

DELO DUALBOND® LT349

modified polycarbamin acid derivate | 1C | light-fixable / heat-curing

free of solvents | heat curing mandatory, light-fixable, low-temperature-curing, filled

Special features of product

- compliant with RoHS Directive 2015/863/EU
- halogen-free according to IEC 61249-2-21
- compliant with limits of VOC content in adhesive acc. to GB33372-2020

Function

- electronic adhesive

Typical area of use

- -40 - 130 °C
- fast component fixation

Curing

Suitable lamp types LED 365 nm, LED 400 nm

Typical light fixation time

*intensity 55 - 60 mW/cm²
UVA* 1 - 5 s

Typical curing time

*at +80 °C
in air convection oven* 30 min

*at +90 °C
in air convection oven* 20 min

*at +100 °C
in air convection oven* 10 min

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

at -18 °C 6 month(s)

Technical properties

Color in cured condition in 1 mm layer thickness beige

Transparency in cured condition in 1 mm layer thickness opaque

Filler particle type minerals

Filler particle size d95 = 21 µm

Parameters

Density 1.27 g/cm³
DELO Standard 13 | liquid

Viscosity 165000 mPa·s
liquid | Rheometer | Shear rate: 10 1/s | Gap: 500 µm

Compression shear strength 12 MPa
*DELO Standard 5 | **AI** | **AI** | 100 °C | 45 min*

Compression shear strength 32 MPa
*DELO Standard 5 | **FR4** | **FR4** | 100 °C | 45 min*

Compression shear strength 25 MPa
*DELO Standard 5 | **Glass** | **Glass** | 100 °C | 45 min*

Compression shear strength 8 MPa
*DELO Standard 5 | **LCP GF30** | **LCP GF30** | 100 °C | 45 min*

Compression shear strength 24 MPa
*DELO Standard 5 | **PC** | **PC** | 100 °C | 45 min*

Tensile strength 18 MPa
by the criteria of DIN EN ISO 527 | 100 °C | 45 min

Elongation at tear 11 %
by the criteria of DIN EN ISO 527 | 100 °C | 45 min

Young's modulus 800 MPa
by the criteria of DIN EN ISO 527 | 100 °C | 45 min

Shore hardness D 78
by the criteria of DIN EN ISO 868 | 100 °C | 45 min

Glass transition temperature <i>DELO Standard 26 TMA 400 nm 60 mW/cm² 60 s Plus 100 °C 45 min</i>	90	°C
Coefficient of linear expansion <i>DELO Standard 26 TMA Evaluation T: 45 °C - 80 °C 400 nm 60 mW/cm² 60 s Plus 100 °C 45 min</i>	140	ppm/K
Coefficient of linear expansion <i>DELO Standard 26 TMA Evaluation T: 100 °C - 160 °C 400 nm 60 mW/cm² 60 s Plus 100 °C 45 min</i>	182	ppm/K
Shrinkage <i>DELO Standard 13 100 °C 45 min</i>	2.8	vol. %
Water absorption <i>by the criteria of DIN EN ISO 62 Layer thickness: 4 mm 100 °C 45 min Type of storage: Media Medium: Distilled water Storage temperature: at approx. +23 °C</i>	0.2	wt. %

Converting table

°F = (°C x 1.8) + 32	1 MPa = 145.04 psi
1 inch = 25.4 mm	1 GPa = 145.04 ksi
1 mil = 25.4 µm	1 cP = 1 mPa·s
1 oz = 28.3495 g	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. The heating time of the components must be added to the actual curing time. It depends on component size and type of heat input. The specified curing temperature must be reached directly at the adhesive. Increasing or decreasing the curing temperature and / or irradiation intensity and / or irradiation time 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 pre-fixation 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. Optional pre-fixation 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.

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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

Nothing contained in this Technical Datasheet shall be interpreted as any express warranty or guarantee. This Technical Datasheet is for reference only and does not constitute a product specification. Please ask our responsible Sales Engineer for the applicable product specification which includes defined ranges. DELO is neither liable for any values and content of this Technical Datasheet nor for oral or written recommendations regarding the use, unless otherwise agreed in writing. This limitation of liability is not applicable for damages resulting from intent, gross negligence or culpable breach of cardinal obligations, nor shall it apply in case of death or personal injury or in case of liability under any applicable compulsory law.

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