

# DELO<sup>®</sup>-PUR 9691

**polyurethane | 2C | room-temperature-curing**

### Special features of product

- compliant with RoHS Directive 2015/863/EU
- tested for biocompatibility and meets the requirements according to DIN EN ISO 10993-5: test for cytotoxicity
- passes ANSI/UL 94 HB Flame Test
- Component B is humidity-sensitive

### Typical area of use

- -40 - 125 °C
- metal bondings
- mixed bondings with plastics

### Curing

#### Curing time

until initial strength at rt approx. +23 °C tensile shear strength 1 - 2 MPa	90	min
until functional strength at rt approx. +23 °C tensile shear strength > 10 MPa	6	h
until final strength at rt approx. +23 °C	72	h
until functional strength at +80 °C tensile shear strength > 10 MPa	20	min
until final strength at +80 °C	22	min

### Processing

Mixing ratio A : B - volume	1 : 1	
Mixing ratio A : B - weight	1 : 1	
Processing time after mixing		
in 3 g batch at rt approx. +23 °C	10	min
Storage life in unopened original container		
at +15 °C to +30 °C	6	month(s)

**Technical properties**

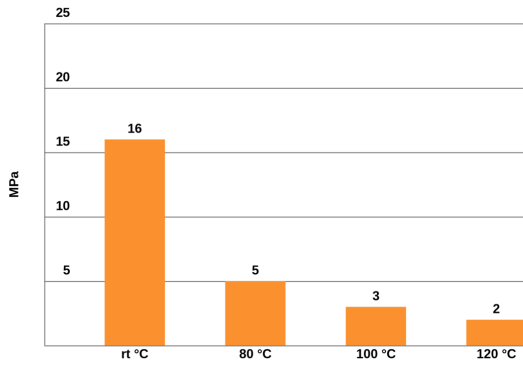
Color in cured condition in 1 mm layer thickness	black
Transparency in cured condition in 1 mm layer thickness	opaque
Filler information	minerals
Filler particle size d95	40 μm

**Parameters**

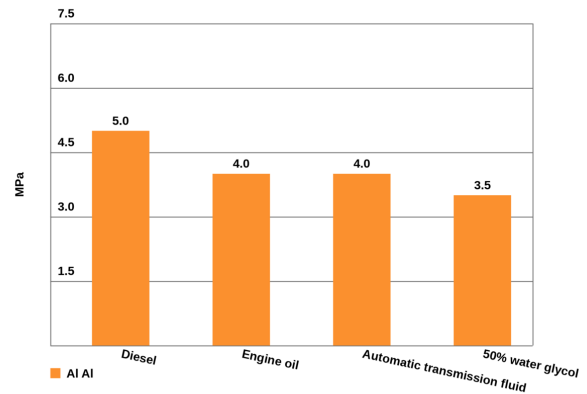
Density <i>DELO Standard 13   liquid</i>	1.45	g/cm <sup>3</sup>
Viscosity <i>Component A   by the criteria of DIN 53019   liquid   Rheometer   Shear rate: 10 1/s   Gap: 500 μm</i>	21000	mPa·s
Viscosity <i>Component B   by the criteria of DIN 53019   liquid   Rheometer   Shear rate: 10 1/s   Gap: 500 μm</i>	21000	mPa·s
Tensile shear strength <i>by the criteria of DIN EN 1465   <b>AI   AI</b>   Pretreatment: sand-blasted   at approx. +23 °C   24 h</i>	12	MPa
Tensile shear strength <i>by the criteria of DIN EN 1465   <b>AI   AI</b>   Pretreatment: sand-blasted   at approx. +23 °C   72 h</i>	13	MPa
Tensile shear strength <i>by the criteria of DIN EN 1465   <b>AI   AI</b>   Pretreatment: sand-blasted   at approx. +23 °C   168 h</i>	16	MPa
Tensile shear strength <i>by the criteria of DIN EN 1465   <b>AI   AI</b>   Pretreatment: sand-blasted   at approx. +23 °C   168 h   Measuring temperature: 100 °C</i>	2.5	MPa
Peel resistance <i>DELO Standard 38   <b>Steel   Steel</b>   Pretreatment: sand-blasted   at approx. +23 °C   168 h</i>	6	N/mm
Tensile strength <i>by the criteria of DIN EN ISO 527   at approx. +23 °C   168 h</i>	13	MPa
Elongation at tear <i>by the criteria of DIN EN ISO 527   at approx. +23 °C   168 h</i>	20	%
Young's modulus <i>by the criteria of DIN EN ISO 527   at approx. +23 °C   168 h</i>	500	MPa
Shore hardness D <i>by the criteria of DIN EN ISO 868   at approx. +23 °C   168 h</i>	69	

Glass transition temperature <i>DELO Standard 24   Rheometer</i>	49	°C
Coefficient of linear expansion <i>DELO Standard 26   TMA   Evaluation T: 25 °C - 140 °C</i>	162	ppm/K
Water absorption <i>by the criteria of DIN EN ISO 62   Layer thickness: 4 mm   Type of storage: Media   Medium: Distilled water   Storage temperature: at approx. +23 °C   Duration: 24 h</i>	0.24	wt. %
Decomposition temperature <i>DELO Standard 36</i>	225	°C
Volume resistivity <i>by the criteria of VDE 0303-30</i>	> 1E14	Ohm·cm
Surface resistance <i>by the criteria of DIN EN 62631-3-2</i>	> 1E13	Ohm
Dielectric strength <i>by the criteria of DIN EN 60243-1</i>	16.6	kV/mm
Comparative Tracking Index M <i>by the criteria of DIN EN 60112</i>	600	

