

# DELO DUALBOND® LT2345

## modified epoxy resin | 1C | light-fixable / heat-curing

free of solvents | heat curing mandatory, light-fixable, low-temperature-curing, low outgassing, fast fixation

### Special features of product

- compliant with RoHS Directive 2015/863/EU
- low-outgassing according to ASTM E 595-93 (also known as NASA outgassing test)
- halogen-free according to IEC 61249-2-21

### Function

- electronic adhesive

### Typical area of use

- -40 - 180 °C

### Curing

Suitable lamp types LED 365 nm, LED 400 nm

Typical light fixation time

*intensity 1,000 mW/cm<sup>2</sup>  
LED 365 nm* 1 - 3 s

Typical curing time

*at +80 °C  
in air convection oven* 50 min

*at +100 °C  
in air convection oven* 20 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 -25 °C to -15 °C 6 month(s)

**Technical properties**

Color in cured condition in 1 mm layer thickness orange

Transparency in cured condition in 1 mm layer thickness opaque

**Parameters**

Density 1.52 g/cm<sup>3</sup>  
*by the criteria of DIN 66137-2 | liquid*

Viscosity 65000 mPa·s  
*liquid | Rheometer | Shear rate: 10 1/s | Gap: 500 µm*

Compression shear strength 60 MPa  
*DELO Standard 5 | **Al** | **Al** | Pretreatment: sand-blasted | 100 °C | 60 min*

Compression shear strength 52 MPa  
*DELO Standard 5 | **Ni** | **Ni** | Pretreatment: Laser | 100 °C | 60 min*

Compression shear strength 18 MPa  
*DELO Standard 5 | **PA6** | **PA6** | Pretreatment: Annealing | 100 °C | 60 min*

Die shear strength 16 N  
*DELO Standard 30 | **Si** | Chip 1 mm x 1 mm | **Au** | Platine 25 mm x 15 mm | 100 °C | 60 min*

Die shear strength 62 N  
*DELO Standard 30 | **Si** | Chip 1 mm x 1 mm | **FR4** | 20 mm x 20 mm x 5 mm | Pretreatment: Annealing | 100 °C | 60 min*

Tensile strength 58 MPa  
*by the criteria of DIN EN ISO 527 | 100 °C | 60 min*

Elongation at tear 1 %  
*by the criteria of DIN EN ISO 527 | 100 °C | 60 min*

Young's modulus 8500 MPa  
*DMTA | 400 nm | 1000 mW/cm<sup>2</sup> | 1 s | Plus | 100 °C | 60 min*

Shore hardness D 90  
*by the criteria of DIN EN ISO 868 | 400 nm | 1000 mW/cm<sup>2</sup> | 1 s | Plus | 100 °C | 60 min*

Glass transition temperature 135 °C  
*DMTA | 400 nm | 1000 mW/cm<sup>2</sup> | 1 s | Plus | 100 °C | 60 min*

Coefficient of linear expansion <i>DELO Standard 26   TMA   Evaluation T: -30 °C - 40 °C   400 nm   1000 mW/cm²   1 s   Plus   100 °C   60 min</i>	30	ppm/K
Coefficient of linear expansion <i>DELO Standard 26   TMA   Evaluation T: 130 °C - 190 °C   400 nm   1000 mW/cm²   1 s   Plus   100 °C   60 min</i>	108	ppm/K
Shrinkage <i>DELO Standard 13   400 nm   1000 mW/cm²   1 s   Plus   100 °C   60 min</i>	3	vol. %
Water absorption <i>by the criteria of DIN EN ISO 62   Layer thickness: 4 mm   400 nm   1000 mW/cm²   1 s   Plus   100 °C   60 min   Type of storage: Media   Medium: Distilled water   Duration: 24 h</i>	0.1	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. 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-curing 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](http://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.

## CONTACT