

# DELO<sup>®</sup>-ML DB138

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

free of solvents | very high temperature strength, dual-curing, high-strength, fast fixation

### Special features of product

- compliant with RoHS Directive 2015/863/EU

### Typical area of use

- 60 - 180 °C
- glass/metal bondings
- screw locking and thread sealing
- small metal areas with high fitting accuracy

### Curing

Suitable lamp types LED 365 nm, LED 400 nm, UVA

Typical irradiation time

*intensity 60 mW/cm<sup>2</sup>  
UVA* 8 s

Curing time

*until initial strength  
at rt approx. +23 °C  
with DELO-QUICK 5002 on V2A screws* 5 s

*until initial strength  
at rt approx. +23 °C  
anaerobic on zinc-phosphated screws* 2 - 4 min

*until final strength  
at rt approx. +23 °C  
anaerobic on zinc-phosphated screws* 24 h

### Processing

Conditioning time (typical)

*when stored in cold conditions  
in containers up to 50 ml* 30 min

*when stored in cold conditions  
in containers up to 1,000 ml* 4 h

Processing time

*in standard climate +23 °C / 50 % r. h.* 28 d

Storage life in unopened original container

up to <= 600 ml  
at 0 °C to +10 °C

6 month(s)

### Technical properties

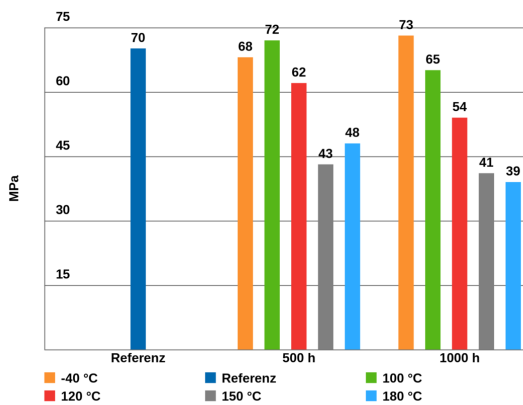
Color in uncured condition	colorless
Transparency	translucent
Color in cured condition in 0.1 mm layer thickness	yellowish
Color in cured condition in 1 mm layer thickness	yellowish
Fluorescence	fluorescent

### Parameters

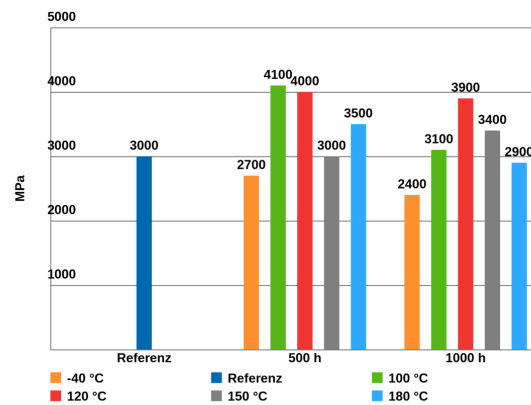
Density <i>liquid</i>	1.1	g/cm <sup>3</sup>
Viscosity <i>liquid   Viscosimeter</i>	800	mPa·s
Maximum curable layer thickness <i>DELO Standard 20   White substrate   200 mW/cm<sup>2</sup>   60 s</i>	4	mm
Off-torque <i>by the criteria of ISO 10964   Steel, zinc-phosphated   Steel, zinc-phosphated   liquid</i>	42	N·m
Tensile shear strength <i>by the criteria of DIN EN 1465   AI   AI   Pretreatment: sand-blasted   liquid</i>	14	MPa
Tensile shear strength <i>by the criteria of DIN EN 1465   Steel   Steel   Pretreatment: sand-blasted   liquid</i>	16	MPa
Compression shear strength <i>DELO Standard 5   Glass   AI   400 nm   200 mW/cm<sup>2</sup>   60 s</i>	10	MPa
Compression shear strength <i>DELO Standard 5   Glass   Stainless steel   400 nm   200 mW/cm<sup>2</sup>   60 s</i>	16	MPa
Compression shear strength <i>DELO Standard 5   Glass   FR4   Pretreatment: Annealing   400 nm   200 mW/cm<sup>2</sup>   60 s</i>	5	MPa
Compression shear strength <i>DELO Standard 5   Glass   Glass   400 nm   200 mW/cm<sup>2</sup>   60 s</i>	17	MPa

