

DELO DUALBOND® OB786

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

free of solvents | dual-curing, low-temperature-curing, fast light fixation possible, low outgassing, low CTE, low shrinkage

Special features of product

- compliant with RoHS Directive 2015/863/EU
- halogen-free according to IEC 61249-2-21
- low-outgassing according to ASTM E 595-93 (also known as NASA outgassing test)
- compliant with limits of VOC content in adhesive acc. to GB33372-2020

Function

- electronic adhesive
- high-precision alignment of optics

Typical area of use

- -40 - 180 °C
- active alignment for camera modules
- fast component fixation
- stacking / bonding of optical components

Curing

Suitable lamp types LED 365 nm, UVA

Typical light fixation time

*intensity 1000 mW/cm²
LED 365 nm* 3 - 10 s

Typical curing time

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

*at +90 °C
in air convection oven* 50 min

*at +100 °C
in air convection oven* 20 min

*at +130 °C
in air convection oven* 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 170 ml</i>	2	h

Processing time

<i>in standard climate +23 °C / 50 % r. h.</i>	72	h
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Storage life in unopened original container

<i>at -45 °C to -15 °C</i>	6	month(s)
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Technical properties

Color in cured condition in 0.1 mm layer thickness	yellow	
Transparency in cured condition in 0.1 mm layer thickness	translucent	
Color in cured condition in 1 mm layer thickness	yellow	
Transparency in cured condition in 1 mm layer thickness	translucent	
Filler information	quartz	
Filler particle size d95	14	µm

Parameters

Density <i>DELO Standard 13 liquid</i>	1.6	g/cm ³
Viscosity <i>liquid Rheometer Shear rate: 10 1/s Gap: 500 µm</i>	32000	mPa·s
Thixotropy index <i>liquid Rheometer Gap: 500 µm</i>	7	
Maximum curable layer thickness <i>DELO Standard 20 White substrate 365 nm 150 mW/cm² 60 s</i>	0.76	mm
Compression shear strength <i>DELO Standard 5 AI, anodized AI, anodized 130 °C 5 min Plus at approx. +23 °C 24 h</i>	41	MPa

<p>Compression shear strength <i>DELO Standard 5 FR4 FR4 130 °C 5 min Plus at approx. +23 °C 24 h</i></p>	27	MPa
<p>Compression shear strength <i>DELO Standard 5 Glass Glass 365 nm 150 mW/cm² 10 s Plus at approx. +23 °C 24 h</i></p>	20	MPa
<p>Compression shear strength <i>DELO Standard 5 PPS PPS 130 °C 5 min Plus at approx. +23 °C 24 h</i></p>	33	MPa
<p>Tensile strength <i>by the criteria of DIN EN ISO 527 365 mm 150 mW/cm² 60 s Plus 130 °C 5 min Plus at approx. +23 °C 24 h</i></p>	41	MPa
<p>Elongation at tear <i>by the criteria of DIN EN ISO 527 365 nm 150 mW/cm² 60 s Plus 130 °C 5 min Plus at approx. +23 °C 24 h</i></p>	0.8	%
<p>Young's modulus <i>DMTA 365 nm 150 mW/cm² 60 s Plus 130 °C 5 min Plus at approx. +23 °C 24 h</i></p>	7500	MPa
<p>Shore hardness D <i>by the criteria of DIN EN ISO 868 365 nm 150 mW/cm² 60 s Plus 130 °C 5 min Plus at approx. +23 °C 24 h</i></p>	> 90	
<p>Glass transition temperature <i>DMTA 365 nm 150 mW/cm² 60 s Plus 130 °C 5 min Plus at approx. +23 °C 24 h</i></p>	179	°C
<p>Coefficient of linear expansion <i>DELO Standard 26 TMA Evaluation T: 30 °C - 80 °C 365 nm 150 mW/cm² 60 s Plus 130 °C 5 min Plus at approx. +23 °C 24 h</i></p>	38	ppm/K
<p>Coefficient of linear expansion <i>DELO Standard 26 TMA Evaluation T: 130 °C - 150 °C 365 nm 150 mW/cm² 60 s Plus 130 °C 5 min Plus at approx. +23 °C 24 h</i></p>	53	ppm/K
<p>Shrinkage <i>DELO Standard 13 365 nm 150 mW/cm² 60 s Plus 130 °C 5 min Plus at approx. +23 °C 24 h</i></p>	1.6	vol. %
<p>Water absorption <i>by the criteria of DIN EN ISO 62 Layer thickness: 4 mm 365 nm 150 mW/cm² 60 s Plus 130 °C 5 min Plus at approx. +23 °C 24 h Type of storage: Media Medium: Distilled water Storage temperature: at approx. +23 °C Duration: 24 h</i></p>	0.08	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. 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.

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

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CONTACT

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