Product Information

Adhesive System
Constructional
Moisture cure

Bectron® AR 4800 N
Product description

Bectron® AR 4800 N is a 1-component solvent free resin based on polyurethane with moderate viscosity with fast cure by accelerated reaction with moisture in the atmosphere to form a flexible material suitable for sealing and protection of components and connections on the PCB.

Bectron® AR 4800 N satisfies the requirements of ROHS

Areas of application

Bectron® AR 4800 N is used for chemical protection of PCBs against moisture and contamination and for securing large components on the board against mechanical shock and vibration. It is an effective adhesive on most surfaces of PCBs and electronic components. It has moderate viscosity suitable for thick film coating selectively on individual components contacts or sealing open connections on the PCB.

The applied material will remain in place during curing with no stress on delicate components protected.

The cured product is soft and flexible and will not damage sensitive components under thermal shock, including low temperatures.

Properties of the cured material

Good electrical properties even after water immersion.
Rapid curing
Good adhesion on many substrates
Low shrinkage on curing
Withstands low temperature (-50°C)
Resistant to moisture and migration
Resistant to organic and inorganic solvents
Low solvent content
Low water absorption

Storage

Bectron® AR 4800 N is supplied in sealed cartridges which can be stored for 6 months between 5 and 10 °C. Freezing at -18°C will give long shelf life without risk to the material.

Processing suggestions

Bectron® AR 4800 N should be applied directly from the cartridge with a suitable nozzle. If the AR 4800 N is transferred to a second cartridge or applicator it must be used in a short time as exposure to moisture will start the curing reaction. Excessive exposure to moisture will cause increase in viscosity and prevent controlled application.

The cartridges should be allowed to reach their application temperature, 25 to 30 °C, before use to allow the viscosity to reach the specified level.

Curing at room temperature at ≥ 50 % relative humidity allows 1-2 hours process time and 24 hours for thorough curing.

For optimal adhesion, curing of 24 hours @ RT, afterwards 24 hours @ 90°C.

Complete curing may require up to 2 weeks depending on the conditions.

Increased temperature and humidity can reduce the curing time.

Heating in a conventional oven with low humidity is not suitable for curing.

To ensure satisfactory adhesion on the PCB surface the following should be checked:

- Use of residue-free flux
- ensure dry surfaces
- Check compatibility of the coating resin with the solder resist and solder paste.
### Table 1 - Properties of materials as supplied

<table>
<thead>
<tr>
<th>Property</th>
<th>Condition</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>Colour-less/transparent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viscosity</td>
<td>23°C</td>
<td>2400 ± 700</td>
<td>mPa.s</td>
</tr>
<tr>
<td>Density</td>
<td>23°C</td>
<td>1.05 ± 0.05</td>
<td>g/cm³</td>
</tr>
<tr>
<td>Shelf Life</td>
<td>5 -10 °C</td>
<td>6</td>
<td>months</td>
</tr>
</tbody>
</table>

### Table 2 – Thermal Properties of cured compound

<table>
<thead>
<tr>
<th>Property</th>
<th>Condition</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature Range</td>
<td>-50 to +100</td>
<td>°C</td>
<td></td>
</tr>
</tbody>
</table>

### Table 3 - Mechanical properties of cured compound

<table>
<thead>
<tr>
<th>Property</th>
<th>Condition</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density DIN 16945</td>
<td>23°C</td>
<td>1.05 ± 0.05</td>
<td>g/cm³</td>
</tr>
<tr>
<td>Hardness ISO 868</td>
<td>23°C</td>
<td>58 ± 3</td>
<td>Shore A</td>
</tr>
<tr>
<td>Elongation to fracture DIN 53455</td>
<td>23°C</td>
<td>%</td>
<td></td>
</tr>
</tbody>
</table>

### Table 4 - Dielectric properties of cured compound

<table>
<thead>
<tr>
<th>Property</th>
<th>Condition</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume resistivity $pD$ VDE 0303 Part 2</td>
<td>23°C</td>
<td>$7.5 \times 10^{13}$</td>
<td>Ω • cm</td>
</tr>
<tr>
<td>After 7 days water immersion</td>
<td>23°C</td>
<td>$4.0 \times 10^{12}$</td>
<td>Ω • cm</td>
</tr>
<tr>
<td>Surface Resistivity $R_0$ VDE 0303 Part 3</td>
<td>23°C</td>
<td></td>
<td>Ω</td>
</tr>
<tr>
<td>After 7 days water immersion</td>
<td>23°C</td>
<td></td>
<td>Ω</td>
</tr>
</tbody>
</table>

### Table 5 – Chemical Properties of cured compound

<table>
<thead>
<tr>
<th>Property</th>
<th>Condition</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Absorption DIN 53495</td>
<td>7 days</td>
<td>0.2</td>
<td>%</td>
</tr>
</tbody>
</table>

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