Decorative melamine-faced boards
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Foreword

Uganda National Bureau of Standards (UNBS) is a parastatal under the Ministry of Tourism, Trade and Industry established under Cap 327, of the Laws of Uganda. UNBS is mandated to co-ordinate the elaboration of standards and is
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(b) a contact point for the WHO/FAO Codex Alimentarius Commission on Food Standards, and
(c) the National Enquiry Point on TBT/SPS Agreements of the World Trade Organisation (WTO).

The work of preparing Uganda Standards is carried out through Technical Committees. A Technical Committee is established to deliberate on standards in a given field or area and consists of representatives of consumers, traders, academicians, manufacturers, government and other stakeholders.

Draft Uganda Standards adopted by the Technical Committee are widely circulated to stakeholders and the general public for comments. The committee reviews the comments before recommending the draft standards for approval and declaration as Uganda Standards by the National Standards Council.

Committee membership

The following organisations were represented on the Furniture Standards Technical Committee, UNBS/TC 12, during the development of this standard:

- Board City
- Geotech Engineering
- St. Joseph Kisubi Technical
- Kibalika & Son Furniture Ltd
- Kyambogo University
- P.G Bison
- Uganda National Bureau of Standards
- Uganda Small Scale Industrial Association
Decorative melamine-faced boards — Specification

1 Scope

This Uganda Standard specifies the requirements for decorative aminoplast-faced boards, which are referred to as decorative melamine-faced boards (MFB) or low-pressure laminates, and are used, for example, for furniture and interior work.

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.

US 839*, Particle boards — Specification

US 838*, Fibreboard products — Part 1: Uncoated fibreboard

US ISO 4586-2, High-pressure decorative laminates — Sheets made from thermosetting resins — Part 2: Determination of properties

3 Terms and definitions

For the purposes of this standard, the following terms and definitions shall apply.

3.1 decorative aminoplast-faced boards

Decorative melamine-faced boards (MFB)

Timber particle boards or medium-density fibreboards that are manufactured with a synthetic resin as binder, surface-treated on one or both sides with supporting webs and impregnated by pressing with hardened condensation resins, utilising the effects of heat, pressure and time. The binder of the decorative lamina consists mainly of melamine resin. The decorative surfaces can be smooth or textured.

3.2 substrates

Particle board in accordance with US 839

3.3 “Z” designation

Supplementary designation for special boards with greater resistance to glowing cigarettes ends, indicated by an appended “Z”

4 Application categories

Decorative aminoplast-faced boards are classified according to their resistance to wear and scratching (see Table 1) and thickness of the decorative lamina (see Table 2).
### 5 Requirements

#### 5.1 Dimensional tolerances

##### 5.1.1 Thickness

In the case of nominal thicknesses, the following tolerances are applicable:

- **a)** up to 20 mm: \( +0.5 \leq \text{mm} \) and \(-0.3 \leq \text{mm}\), and

- **b)** over 20 mm: \( \pm 0.5 \text{ mm} \),

both within one board and also from one board to another.

##### 5.1.2 Length and width, including deviation from rectangularity

In the case of length and width, the following tolerances are applicable:

- **a)** commercial sizes: \( \pm 5 \text{ mm} \);

- **b)** rough custom-tailored sizes (coarse cuts): \( \pm 2.5 \text{ mm} \); and

- **c)** fine custom-tailored sizes, to be specially agreed upon (see Annex A).

For the purposes of this standard, custom-tailored sizes are sections of board the longest edge of which is of length up to 2000 mm. In the case of longer sections or longitudinal cuts or transverse separating cuts only, the requirement in 5.1.2(a) shall apply.
5.2 Edges

5.2.1 Boards in commercially available sizes (standard sizes, as supplied by the manufacturer) shall be supplied with trimmed edges, as agreed upon (see Annex A). Chipping of the top layer of length up to 5 mm shall be permissible on all edges.

5.2.2 Chipping of the top layer of length up to 3 mm shall be permissible on all edges on rough custom-tailored sizes.

5.3 Bending and transverse tensile strength

The table below gives the requirements for the bending and transverse tensile strength.

Table 3 — Minimum value for bending and transverse tensile strength

<table>
<thead>
<tr>
<th>Thickness range, mm</th>
<th>Bending stress(^1), MPa</th>
<th>Transverse tensile strength(^2), MPa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lamina thickness, mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>up to 0.14</td>
<td>Over 0.14</td>
<td></td>
</tr>
<tr>
<td>&lt; 13</td>
<td>17</td>
<td>18</td>
</tr>
<tr>
<td>13 &lt; 20</td>
<td>16</td>
<td>17</td>
</tr>
<tr>
<td>20 &lt; 25</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>25 &lt; 32</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>32 &lt; 40</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>40 ≤ 50</td>
<td>9</td>
<td>10</td>
</tr>
</tbody>
</table>

\(^1\) Test pieces shall be prepared in such a way (for example by cutting), that no fractures are present in the decorative lamina.

\(^2\) Tensile strength at right angles to the board plane (\(\perp\)). The specified minimum values, in each case, refer to the overall mean value of 3 boards with 10 individual tests in each case.

5.4 Dimensional stability (under humidity changes) at 20 °C

When tested in accordance with US ISO 4586-2, the sum of the absolute values \(L_{A1}\) and \(L_{A2}\) shall not exceed 0.6 % where \(L_{A1}\) and \(L_{A2}\) are the respective percentage changes of the initial dimension after conditioning at low and high relative humidity atmospheric conditions.