Compression shear strength <i>DELO Standard 5   <b>Glass   PA6</b>   Pretreatment: Annealing   400 nm   200 mW/cm<sup>2</sup>   60 s</i>	5	MPa
Compression shear strength <i>DELO Standard 5   <b>Glass   PBT</b>   400 nm   200 mW/cm<sup>2</sup>   60 s</i>	3	MPa
Compression shear strength <i>by the criteria of ISO 10123   <b>Steel shaft   Steel hub</b>   at approx. +23 °C   24 h</i>	30	MPa
Tensile strength <i>by the criteria of DIN EN ISO 527   liquid</i>	70	MPa
Elongation at tear <i>by the criteria of DIN EN ISO 527   liquid</i>	2	%
Young's modulus <i>by the criteria of DIN EN ISO 527   liquid</i>	3000	MPa
Shore hardness D <i>by the criteria of DIN EN ISO 868   400 nm   200 mW/cm<sup>2</sup>   90 s</i>	78	
Shrinkage <i>DELO Standard 13   400 nm   60 mW/cm<sup>2</sup>   90 s</i>	9.5	vol. %
Water absorption <i>DELO Standard 16   Layer thickness: 2 mm   400 nm   60 mW/cm<sup>2</sup>   90 s   Type of storage: Media   Medium: Distilled water   Storage temperature: at approx. +23 °C   Duration: 24 h</i>	0.8	wt. %

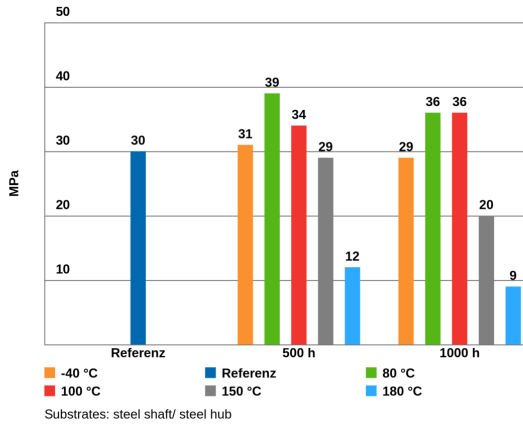
Tensile strength after thermal storage, based on DIN EN ISO 527



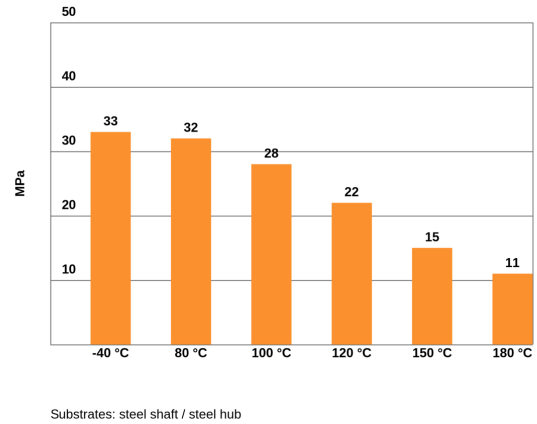
Young's modulus after thermal storage  
Curing 400 nm 90 s /



Compression shear strength after thermal storage, based on ISO 10123



Compression shear strength measured at the stated temperatures



**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. 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.

Nothing contained herein shall be construed to indicate the non-existence of any relevant patents or to constitute a permission, encouragement or recommendation to practice any development covered by any patents, without permission of the owner of this patent.

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