be carried out in air at a temperature of (23 ± 2) °C and relative humidity of (50 ± 5) %.

The test surface shall be substantially flat and of a size sufficient to meet the requirements of clause 8, regarding the separation of the filter paper discs.

The test surface shall be carefully wiped with a dry cloth (5.4) before testing.

NOTE: The test unit may be a test panel, as well as a part or an article of furniture in which case clause 6 should be followed where feasible.

7 TEST TEMPERATURES

Test temperatures shall be selected from the following list according to the requirement specifications:

55 °C, 70 °C, 85 °C, 100 °C.

8 PROCEDURE

Immediately after conditioning, the test shall be carried out in a test atmosphere of $(23 \pm 2)^\circ\text{C}$.

The test unit shall be substantially flat and with a size sufficient to accommodate the required number of tests, with at least 15 mm spacing between the perimeter of adjacent test areas, and between the perimeters of the test areas and the edges of the panel. Where tests are carried out simultaneously, the perimeters of the test areas shall be separated by a minimum of 50 mm.

If there is any reason to suppose that the properties of the test surface may vary, two identical tests shall be carried out simultaneously.

Place the thermometer (5.1) or other means of measuring temperature in the centre bore of the heat source (5.2).

Using the oven (5.3), raise the temperature of the heat source to a temperature higher than the specified test temperature, and transfer it to the heat insulating foam (5.7).

Wipe the test area with the soft absorbent cloth (5.4).

Place the polyamide fibre cloth (5.5) centrally on the test area. Spread 2 cm^3 of distilled or deionized water (5.6) uniformly over the whole area of the polyamide fibre cloth.

NOTE: A graduated eye dropper is suitable for dispensing the distilled or deionized water.

When the heat source reaches the specified test temperature with an accuracy of $\pm 1^\circ\text{C}$, immediately place it on the centre of the polyamide fibre cloth.

After 20 min in this position, remove the block.

Wipe the test area dry with the white soft absorbent cloth.

Record the position of each test area and its temperature.

Allow the test area to stand undisturbed from 16 h to 24 h.

Wipe each test area with soft absorbent cloth and examine the test unit.

9 EXAMINATION OF TEST UNIT

Carefully examine each test area for damage, e.g. discolouration, change in gloss and colour, blistering or other defects. For this purpose illuminate the surface separately using each of the two light sources (5.8 and 5.9) and examine from different angles, including angle combinations such that the light is reflected from the test surface and towards the observer's eye. The viewing distance shall be 0,25 m to 1 m.

Place the test surface in different positions with the light parallel and perpendicular to the direction of the grain, if any. In each position, compare the test area with the untested surface as a reference.

If agreed, another examination shall be made after a further specified period of time .

10 ASSESSMENT OF RESULTS

Rate the test areas according to the descriptive numerical rating code in table 1.

Table 1: Descriptive numerical rating code

| Rating | Description |
|--------|---|
| 5 | No visible changes (no damage). |
| 4 | Slight change in gloss and colour, visible only when the light source is mirrored in the test area and is reflected towards the observer's eye, or a few isolated marks just visible. |
| 3 | Slight mark, visible in several viewing directions, for example almost complete disc just visible. |
| 2 | Strong mark, distinctly visible or region of slight discoloration or region of slight disturbance of the test surface. |
| 1 | Strong mark, or region of distinct discoloration or region of distinct disturbance of the test surface. |

It is recommended that each test area be rated by more than one observer experienced in this type of assessment. The reported rating for the test area shall be the rating value which is equalled or exceeded by the majority of observers, for example:

Individual ratings : 1, 2, 3, 3, 3
Test area rating : 3

Individual ratings : 1, 2, 2, 3, 3
Test area rating : 2

The results obtained with the two light sources shall be reported.

Duplicate test areas shall be assessed and reported separately.

11 TEST REPORT

The test report shall include at least the following information:

- a reference to this European Standard;
- the unit or panel tested including relevant data (wherever possible the substrate and the finishing system shall be identified);
- the test temperature or temperatures;
- the assessment of each test area in accordance with clause 10;
- any deviations from this European Standard ;
- the name and address of the test facility;
- the date of test;
- whether assessment under direct light source (5.9) was within viewing cabinet.
- if required, additional information regarding type of damage.