

# DELO DUALBOND® GE4949

**modified acrylate | 1C | UV- / VIS- / humidity-curing**

free of solvents | thixotropic, unfilled | dual-curing, tension-equalizing

### Special features of product

- compliant with RoHS Directive 2015/863/EU
- compliant with limits of VOC content in adhesive acc. to GB33372-2020

### Typical area of use

- -40 - 120 °C
- glass/metal bondings
- mixed bondings with plastics

### Curing

Suitable lamp types	LED 365 nm, LED 400 nm, UVA	
Typical irradiation time		
<i>intensity 55 - 60 mW/cm<sup>2</sup> UVA</i>	20	s
<i>intensity 200 mW/cm<sup>2</sup> LED 400 nm</i>	10	s

### Processing

Conditioning time (typical)		
<i>when stored in cold conditions in containers up to 50 ml</i>	30	min
<i>when stored in cold conditions in containers up to 1,000 ml</i>	4	h
Processing time		
<i>at rt approx. +23 °C</i>	30	d
Storage life in unopened original container		
<i>at 0 °C to +10 °C</i>	6	month(s)

### Technical properties

Color in uncured condition	black
Color in cured condition in 0.1 mm layer thickness	black

Color in cured condition in 1 mm layer thickness black

**Parameters**

Density 1.04 g/cm<sup>3</sup>  
*DELO Standard 13 | liquid*

Viscosity 36000 mPa·s  
*liquid | Viscosimeter*

Viscosity 12000 mPa·s  
*liquid | Rheometer | Shear rate: 10 1/s | Gap: 500 µm*

Compression shear strength 10 MPa  
*DELO Standard 5 | **Glass | AI** | 400 nm | 200 mW/cm<sup>2</sup> | 30 s | Plus | at approx. +23 °C | Rel. air humidity: 50 % | 72 h*

Compression shear strength 12 MPa  
*DELO Standard 5 | **Glass | Glass** | 400 nm | 200 mW/cm<sup>2</sup> | 30 s | Plus | at approx. +23 °C | Rel. air humidity: 50 % | 72 h*

Compression shear strength 11 MPa  
*DELO Standard 5 | **Glass | PA6** | 400 nm | 200 mW/cm<sup>2</sup> | 30 s | Plus | at approx. +23 °C | Rel. air humidity: 50 % | 72 h*

Compression shear strength 4 MPa  
*DELO Standard 5 | **Glass | PBT** | 400 nm | 200 mW/cm<sup>2</sup> | 30 s | Plus | at approx. +23 °C | Rel. air humidity: 50 % | 72 h*

Compression shear strength 10 MPa  
*DELO Standard 5 | **PC | PC** | 400 nm | 200 mW/cm<sup>2</sup> | 30 s | Plus | at approx. +23 °C | Rel. air humidity: 50 % | 72 h*

Young's modulus 120 MPa  
*DMTA | 400 nm | 200 mW/cm<sup>2</sup> | 60 s | Plus | at approx. +23 °C | Rel. air humidity: 50 % | 72 h*

Shore hardness A 85  
*by the criteria of DIN EN ISO 868 | 400 nm | 200 mW/cm<sup>2</sup> | 90 s | Plus | at approx. +23 °C | Rel. air humidity: 50 % | 72 h*

Shrinkage 4.6 vol. %  
*DELO Standard 13 | Plus*

Water absorption 5.4 wt. %  
*by the criteria of DIN EN ISO 62 | Layer thickness: 1 mm | 400 nm | 200 mW/cm<sup>2</sup> | 90 s | Plus | at approx. +23 °C | Rel. air humidity: 50 % | 72 h | Type of storage: Media | Medium: Distilled water | Storage temperature: at approx. +23 °C*

**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

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**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. 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.

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