DELO DUALBOND® LT349

modified polycarbamin acid derivate | 1C | light-fixable / heat-curing
free of solvents | filled | light-fixable, low-temperature-curing

Special features of product
- compliant with RoHS Directive 2015/863/EU
- halogen-free according to IEC 61249-2-21

Function
- electronic adhesive

Typical area of use
- -40 - 130 °C
- fast component fixation

Curing

<table>
<thead>
<tr>
<th>Suitable lamp types</th>
<th>LED 365 nm, LED 400 nm</th>
</tr>
</thead>
</table>

Typical light fixation time

<table>
<thead>
<tr>
<th>intensity 55 - 60 mW/cm²</th>
<th>1 - 5 s</th>
</tr>
</thead>
<tbody>
<tr>
<td>UVA</td>
<td></td>
</tr>
</tbody>
</table>

Typical curing time

<table>
<thead>
<tr>
<th>at +80 °C in air convection oven</th>
<th>30 min</th>
</tr>
</thead>
<tbody>
<tr>
<td>at +90 °C in air convection oven</td>
<td>20 min</td>
</tr>
<tr>
<td>at +100 °C in air convection oven</td>
<td>10 min</td>
</tr>
</tbody>
</table>

Processing

Conditioning time (typical)

| when stored in cold conditions in containers up to 50 ml | 1 h |

Processing time

| in standard climate +23 °C / 50 % r. h. | 72 h |
Storage life in unopened original container

<table>
<thead>
<tr>
<th>at -18 °C</th>
<th>6 month(s)</th>
</tr>
</thead>
</table>

### Technical properties

<table>
<thead>
<tr>
<th>Color in cured condition in 1 mm layer thickness</th>
<th>beige</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transparency in cured condition in 1 mm layer thickness</td>
<td>opaque</td>
</tr>
<tr>
<td>Filler particle type</td>
<td>minerals</td>
</tr>
<tr>
<td>Filler particle size</td>
<td>$d_{95} = 21 , \mu m$</td>
</tr>
</tbody>
</table>

### Parameters

- **Density**: DELO Standard 13 | Liquid | 1.27 g/cm³
- **Viscosity**: Liquid | Rheometer | Shear rate: 10 1/s | Gap: 500 µm | 165000 mPa·s
- **Compression shear strength**: DELO Standard 5 | Al | Al | 100 °C | 45 min | 12 MPa
- **Compression shear strength**: DELO Standard 5 | FR4 | FR4 | 100 °C | 45 min | 32 MPa
- **Compression shear strength**: DELO Standard 5 | Glass | Glass | 100 °C | 45 min | 25 MPa
- **Compression shear strength**: DELO Standard 5 | LCP E130i | LCP E130i | 100 °C | 45 min | 8 MPa
- **Compression shear strength**: DELO Standard 5 | PC | PC | 100 °C | 45 min | 24 MPa
- **Tensile strength**: Based on DIN EN ISO 527 | 100 °C | 45 min | 18 MPa
- **Elongation at tear**: Based on DIN EN ISO 527 | 100 °C | 45 min | 11 %
**Young's modulus**  
Based on DIN EN ISO 527 | 100 °C | 45 min  
800 MPa

**Shore hardness D**  
Based on DIN EN ISO 868 | 100 °C | 45 min  
78

**Glass transition temperature**  
DELO Standard 26 | TMA | 400 nm | 60 mW/cm² | 60 s | Plus | 100 °C | 45 min  
90 °C

**Coefficient of linear expansion**  
DELO Standard 26 | TMA | Evaluation T: 100 °C - 160 °C | 400 nm | 60 mW/cm² | 60 s | Plus | 100 °C | 45 min  
182 ppm/K

**Coefficient of linear expansion**  
DELO Standard 26 | TMA | Evaluation T: 45 °C - 80 °C | 400 nm | 60 mW/cm² | 60 s | Plus | 100 °C | 45 min  
140 ppm/K

**Shrinkage**  
DELO Standard 13 | 100 °C | 45 min  
2.8 vol. %

**Water absorption**  
Based on DIN EN ISO 62 | 100 °C | 45 min | Type of storage: Media | Medium: Distilled water | Temp.: at approx. +23 °C  
0.2 wt. %

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**General curing and processing information**

The curing time stated in the technical data was determined in the laboratory. It can vary depending on the adhesive quantity and component geometry and is therefore a reference value.

The heating time of the components must be added to the actual curing time. It depends on component size and oven type. The specified curing temperature must be reached directly at the adhesive.

Increasing or decreasing the curing temperature and / or irradiation intensity and / or irradiation intensity shortens or prolongs the curing time and can lead to changed physical properties.

Only a small part of the bonding should be light-fixed as the maximum build-up of adhesion is achieved by pure heat curing.

The period of time between prefixation and heat curing should not exceed 1 h at room temperature (approx. +23 °C / 50 % r.h.).

The adhesive shows postcuring behavior. After heat curing at low temperatures and a short curing time, a certain level of strength is already achieved. The adhesive postcures at room temperature and achieves a level of strength corresponding to the curing temperature after approx. 24 hours.

Depending on the adhesive quantity used, exothermic reaction heat is generated which can lead to overheating. In this case, a lower curing temperature is to be selected.

All curing or light fixation parameters depend on material thickness and absorption, adhesive layer thickness,
lamp type and distance between lamp and adhesive layer. Prefixation is performed with light. Heat curing is mandatory. Values measured after 24 h at approx. 23 °C / 50 % r.h., unless otherwise specified.

General
The data and information provided are based on tests performed under laboratory conditions. Reliable information about the behavior of the product under practical conditions and its suitability for a specific purpose cannot be concluded from this. It is the customer’s responsibility to test the suitability of a product for the intended purpose by considering all specific requirements and by applying standards the customer deems suitable (e.g. DIN 2304-1). Type, physical and chemical properties of the materials to be processed with the product, as well as all actual influences occurring during transport, storage, processing and use, may cause deviations in the behavior of the product compared to its behavior under laboratory conditions. All data provided are typical average values or uniquely determined parameters measured under laboratory conditions. The data and information provided are therefore no guarantee for specific product properties or the suitability of the product for a specific purpose. Nothing contained herein shall be construed to indicate the non-existence of any relevant patents or to constitute a permission, encouragement or recommendation to practice any development covered by any patents, without permission of the owner of this patent. All products provided by DELO are subject to DELO’s General Terms of Business. Verbal ancillary agreements are deemed not to exist.

Instructions for use
You can find further details in the instructions for use. The instructions for use are available on www.DELO-adhesives.com. We will be pleased to send them to you on demand.

Occupational health and safety
See material safety data sheet.

Specification
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