

DELO DUALBOND® OB6769

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

free of solvents, free of bisphenol A, free of nonylphenols, free of CFC / CHC | low-temperature-curing, low CTE, humidity-resistant, electrically insulating, no corrosive effect, very high temperature strength, flow-resistant, low blooming and odorless, dual-curing, light-fixable, low outgassing, filled, low swelling, high-strength, high ion purity, reproducible and low shrinkage, fast fixation, thixotropic

Special features of product

- low-outgassing according to ASTM E 595-93 (also known as NASA outgassing test)
- halogen-free according to IEC 61249-2-21
- compliant with RoHS Directive 2015/863/EU
- compliant with limits of VOC content in adhesive acc. to GB33372-2020
- tested for biocompatibility and meets the requirements according to DIN EN ISO 10993-5: test for cytotoxicity
- tested for biocompatibility and meets the requirements according to DIN EN ISO 10993-10: tests for skin sensitization

Function

- electronic adhesive

Typical area of use

- 40 - 180 °C
- active alignment for camera modules
- mixed bondings with plastics
- fast component fixation
- bonding of temperature-sensitive substrates

Curing

Suitable lamp types	LED 365 nm	
Typical light fixation time		
<i>intensity 1,000 mW/cm²</i>	1 - 3	s
<i>LED 365 nm</i>		
Typical curing time		
<i>at +80 °C</i>	50	min
<i>in air convection oven</i>		
<i>at +100 °C</i>	20	min
<i>in air convection oven</i>		

## Processing

Typical adhesive application	needle dispensing	
Conditioning time (typical)		
<i>when stored in cold conditions in containers up to 50 ml</i>	1	h
<i>when stored in cold conditions in containers up to 170 ml</i>	2	h
Processing time		
<i>in standard climate +23 °C / 50 % r. h.</i>	3	d
Storage life in unopened original container		
<i>up to &lt;= 180 ml at -45 °C to -15 °C</i>	6	month(s)

## Technical properties

Color in uncured condition	white	
Color in cured condition in 0.1 mm layer thickness	whitish	
Transparency in cured condition in 0.1 mm layer thickness	translucent	
Color in cured condition in 1 mm layer thickness	whitish	
Transparency in cured condition in 1 mm layer thickness	opaque	
Fluorescence	fluorescent	
Filler particle type	minerals	

## Parameters

Density <i>DELO Standard 13 / liquid</i>	1.65	g/cm <sup>3</sup>
Viscosity <i>liquid / Rheometer / Shear rate: 10 1/s / Gap: 500 µm</i>	23000	mPa·s
Thixotropy index <i>liquid / Rheometer / Gap: 500 µm</i>	5.8	

Maximum curable layer thickness <i>DELO Standard 20 / <b>White substrate</b> / 365 nm / 200 mW/cm<sup>2</sup> / 5 s / Plus / at approx. +23 °C / 24 h</i>	1.5	mm
Compression shear strength <i>DELO Standard 5 / <b>Al, anodized</b> / <b>Al, anodized</b> / 100 °C / 20 min</i>	41	MPa
Compression shear strength <i>DELO Standard 5 / <b>Stainless steel</b> / <b>Stainless steel</b> / 100 °C / 20 min</i>	31	MPa
Compression shear strength <i>DELO Standard 5 / <b>FR4</b> / <b>FR4</b> / 100 °C / 20 min</i>	36	MPa
Compression shear strength <i>DELO Standard 5 / <b>Glass</b> / <b>Glass</b> / 365 nm / 200 mW/cm<sup>2</sup> / 5 s / Plus / at approx. +23 °C / 24 h</i>	20	MPa
Compression shear strength <i>DELO Standard 5 / <b>PC</b> / <b>PC</b> / 100 °C / 20 min</i>	41	MPa
Compression shear strength <i>DELO Standard 5 / <b>PPS</b> / <b>PPS</b> / 100 °C / 20 min</i>	42	MPa
Tensile strength <i>by the criteria of DIN EN ISO 527 / 365 nm / 200 mW/cm<sup>2</sup> / 5 s / Plus / 100 °C / 20 min / Plus / at approx. +23 °C / 24 h</i>	65	MPa
Elongation at tear <i>by the criteria of DIN EN ISO 527 / 365 nm / 200 mW/cm<sup>2</sup> / 5 s / Plus / 100 °C / 20 min / Plus / at approx. +23 °C / 24 h</i>	0.8	%
Young's modulus <i>DMTA / 365 nm / 200 mW/cm<sup>2</sup> / 5 s / Plus / 100 °C / 20 min / Plus / at approx. +23 °C / 24 h</i>	11000	MPa
Shore hardness D <i>by the criteria of DIN EN ISO 868 / 365 nm / 200 mW/cm<sup>2</sup> / 5 s / Plus / 100 °C / 20 min / Plus / at approx. +23 °C / 24 h</i>	>90	
Glass transition temperature <i>DMTA / 365 nm / 200 mW/cm<sup>2</sup> / 5 s / Plus / 100 °C / 20 min / Plus / at approx. +23 °C / 24 h</i>	160	°C
Coefficient of linear expansion <i>DELO Standard 26 / TMA / Evaluation T: -40 °C - 30 °C / 365 nm / 200 mW/cm<sup>2</sup> / 5 s / Plus / 100 °C / 20 min / Plus / at approx. +23 °C / 24 h</i>	26	ppm/K
Coefficient of linear expansion <i>DELO Standard 26 / TMA / Evaluation T: 160 °C - 180 °C / 365 nm / 200 mW/cm<sup>2</sup> / 5 s / Plus / 100 °C / 20 min / Plus / at approx. +23 °C / 24 h</i>	69	ppm/K
Shrinkage <i>DELO Standard 13 / 365 nm / 200 mW/cm<sup>2</sup> / 5 s / Plus / 100 °C / 20 min / Plus / at approx. +23 °C / 24 h</i>	1.7	vol. %

**Water absorption**

0.08

wt. %

by the criteria of DIN EN ISO 62 | Layer thickness: 4 mm | 365 nm | 200 mW/cm<sup>2</sup> | 5 s | Plus | 100 °C | 20 min | Plus | at approx. +23 °C | 24 h | Type of storage: Media | Medium: Distilled water | Duration: 24 h

**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.

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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](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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