

# DELO<sup>®</sup> KATIOBOND<sup>®</sup> GE680

**modified epoxy resin | 1C | UV-curing**

free of solvents | low CTE, filled, thixotropic

### 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

### Curing

Suitable lamp types	LED 365 nm, UVA	
Minimum irradiation dose		
<i>LED 365 nm</i>	1000	mW·s/cm <sup>2</sup>
Typical irradiation time		
<i>intensity 200 mW/cm<sup>2</sup> 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

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

Storage life in unopened original container

at 0 °C to +10 °C	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 1 mm layer thickness	translucent
Filler particle type	minerals
Filler particle size	d95 = 72 µm

**Parameters**

Density <i>liquid</i>	1.8	g/cm <sup>3</sup>
Viscosity <i>liquid   Rheometer   Shear rate: 10 1/s   Gap: 500 µm</i>	70000	mPa·s
Thixotropy index <i>liquid   Rheometer   Gap: 500 µm</i>	2	
Maximum curable layer thickness <i>DELO Standard 20   White substrate   365 nm   200 mW/cm<sup>2</sup>   5 s   Plus   at approx. +23 °C   24 h</i>	3.2	mm
Maximum curable layer thickness <i>DELO Standard 20   White substrate   365 nm   200 mW/cm<sup>2</sup>   30 s   Plus   at approx. +23 °C   24 h</i>	≥4	mm
Compression shear strength <i>DELO Standard 5   Glass   AI   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   Glass   FR4   365 nm   200 mW/cm<sup>2</sup>   5 s   Plus   at approx. +23 °C   24 h</i>	16	MPa
Compression shear strength <i>DELO Standard 5   Glass   Glass   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   Glass   LCP GF30   365 nm   200 mW/cm<sup>2</sup>   5 s   Plus   at approx. +23 °C   24 h</i>	7	MPa
Compression shear strength <i>DELO Standard 5   Glass   PBT   365 nm   200 mW/cm<sup>2</sup>   5 s   Plus   at approx. +23 °C   24 h</i>	11	MPa
Tensile strength <i>by the criteria of DIN EN ISO 527   365 nm   200 mW/cm<sup>2</sup>   5 s   Plus   at approx. +23 °C   24 h</i>	37	MPa
Elongation at tear <i>by the criteria of DIN EN ISO 527   365 nm   200 mW/cm<sup>2</sup>   5 s   Plus   at approx. +23 °C   24 h</i>	0.7	%
Young's modulus <i>DMTA   365 nm   200 mW/cm<sup>2</sup>   5 s   Plus   at approx. +23 °C   24 h</i>	16800	MPa
Shore hardness D <i>by the criteria of DIN EN ISO 868   365 nm   200 mW/cm<sup>2</sup>   5 s   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   at approx. +23 °C   24 h</i>	160	°C
Coefficient of linear expansion <i>DELO Standard 26   TMA   Evaluation T: 30 °C - 150 °C   365 nm   200 mW/cm<sup>2</sup>   5 s   Plus   at approx. +23 °C   24 h</i>	33	ppm/K
Shrinkage <i>DELO Standard 13   365 nm   200 mW/cm<sup>2</sup>   5 s   Plus   at approx. +23 °C   24 h</i>	1.7	vol. %
Water absorption <i>by the criteria of DIN EN ISO 62   Layer thickness: 4 mm   365 nm   200 mW/cm<sup>2</sup>   5 s   Plus   at approx. +23 °C   24 h   Type of storage: Media   Medium: Distilled water   Duration: 24 h</i>	0.06	wt. %
Relative permittivity <i>by the criteria of RF-IV   1 GHz</i>	3.2	
Relative permittivity <i>by the criteria of RF-IV   1 MHz</i>	3.5	
Relative permittivity <i>by the criteria of RF-IV   10 MHz</i>	3.5	
Relative permittivity <i>by the criteria of RF-IV   100 MHz</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](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

DELO KATIOBOND GE680 | as of 22.06.2023 13:23 | Page 4 of 4

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