

DELO DUALBOND® OB6789

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

free of solvents, free of antimony | low-temperature-curing, low CTE, humidity-resistant, flow-resistant, dual-curing, light-fixable, low outgassing, filled, low swelling, reproducible, low shrinkage, fast fixation

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 - 180 °C
- active alignment for camera modules
- fast component fixation

Curing

Suitable lamp types	LED 365 nm	
Typical light fixation time		
<i>intensity 1,000 mW/cm² LED 365 nm</i>	5 - 10	s
Typical curing time		
<i>at +80 °C in air convection oven</i>	60	min
<i>at +130 °C in air convection oven</i>	10	min

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 310 ml</i>	3	h

Processing time

*in standard climate +23 °C / 50 % r. h.
in containers up to 310 ml*

3 d

Storage life in unopened original container

at -45 °C to -15 °C

6 month(s)

Technical properties

Color in cured condition in 0.1 mm layer thickness

yellowish

Transparency in cured condition in 0.1 mm layer thickness

translucent

Color in cured condition in 1 mm layer thickness

yellowish

Transparency in cured condition in 1 mm layer thickness

translucent

Filler particle type

minerals

Filler particle size

d95 = 11 µm

Parameters

Density

DELO Standard 13 | liquid

1.57 g/cm³

Viscosity

liquid | Rheometer | Shear rate: 10 1/s | Gap: 200 µm

125000 mPa·s

Thixotropy index

liquid | Rheometer | Gap: 200 µm

3.4

Compression shear strength

*DELO Standard 5 | **AI** | **AI** | 130 °C | 5 min*

17 MPa

Compression shear strength

*DELO Standard 5 | **AI, anodized** | **AI, anodized** | 130 °C | 5 min*

41 MPa

Compression shear strength

*DELO Standard 5 | **FR4** | **FR4** | Pretreatment: Annealing | 130 °C | 5 min*

21 MPa

Compression shear strength

*DELO Standard 5 | **Glass** | **Glass** | 365 nm | 150 mW/cm² | 10 s | Plus | 130 °C | 5 min*

20 MPa

Compression shear strength

*DELO Standard 5 | **PBT** | **PBT** | 130 °C | 5 min*

17 MPa

Compression shear strength <i>DELO Standard 5 PC PC 130 °C 5 min</i>	36	MPa
Tensile strength <i>by the criteria of DIN EN ISO 527 365 nm 150 mW/cm² 10 s Plus 130 °C 5 min</i>	60	MPa
Elongation at tear <i>by the criteria of DIN EN ISO 527 365 nm 150 mW/cm² 10 s Plus 130 °C 5 min</i>	1.2	%
Young's modulus <i>DMTA 365 nm 150 mW/cm² 10 s Plus 130 °C 20 min Plus at approx. +23 °C 24 h</i>	9090	MPa
Shore hardness D <i>by the criteria of DIN EN ISO 868 365 nm 150 mW/cm² 10 s Plus 130 °C 5 min</i>	≥ 90	
Glass transition temperature <i>DMTA 365 nm 150 mW/cm² 10 s Plus 130 °C 5 min Type of storage: Temp. Storage temperature: 205 °C Duration: 30 min</i>	142	°C
Coefficient of linear expansion <i>TMA Evaluation T: -40 °C - 20 °C 365 nm 150 mW/cm² 10 s Plus 130 °C 5 min</i>	38	ppm/K
Coefficient of linear expansion <i>TMA Evaluation T: 110 °C - 170 °C 365 nm 150 mW/cm² 10 s Plus 130 °C 5 min</i>	100	ppm/K
Shrinkage <i>DELO Standard 13 365 nm 150 mW/cm² 10 s Plus 130 °C 5 min</i>	1.7	vol. %
Water absorption <i>by the criteria of DIN EN ISO 62 Layer thickness: 2 mm 365 nm 200 mW/cm² 10 s Plus 130 °C 5 min Type of storage: Media Medium: Distilled water Duration: 24 h</i>	0.16	%

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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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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ADHESIVES

DISPENSING

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