DELO®-ML DB154

modified acrylate | 1C | UV- / VIS- / anaerobic-curing
free of solvents | very good temperature resistance, dual-curing, high-strength, fast fixation

Special features of product
▪ compliant with RoHS Directive 2015/863/EU

Function
▪ construction adhesive
▪ structural adhesive

Typical area of use
▪ -60 - 180 °C
▪ glass/metal bondings
▪ screw locking and thread sealing
▪ small metal areas with high fitting accuracy

Curing

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

Typical irradiation time

| intensity 60 mW/cm² | UVA | 6 s |

Curing time

| until initial strength | at rt approx. +23 °C | anaerobic on zinc-phosphated screws | 2 - 4 min |

Processing

<table>
<thead>
<tr>
<th>Conditioning time (typical)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>when stored in cold conditions</td>
<td>30 min</td>
</tr>
<tr>
<td>in containers up to 50 ml</td>
<td></td>
</tr>
<tr>
<td>when stored in cold conditions</td>
<td>4 h</td>
</tr>
<tr>
<td>in containers up to 1,000 ml</td>
<td></td>
</tr>
</tbody>
</table>

Processing time

| in standard climate +23 °C / 50 % r. h. | 28 d |
Storage life in unopened original container

up to <= 600 ml
at 0 °C to +25 °C 6 month(s)

**Technical properties**

Color in uncured condition  yellow

Transparency  translucent

Color in cured condition in 0.1 mm layer thickness  yellow

Color in cured condition in 1 mm layer thickness  yellow

Fluorescence  fluorescent

**Parameters**

Density

DELO Standard 13 | liquid 1.1 g/cm³

Viscosity

liquid | Viscosimeter 6000 mPa·s

Maximum curable layer thickness

DELO Standard 20 | White substrate | 400 nm | 200 mW/cm² | 60 s 4 mm

Off-torque

by the criteria of ISO 10964 | Steel, zinc-phosphated | Steel, zinc-phosphated | liquid | Tightening torque: 46 N·m 34 N·m

Off-torque

by the criteria of ISO 10964 | Steel, zinc-phosphated | Steel, zinc-phosphated | liquid 34 N·m

Tensile shear strength

by the criteria of DIN EN 1465 | Al | Al | Pretreatment: sand-blasted | liquid 13 MPa

Tensile shear strength

by the criteria of DIN EN 1465 | Steel | Steel | Pretreatment: sand-blasted | liquid 16 MPa

Compression shear strength

DELO Standard 5 | Glass | Glass | 400 nm | 200 mW/cm² | 60 s 11 MPa

Compression shear strength

DELO Standard 5 | Stainless steel | Pretreatment: Annealing | 400 nm | 200 mW/cm² | 60 s 6 MPa
<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Unit</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compression shear strength</td>
<td>4</td>
<td>MPa</td>
<td>DELO Standard 5</td>
</tr>
<tr>
<td>Compression shear strength</td>
<td>7</td>
<td>MPa</td>
<td>DELO Standard 5</td>
</tr>
<tr>
<td>Compression shear strength</td>
<td>6</td>
<td>MPa</td>
<td>DELO Standard 5</td>
</tr>
<tr>
<td>Compression shear strength</td>
<td>20</td>
<td>MPa</td>
<td>by the criteria of ISO 10123</td>
</tr>
<tr>
<td>Compression shear strength</td>
<td>35</td>
<td>MPa</td>
<td>by the criteria of ISO 10123</td>
</tr>
<tr>
<td>Tensile strength</td>
<td>60</td>
<td>MPa</td>
<td>by the criteria of DIN EN ISO 527</td>
</tr>
<tr>
<td>Elongation at tear</td>
<td>4</td>
<td>%</td>
<td>by the criteria of DIN EN ISO 527</td>
</tr>
<tr>
<td>Young's modulus</td>
<td>3000</td>
<td>MPa</td>
<td>by the criteria of DIN EN ISO 527</td>
</tr>
<tr>
<td>Shore hardness D</td>
<td>84</td>
<td></td>
<td>by the criteria of DIN EN ISO 868</td>
</tr>
<tr>
<td>Glass transition temperature</td>
<td>110</td>
<td>°C</td>
<td>Rheometer</td>
</tr>
<tr>
<td>Shrinkage</td>
<td>8.4</td>
<td>vol. %</td>
<td>DELO Standard 13</td>
</tr>
<tr>
<td>Water absorption</td>
<td>0.7</td>
<td>wt. %</td>
<td>by the criteria of DIN EN ISO 62</td>
</tr>
</tbody>
</table>
Tensile strength after thermal storage, based on DIN EN ISO 527

Young’s modulus after thermal storage
Curing 60 minutes at 90 °C

Compression shear strength after thermal storage, based on ISO 10123

Compression shear strength measured at the stated temperatures

Compression shear strength for determining the curing process
shaft-to-hub bonding, substrates: steel shell/steel hub based on ISO 10123

at room temperature (approx. +23 °C)
Converting table
°F = (°C x 1.8) + 32
1 inch = 25.4 mm
1 mil = 25.4 μm
1 oz = 28.3495 g
1 MPa = 145.04 psi
1 GPa = 145.04 ksi
1 cP = 1 mPa·s
1 N = 0.225 lb

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. All curing or light fixation parameters depend on material thickness and absorption, adhesive layer thickness, lamp type and distance between lamp and adhesive layer. 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.
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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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