5.5 Resistance to scratching

When tested in accordance with US ISO 4586-2 with a load of 1.5 N, no continuous trace may appear.

NOTE 1 The scratch resistance of MFB products is affected by the surface structure and colour. Hence the specified value is a minimum requirement. It is possible to achieve substantially higher values by selection of a favourable combination of colour, pattern and surface structure.

NOTE 2 Scratches on light colours are generally less visible than scratches on dark colours. Printed designs render scratches less visible than plain colours; likewise, structured surfaces render scratches less visible than smooth surfaces.

5.6 Resistance to cracking

When tested in accordance with US ISO 4586-2, grade 2 cracking, as given in Table 4, is not permissible.
Table 4 — Crack resistance grades of MFB

<table>
<thead>
<tr>
<th>Crack resistances grade</th>
<th>Result</th>
</tr>
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<tbody>
<tr>
<td>0</td>
<td>Design surface without hairline cracks</td>
</tr>
<tr>
<td>1</td>
<td>Hairline cracks randomly spread over the total design surface</td>
</tr>
<tr>
<td>2</td>
<td>In addition to grade 1 cracking, cracks occur on the design surface and are visible from a distance of 400 mm</td>
</tr>
</tbody>
</table>

5.7 Resistance to cigarette burns

In the case of a board that bears the supplementary designation "Z", no lasting changes, other than discoloration and loss of gloss, are permissible when the board is tested in accordance with US ISO 4586-2.

5.8 Resistance to dry heat

In the case of category 1 lamina thickness (See Table 2), no requirements exist. In the case of category 2 lamina thickness (see Table 2), no lasting changes, other than loss of gloss, are permissible when the board is tested in accordance with US ISO 4586-2.

5.9 Resistance to steam

When the board is tested in accordance with US ISO 4586-2, no lasting changes, other than loss of gloss on the areas directly affected by the steam, are permissible.

5.10 Resistance to staining

MFB products shall be resistant to stains that are caused by the test substances in groups 1 and 2 specified in US ISO 4586-2. The test shall be performed in accordance with procedure B given in US ISO 4586-2.

Resistance to other substances and the appropriate test methods shall be as agreed upon (see Annex A).

NOTE The boards in accordance with this standard are not resistant to effects that can be caused by the substances namely mineral acids (for example hydrochloric acid or nitric acid), solutions of alkalis (for example caustic soda, potash), bleaching lyes that contain chlorine, hydrogen peroxide, silver nitrate solutions, iodine and other antiseptic tinctures with a strong dyeing effect.

6 Designation and marking

6.1 Designation

In the designation, after the board thickness, the resistance to abrasion is given first, followed by the lamina thickness, and, if necessary, "Z" shall be added.

If the faces of MFB products are of different structures, each side shall be designated separately, according to the abrasion and the lamina thickness categories (see tables 1 and 2).

Examples:

The designation of MFB products, of length 3 000 mm, of width 2 000 mm and of thickness 16 mm:

a) A product of abrasion category M and a lamina thickness of category 2 on both board faces shall be designated as follows:

MFB products US 837 – 3 000 × 2 000 × 16 – M2
b) A product of abrasion category M on one board side, abrasion category N on the other board side, and a lamina thickness of category 2 on both board sides, shall be designated as follows:

i) one side: MFB products US 837 – 3 000 × 2 000 × 16 – M2 and

ii) other side: MFB products US 837 – 3 000 × 2 000 × 16 – N2.

6.2 Marking

The following information shall indelibly be marked by the manufacturer in a suitable place on each board:

a) the identification of the manufacturer and the type of work (coded if necessary);

b) the abbreviation "MFB";

c) the designation "US 837";

d) the thickness, in millimetres;

e) the abrasion and the lamina thickness categories; and

f) if applicable, the designation "Z" to indicate greater resistance to glowing cigarette ends.

Example:

Muller 123 MFB products US 837 – 16 M2 – Z
Annex A
(normative)

Notes to purchasers

The following requirements shall be agreed upon between the manufacturer and the purchaser:

a) if applicable, the length and width tolerances for fine custom-tailored sizes (see 5.1.2(b));

b) which, if any, edges shall be trimmed (see 5.2.1); and

c) resistance to staining and the appropriate test methods (see 5.10).
Bibliography

1. DIN EN 12720:1997, Furniture — Assessment of surface resistance to cold liquids
2. DIN 50014:1985, Climates and their technical application; standard atmospheres
3. DIN 53387:1989, Artificial weathering and ageing of plastics and elastomers by exposure to filtered xenon arc radiation. Amdt 1
4. DIN 68761-1:1986, Chipboard; General purpose flat pressed particle board; FPY board. Amdt 1
5. DIN 68761-4:1982, Chipboard; Flat pressed board for general purposes; FPO board. Amdt 1
6. DIN 68765:1987, Particle boards — Decorative laminated particle boards — Terms, requirements. Amdt 1
7. DIN EN 14322, Wood-based panels — Melamine faced boards for interior uses — Definitions, requirements and classification. Amdt 1
8. DIN EN ISO 4892-2, Plastic — Methods of explore to laboratory light sources Part 2: Xenon-arc lamps
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