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**Features & Benefits**
- Cure on demand
- Ideal viscosity for doming
- Tack free
- Fast curing with low-power lamps
- 100% solids, no solvents

**Description**
PERMABOND® UV683 has been developed for use as a coating. It is ideal for coating and doming applications. The optically clear / tack free formulation also makes this product particularly suitable for coating smart card microchips amongst various other applications. Its viscosity makes it suitable for encapsulation of electronic components and its high temperature resistance allows it to resist wave-soldering.

**Physical Properties of Uncured Adhesive**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical composition</td>
<td>Acrylate</td>
</tr>
<tr>
<td>Appearance</td>
<td>Colourless</td>
</tr>
<tr>
<td>Viscosity @ 25°C</td>
<td>1,000-1,600 mPa.s (cP)</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>1.1</td>
</tr>
</tbody>
</table>

**Typical Curing Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical fixture time*</td>
<td>Low power 4mW/cm² battery lamp: 7 secs LED 100mW/cm² lamp: 2 secs UV light guide 30W/cm²: 1 sec</td>
</tr>
<tr>
<td>Tack free time</td>
<td>Low power 4mW/cm² battery lamp: 15 secs LED 100mW/cm² lamp: 5 secs UV light guide 30W/cm²: 1-2 secs</td>
</tr>
<tr>
<td>Cure wavelength</td>
<td>320 - 420 nm**</td>
</tr>
</tbody>
</table>

*The cure time depends on the power of the UV lamp, its spectral output, the distance between the lamp and the components, and the transmission characteristics of the substrates.

**LED UV lamps have a narrow range of spectral output. It is important to check suitability with Permabond in order to match the LED lamp’s peak wavelength with that of the adhesive’s photoinitiator to ensure optimal adhesive cure.

**Typical Performance of Cured Adhesive**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile strength (ISO37)</td>
<td>12-14 N/mm² (1700-2000 psi)</td>
</tr>
<tr>
<td>Light transmittance</td>
<td>&gt;98%</td>
</tr>
<tr>
<td>Refractive index</td>
<td>&gt;1.490</td>
</tr>
<tr>
<td>Elongation at break (ISO37)</td>
<td>&gt;50%</td>
</tr>
<tr>
<td>Hardness (ISO868)</td>
<td>50-65 Shore D</td>
</tr>
<tr>
<td>Water absorption (ISO62)</td>
<td>2 hours in boiling water &lt;2%</td>
</tr>
<tr>
<td>Glass transition (Tg DSC)</td>
<td>20°C/min rate +55°C</td>
</tr>
</tbody>
</table>

*Strength results will vary depending on the level of surface preparation and gap.

**Hot Strength**

UV683 can withstand higher temperatures for brief periods (such as for paint baking and wave soldering processes) providing the joint is not unduly stressed. The minimum temperature the cured adhesive can be exposed to is -55°C (-67°F) depending on the materials being bonded.

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**Additional Information**

This product is not recommended for use in contact with strong oxidizing materials. Information regarding the safe handling of this material may be obtained from the Safety Data Sheet. Users are reminded that all materials, whether innocuous or not, should be handled in accordance with the principles of good industrial hygiene.

This Technical Datasheet (TDS) offers guideline information and does not constitute a specification.

**Surface Preparation**

Surfaces should be clean, dry and grease-free before applying the adhesive. Particular care should be taken to remove silicone based cleaning agents which may have been used previously to clean glass. Some metals such as aluminium, copper and its alloys, will benefit from light abrasion with emery cloth (or similar) to remove the oxide layer. Isopropanol can be used to degrease most surfaces. Where thermoplastic surfaces are involved we recommend tests are done to ensure compatibility, mold release agents may affect bond strength.

**Directions for Use**

1) Adhesive can either be applied directly from the bottle or dispensed via automated dispensing equipment for more accurate dosing. Minimise exposure of product to ambient light.
2) It is important to try to prevent air entrapment within the joint as this could be detrimental to the finished appearance of the adhesive.
3) Parts should be firmly held and not disturbed during cure. Expose the joint to ultra-violet light for the appropriate time to ensure full cure. Cure time depends on the power of the UV lamp, its spectral output, the distance between the lamp and the components, and the transmission characteristics of the substrates.
4) For help selecting a suitable lamp and/or dispensing equipment, please contact the Permabond technical helpline.

**Video Link**

UV adhesive directions for use: https://youtu.be/hPUoS0cmEW4

**Other Products Available**

- **Anaerobics**
  - Thread lockers
  - Thread sealants
  - Gasket makers
  - Sealants / retainers

- **Cyanacrylates**
  - Instant adhesives

- **Epoxies**
  - Two-part room temperature cure adhesives
  - Single-part heat cure adhesives
  - Modified Technology (MT) flexible grades available

- **MS-Polymers**
  - Single-part, moisture-curing, flexible sealants

- **Polyurethanes**
  - Two-part room temperature curing adhesives

- **Toughened Acrylics**
  - Rapid curing, high strength structural adhesives

- **UV Light Cured Adhesives**
  - Glass / plastic bonding
  - Optically clear
  - Non-yellowing

**Storage & Handling**

**Storage Temperature** 2 to 7°C (35 to 45°F)

Protect liquid adhesive from room lighting.

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