

# DELO DUALBOND® GE731

**modified epoxy resin | 1C | UV- / VIS- / heat-curing**

free of solvents | dual-curing, thixotropic, very good temperature resistance, unfilled

### Special features of product

- compliant with RoHS Directive 2015/863/EU
- 400 nm only in combination with heat curing

### Function

- electronic encapsulant

### Typical area of use

- -40 - 180 °C

### Curing

Suitable lamp types LED 365 nm, LED 400 nm

Typical light fixation time

*intensity 150 mW/cm<sup>2</sup>  
LED 365 nm* 30 s

Typical curing time

*at +100 °C  
in air convection oven* 60 min

*at +130 °C  
in air convection oven* 10 min

*at +150 °C  
in air convection oven* 5 min

### Processing

Typical adhesive application needle dispensing

Conditioning time (typical)

*when stored in cold conditions* 6 h

Processing time

*at rt approx. +23 °C* 21 d

Storage life in unopened original container

at 0 °C to +10 °C 6 month(s)

**Technical properties**

Transparency translucent

Color in cured condition in 1 mm layer thickness yellowish

Transparency in cured condition in 1 mm layer thickness transparent

**Parameters**

Density 1.09 g/cm<sup>3</sup>  
*DELO Standard 13 | liquid*

Viscosity 10000 mPa·s  
*liquid | Rheometer | Shear rate: 2 1/s*

Maximum curable layer thickness ≥4 mm  
*DELO Standard 20 | **White substrate** | 365 nm | 150 mW/cm<sup>2</sup> | 30 s | Plus | at approx. +23 °C | 24 h*

Compression shear strength 4 MPa  
*DELO Standard 5 | **Glass | Glass** | 365 nm | 150 mW/cm<sup>2</sup> | 30 s | Plus | 130 °C | 10 min*

Elongation at tear 98 %  
*by the criteria of DIN EN ISO 527 | 365 nm | 150 mW/cm<sup>2</sup> | 30 s | Plus | 130 °C | 10 min*

Young's modulus < 10 MPa  
*DMTA | 365 nm | 150 mW/cm<sup>2</sup> | 30 s | Plus | 130 °C | 10 min*

Shore hardness A 43  
*by the criteria of DIN EN ISO 868 | 365 nm | 150 mW/cm<sup>2</sup> | 30 s | Plus | 130 °C | 10 min*

Glass transition temperature -33 °C  
*DMTA | 365 nm | 150 mW/cm<sup>2</sup> | 30 s | Plus | 130 °C | 10 min*

Coefficient of linear expansion 274 ppm/K  
*DELO Standard 26 | TMA | Evaluation T: -20 °C - 150 °C | 365 nm | 150 mW/cm<sup>2</sup> | 30 s | Plus | 130 °C | 10 min*

Shrinkage 2 vol. %  
*DELO Standard 13 | 365 nm | 150 mW/cm<sup>2</sup> | 30 s | Plus | 130 °C | 10 min*

Water absorption 0.4 wt. %  
*by the criteria of DIN EN ISO 62 | Layer thickness: 4 mm | 365 nm | 150 mW/cm<sup>2</sup> | 30 s | Plus | 130 °C | 10 min | Type of storage: Media | Medium: Distilled water | Duration: 24 h*

Relative permittivity  
by the criteria of RF-IV | 365 nm | 130 mW/cm<sup>2</sup> | 30 s | Plus | 130 °C | 10 min | 1 MHz

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### 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. Parameters can vary for pure light curing, pure heat curing and a combination of light and heat curing. 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. Curing until final strength proceeds within 24 hours at room temperature. Light and heat curing mechanisms can be used independently. High temperatures during or after curing can lead to post-crosslinking of the adhesive which influences the physical properties of the bond. 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**

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**DELO** Industrial Adhesives  
Headquarters

▶ Germany · Windach / Munich ... [www.DELO-adhesives.com](http://www.DELO-adhesives.com)

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