Polyvinyl butyral (PVB)

PVB thin films
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1. Mowital® Thin Film
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<table>
<thead>
<tr>
<th>Grade</th>
<th>Thickness</th>
<th>Width of Roll</th>
<th>Length of Roll</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mowital® Thin Film 050</td>
<td>50 µm</td>
<td>1 m</td>
<td>1500 m</td>
</tr>
<tr>
<td>Mowital® Thin Film 075</td>
<td>75 µm</td>
<td>1 m</td>
<td>1500 m</td>
</tr>
<tr>
<td>Mowital® Thin Film 100</td>
<td>100 µm</td>
<td>1 m</td>
<td>1500 m</td>
</tr>
<tr>
<td>Mowital® Thin Film 250</td>
<td>250 µm</td>
<td>1 m</td>
<td>300 m</td>
</tr>
</tbody>
</table>

- **Application** → **Adhesive laminate film**
  - Lamination of films components and fibre structures
  - Roll-to-roll lamination processes
  - Combination of different materials
  - Multilayer structures
2. Advantages of Mowital® Thin Film
2. Advantages of Mowital® Thin Film

- Excellent adhesion to glass (glass fibres), metals, ceramics, wood and fabrics
- Very good adhesion to most plastics
- Thermoplastic material
- Cross-linkable with epoxies, phenolics, isocyanates, etc.
- High transparency
- No migration of additives or plasticizers
- Solvent- and dust free, no health and safety issues
3. Key parameters of Mowital® Thin Film
3. Key parameters of Mowital® Thin Film

<table>
<thead>
<tr>
<th>Parameter</th>
<th>PVB Film</th>
<th>Mowital® Thin Film</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elastic modulus [N/mm²]</td>
<td>~ 100</td>
<td>2.300 - 2.400</td>
</tr>
<tr>
<td>Tensile strength [N/mm²]</td>
<td>&gt;23</td>
<td>45-60</td>
</tr>
<tr>
<td>Elongation [%]</td>
<td>&gt;280</td>
<td>4-7</td>
</tr>
<tr>
<td>T₃ [°C]</td>
<td>18-20</td>
<td>70</td>
</tr>
<tr>
<td>Softening range [°C]</td>
<td>90-100</td>
<td>180-210</td>
</tr>
<tr>
<td>Refractive index</td>
<td>1.48</td>
<td>1.48</td>
</tr>
<tr>
<td>Surface resistivity [Ohm x m]</td>
<td>10¹¹-10¹²</td>
<td>&gt;10¹²</td>
</tr>
<tr>
<td>Volume resistivity [Ohm]</td>
<td>10¹¹-10¹²</td>
<td>&gt;10¹²</td>
</tr>
<tr>
<td>WVTR [g * 50 μm / (m²*d)]</td>
<td>n/a</td>
<td>40-45</td>
</tr>
<tr>
<td>OTR [g * 50 μm / (m²*d)]</td>
<td>n/a</td>
<td>680-700</td>
</tr>
</tbody>
</table>

T₃: Glass Transition Temperature; WVTR: Water vapour transmission rate; OTR: Oxygen transmission rate
4. Applications of Mowital® Thin Film
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4.1. Composite applications

Replacement of thermosetting resins

- Enhanced shelf-life of pre-pregs
- Solvent-free application
- Odor-free and toxicologically safe
- Controlled delamination for enhanced energy absorption
- Excellent adhesion to aramides, glass-, carbon- and polyester-fibres
4. Applications of Mowital® Thin Film

4.2. Lamination of different materials

Mowital® Thin Film for lamination of different materials

- Very good adhesion on polar materials (glass, wood, metals...)
- Good adhesion on plastics → application as tie layer possible
- Easy hot press / roll lamination process
Thank you!

THANKS!

Thank you!