Panacol Vitralit® adhesives are one-component, solvent-free radiation-curing adhesives. The advantages are very short curing times, good adhesion to a variety of substrates, and easy handling. Vitralit® products are used in electronics, medical applications, optics and for fixing parts in general.

Vitralit® 1657 is a UV-curable epoxy resin specially developed for use in electronics and electrical engineering. Vitralit® 1657 is distinguished by high purity and a low ion content (Na+, K+, Cl- <5ppm), fulfilling international electronic grade standards. Vitralit® 1657 is a flexible, shear thinning glob top which is also suitable for covering open bonded chips.

### Curing Properties

<table>
<thead>
<tr>
<th>UV-A</th>
<th>VIS</th>
<th>Thermal curing</th>
<th>Activator curing</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

suitable - not suitable

The product cures within seconds with radiation in the UV-A - range (320 nm - 390 nm). For rapid and high quality crosslinking we recommend the UV devices manufactured by Dr. Hoenle AG, which complement our adhesive technology.

### Technical Data

- **Resin**: epoxy
- **Appearance**: grey
- **Filler**: quartz
- **Filler – weight [%]**: 52
- **Particle size D95 [µm]**: 40

### Uncured material

- **Viscosity [mPas]**
  - (Brookfield LVT, 25°C, Sp 4, 3rpm) 120 000 - 130 000
  - PE-Norm 001
- **Density [g/cm³]**
  - PE-Norm 004 1.45
- **Flash point [°C]**
  - PE-Norm 050 > 100
Cured material

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardness shore D</td>
<td>62 - 68</td>
</tr>
<tr>
<td>Temperature resistance [°C]</td>
<td>-50 - 150</td>
</tr>
<tr>
<td>Shrinkage [%]</td>
<td>&lt;2</td>
</tr>
<tr>
<td>Water absorption [mass %]</td>
<td>&lt;1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glass transition temperature DSC [°C]</td>
<td>20 - 40</td>
</tr>
<tr>
<td>Coefficient of thermal expansion [ppm/K] below Tg</td>
<td>38</td>
</tr>
<tr>
<td>Coefficient of thermal expansion [ppm/K] above Tg</td>
<td>141</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Young's modulus E [MPa]</td>
<td>1 600</td>
</tr>
<tr>
<td>Tensile strength [MPa]</td>
<td>26</td>
</tr>
<tr>
<td>Elongation at break [%]</td>
<td>6</td>
</tr>
</tbody>
</table>

Transport/Storage/Shelf Life

<table>
<thead>
<tr>
<th>Trading unit</th>
<th>Transport</th>
<th>Storage</th>
<th>Shelf-life*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cartridge</td>
<td>at room temperature max. 25°C</td>
<td>0°C - 10°C</td>
<td>at delivery min. 3 months max. 6 months</td>
</tr>
<tr>
<td>Other packages</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Store in original, unopened containers!

Instructions for Use

Surface preparation

The surfaces to be bonded should be free of dust, oil, grease or other dirt in order to obtain an optimal and reproducible bond.

For cleaning we recommend the cleaner IP® Panacol. Substrates with low surface energy (e.g. polyethylene, polypropylene) must be pretreated in order to achieve sufficient adhesion.
Application

Our products are supplied ready to use. Depending on packaging they can be applied by hand directly from the container or semi or fully automatically. With automated application from the cartridge the adhesive is conveyed by a compressed air-operated displacement plunger via a valve in the needle. When metering low viscosity materials from bottles the adhesive is transported by a diaphragm valve. If help is required, please contact our application engineering department.

Adhesive and substrate may not be cold and must be warmed up to room temperature prior to processing.

After application, bonding of the parts should be done quickly. Vitralit® adhesives cure slowly in daylight. Therefore, we recommend to expose the material to as little light as possible and the use of opaque hose lines and dispensing needles.

For safety information refer to our safety data sheet.

Disclaimer

The product is free of heavy metals, PFOS and Phthalates and is conform to the EU-Directive 2017/2102/EU "RoHS III".

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