

DELO[®] KATIOBOND[®] GE680

modified epoxy resin | 1C | UV-curing

free of solvents | thixotropic, low outgassing, low shrinkage, high temperature resistance, low CTE

Special features of product

- compliant with RoHS Directive 2015/863/EU
- tested for biocompatibility and meets the requirements according to USP 30, NF 25, Class VI
- compliant with limits of VOC content in adhesive acc. to GB33372-2020

Function

- encapsulant / potting compound

Typical area of use

- -40 - 150 °C
- encapsulation of chip modules
- stacking / bonding of optical components

Curing

Suitable lamp types	LED 365 nm, UVA	
Minimum irradiation dose		
<i>LED 365 nm</i>	1000	mW·s/cm ²
Typical irradiation time		
<i>intensity 200 mW/cm² LED 365 nm</i>	5	s
Typical curing time		
<i>at rt approx. + 23 °C irradiated</i>	24	h

Processing

Typical adhesive application	needle dispensing	
Conditioning time (typical)		
<i>in containers up to 50 ml</i>	1	h
<i>in containers up to 1,000 ml</i>	6	h

Processing time

<i>at rt approx. +23 °C in containers up to 50 ml</i>	7	d
<i>at rt approx. +23 °C in containers up to 900 ml</i>	3	d

Storage life in unopened original container

<i>at 0 °C to +10 °C</i>	6	month(s)
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Technical properties

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	
Filler information	quartz	
Filler particle size d95	80	µm

Parameters

Density <i>by the criteria of DIN 66137-2 liquid</i>	1.76	g/cm ³
Viscosity <i>by the criteria of DIN 53019 liquid Rheometer Shear rate: 10 1/s Gap: 500 µm</i>	54000	mPa·s
Thixotropy index <i>by the criteria of DIN 53019 liquid Rheometer Gap: 500 µm</i>	2.0	
Maximum curable layer thickness <i>365 nm 200 mW/cm² 5 s Plus at approx. +23 °C 24 h</i>	2.8	mm
Maximum curable layer thickness <i>365 nm 1000 mW/cm² 6 s Plus at approx. +23 °C 24 h</i>	5.2	mm
Compression shear strength <i>DELO Standard 05 Glass AI Pretreatment: Laser 365 nm 200 mW/cm² 5 s Plus at approx. +23 °C 24 h</i>	20	MPa

Compression shear strength 11 MPa
 DELO Standard 05 | **Glass** | **Stainless steel** | 365 nm | 200 mW/cm² | 5 s | Plus | at approx. +23 °C | 24 h

Compression shear strength 14 MPa
 DELO Standard 05 | **Glass** | **FR4** | Pretreatment: Annealing | 365 nm | 200 mW/cm² | 5 s | Plus | at approx. +23 °C | 24 h

Compression shear strength 15 MPa
 DELO Standard 05 | **Glass** | **Glass** | 365 nm | 200 mW/cm² | 5 s | Plus | at approx. +23 °C | 24 h

Compression shear strength 7 MPa
 DELO Standard 05 | **Glass** | **PA** | Pretreatment: Annealing | 365 nm | 200 mW/cm² | 5 s | Plus | at approx. +23 °C | 24 h

Compression shear strength 5 MPa
 DELO Standard 05 | **Glass** | **PBT** | 365 nm | 200 mW/cm² | 5 s | Plus | at approx. +23 °C | 24 h

Compression shear strength 16 MPa
 DELO Standard 05 | **PC** | **PC** | 365 nm | 200 mW/cm² | 5 s | Plus | at approx. +23 °C | 24 h

Tensile strength 46 MPa
 by the criteria of DIN EN ISO 527 | 365 nm | 200 mW/cm² | 5 s | Plus | at approx. +23 °C | 24 h

Elongation at tear 1.5 %
 by the criteria of DIN EN ISO 527 | 365 nm | 200 mW/cm² | 5 s | Plus | at approx. +23 °C | 24 h

Young's modulus 15700 MPa
 DMTA | 365 nm | 200 mW/cm² | 5 s | Plus | at approx. +23 °C | 24 h

Shore hardness D 90
 by the criteria of DIN EN ISO 868 | 365 nm | 200 mW/cm² | 5 s | Plus | at approx. +23 °C | 24 h

Glass transition temperature 157 °C
 DMTA | 365 nm | 200 mW/cm² | 5 s | Plus | at approx. +23 °C | 24 h

Coefficient of linear expansion 21 ppm/K
 DELO Standard 26 | TMA | Evaluation T: -40 °C - 20 °C | 365 nm | 200 mW/cm² | 5 s | Plus | at approx. +23 °C | 24 h

Coefficient of linear expansion 66 ppm/K
 DELO Standard 26 | TMA | Evaluation T: 150 °C - 180 °C | 365 nm | 200 mW/cm² | 5 s | Plus | at approx. +23 °C | 24 h

Shrinkage 1.7 vol. %
 DELO Standard 13 | 365 nm | 200 mW/cm² | 5 s | Plus | at approx. +23 °C | 24 h

Water absorption 0.06 wt. %
 by the criteria of DIN EN ISO 62 | Layer thickness: 4 mm | 365 nm | 200 mW/cm² | 5 s | Plus | at approx. +23 °C | 24 h | Type of storage: Media | Medium: Distilled water | Duration: 24 h

Extractable ions <i>Chloride</i>	< 10	ppm
Extractable ions <i>Potassium</i>	< 10	ppm
Extractable ions <i>Sodium</i>	< 10	ppm
Volume resistivity <i>by the criteria of DIN EN 62631-3-1 365 nm 200 mW/cm² 5 s Plus at approx. +23 °C 24 h</i>	>1E14	Ohm·cm
Surface resistance <i>by the criteria of DIN EN 62631-3-2 365 nm 200 mW/cm² 5 s Plus at approx. +23 °C 24 h</i>	>1E11	Ohm
Dielectric strength <i>by the criteria of DIN EN 60243-1 365 nm 200 mW/cm² 5 s Plus at approx. +23 °C 24 h</i>	39	kV/mm
Relative permittivity <i>by the criteria of DIN 53483-2 365 nm 200 mW/cm² 5 s Plus at approx. +23 °C 24 h 1 kHz</i>	3.5	
Relative permittivity <i>by the criteria of DIN 53483-2 365 nm 200 mW/cm² 5 s Plus at approx. +23 °C 24 h 1 MHz</i>	3.4	
Relative permittivity <i>by the criteria of DIN 53483-2 365 nm 200 mW/cm² 5 s Plus at approx. +23 °C 24 h 100 kHz</i>	3.5	

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. 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. 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. 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.

CONTACT

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