Reaction to fire classification report according to CEN/TS 45545-2

Introduction

SP has by request of Dansk Dekor-Laminat A/S performed fire tests according to ISO 5660 and ISO 5659-2. The purpose of the tests is basis for technical fire classification.


Product description

The product, “Alunit type F”, is fully described below.

According to the client:
Product called "Alunit type F", consisting of surface material of HPL laminate and a core of Aluminium and backing of coating. Nominal amount of coating 10 g/m². The product has a nominal thickness of ≤ 2.1 mm.

Test reports & test results in support of classification

This classification is based on test reports listed below:

<table>
<thead>
<tr>
<th>Name of laboratory</th>
<th>Name of sponsor</th>
<th>Test report ref no</th>
<th>Accredited test method</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP</td>
<td>Dansk Dekor-Laminat A/S</td>
<td>P902159C / rev 2</td>
<td>ISO 5659-2</td>
</tr>
<tr>
<td>SP</td>
<td>Dansk Dekor-Laminat A/S</td>
<td>P902159</td>
<td>ISO 5660</td>
</tr>
<tr>
<td>SP</td>
<td>Dansk Dekor-Laminat A/S</td>
<td>F611944</td>
<td>ISO 5658-2</td>
</tr>
</tbody>
</table>
## Test results

<table>
<thead>
<tr>
<th>Test method</th>
<th>Parameter</th>
<th>Number of tests</th>
<th>Results: Mean value (m)</th>
<th>Hazard level classification, Table 7, R1</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO 5658-2</td>
<td>Lateral flame spread CFE (kW/m²)</td>
<td>3</td>
<td>46.6</td>
<td>HL3</td>
</tr>
<tr>
<td>ISO 5659-2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 kW/m²</td>
<td>Specific optical density of smoke D₄(4)</td>
<td>3</td>
<td>152</td>
<td>HL2</td>
</tr>
<tr>
<td></td>
<td>Cumulative value of specific optical densities in the first 4 min of the test VOF₄ (min)</td>
<td>3</td>
<td>364</td>
<td>HL2</td>
</tr>
<tr>
<td></td>
<td>Conventional Index of Toxicity CIT₉</td>
<td>3</td>
<td>0.23</td>
<td>HL3</td>
</tr>
<tr>
<td>ISO 5660</td>
<td>Maximum average rate of heat emission MARHE (kW/m²)</td>
<td>3</td>
<td>37</td>
<td>HL3</td>
</tr>
</tbody>
</table>
Criteria


To meet set of material requirements, table 7, R1, interior components have to meet the following limits when tested according to ISO 5658-2.

HL1
- Lateral flame spread (CFE) shall be minimum 20 kW/m².

HL2
- Lateral flame spread (CFE) shall be minimum 20 kW/m².

HL3
- Lateral flame spread (CFE) shall be minimum 20 kW/m².

To meet set of material requirements, table 7, R1, interior components have to meet the following limits when tested according to ISO 5660: heat flux 50 kW/m².

HL1
- Maximum average rate of heat emission (MARHE) no limit.

HL2
- Maximum average rate of heat emission (MARHE) does not exceed 90 kW/m².

HL3
- Maximum average rate of heat emission (MARHE) does not exceed 60 kW/m².

To meet set of material requirements, table 7, R1, interior components have to meet the following limits when tested according to EN ISO 5659-2: 50 kW/m² in the presence of pilot flame.

HL1
- Specific optical density of smoke ($D_s(4)$) does not exceed 600.
  - Conventional Index of Toxicty ($CIT_d$) does not exceed 1.2.
  - Cumulative value of specific optical densities in the first 4 min of the test (VOF4) does not exceed 1200 min.

HL2
- Specific optical density of smoke ($D_s(4)$) does not exceed 300.
  - Conventional Index of Toxicty ($CIT_d$) does not exceed 0.9.
  - Cumulative value of specific optical densities in the first 4 min of the test (VOF4) does not exceed 600 min.

HL3
- Specific optical density of smoke ($D_s(4)$) does not exceed 150.
  - Conventional Index of Toxicty ($CIT_d$) does not exceed 0.75.
  - Cumulative value of specific optical densities in the first 4 min of the test (VOF4) does not exceed 300 min.
Classification

The tested product called “Alunit type F”, having a nominal thickness of \( \leq 2.1 \text{ mm} \) meets the technical fire requirements for R1, hazard level 2, according to the criteria mentioned above.

Reaction to fire classification: R1, HL2

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