Tensile shear strength measured at the stated temperatures  
Substrates: Al/Al, based on DIN EN 1465

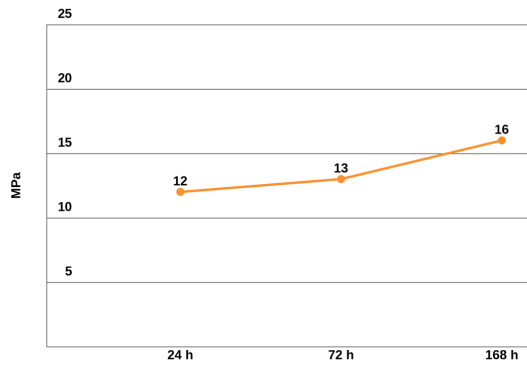


Compression shear strength after media storage for 1000 h



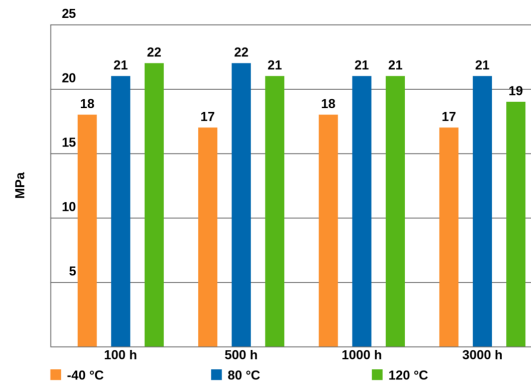
DELO Standard 5

Tensile shear strength for determining the curing process  
Substrates: Al/Al, by the criteria of DIN EN 1465

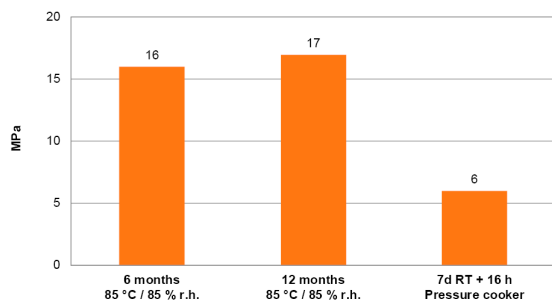


at room temperature (approx. +23 °C)

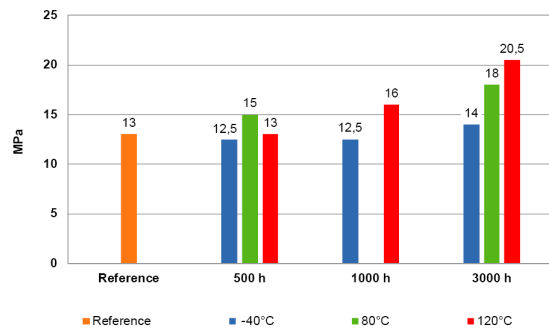
Tensile shear strength after thermal storage  
Substrates: Al/Al, by the criteria of DIN EN 1465



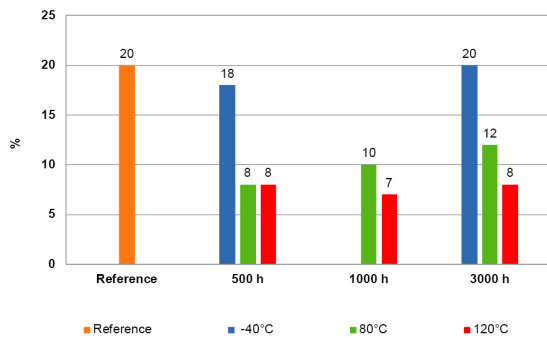
Tensile shear strength after climatic storage  
Substrates: Al/Al, by the criteria of DIN EN 1465



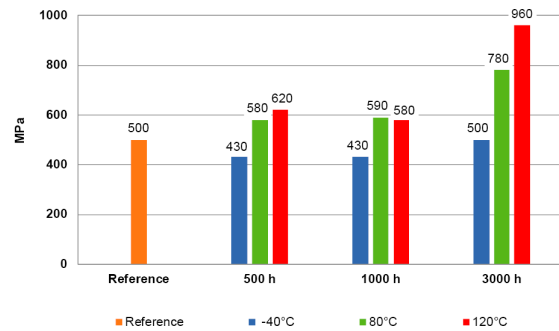
Tensile strength after thermal storage / by the criteria of DIN EN ISO 527



Elongation at tear after thermal storage / by the criteria of DIN EN ISO 527



Young's modulus after thermal storage / by the criteria of DIN EN ISO 527



**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. Unless otherwise specified, the values were measured after 168 h at approx. 23 °C / 50 % r. h., and the values of heat-cured samples were measured after 24 h at approx. 23 °C / 50 % r. h.

**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

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ADHESIVES

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