

# DELO<sup>®</sup> MONOPOX GE6515

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

free of solvents | low CTE, high temperature resistance

## Special features of product

- compliant with RoHS Directive 2015/863/EU

## Function

- encapsulant / potting compound
- electronic encapsulant

## Typical area of use

- 40 - 200 °C

## Curing

Typical curing time

<i>at +90 °C in air convection oven</i>	60	min
<i>at +130 °C in air convection oven</i>	15	min

## Processing

Conditioning time (typical)

<i>when stored in cold conditions in containers up to 50 ml</i>	1	h
<i>when stored in cold conditions in containers up to 600 ml</i>	5	h
<i>when stored in cold conditions in containers up to 10 l</i>	10	h

Processing time

<i>in standard climate +23 °C / 50 % r. h.</i>	7	d
<i>tumble before processing for 1 h   1 – 2 l/min   conditioned containers in containers up to 10 l</i>	7	d

Storage life in unopened original container

up to <= 55 ml at -25 °C to -15 °C Cartridge	6	month(s)
up to <= 600 ml at -25 °C to -15 °C Cartridge	6	month(s)
up to <= 10 l at 0 °C to +10 °C Barrel	6	month(s)

**Technical properties**

Color in cured condition in 1 mm layer thickness	white	
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>	1.78	g/cm <sup>3</sup>
Viscosity <i>liquid   Rheometer   Shear rate: 10 1/s   Gap: 200 µm</i>	10000	mPa·s
Compression shear strength <i>DELO Standard 5   AI   AI   130 °C   15 min</i>	41	MPa
Compression shear strength <i>DELO Standard 5   AI   AI   130 °C   15 min   Measuring temperature: 150 °C</i>	20	MPa
Compression shear strength <i>DELO Standard 5   AI   AI   130 °C   15 min   Measuring temperature: 200 °C</i>	14	MPa
Compression shear strength <i>DELO Standard 5   FR4   FR4   130 °C   15 min</i>	25	MPa
Compression shear strength <i>DELO Standard 5   PC   PC   130 °C   15 min</i>	38	MPa
Tensile strength <i>by the criteria of DIN EN ISO 527   130 °C   15 min</i>	60	MPa

Elongation at tear <i>by the criteria of DIN EN ISO 527   130 °C   15 min</i>	0.5	%
Young's modulus <i>by the criteria of DIN EN ISO 527   130 °C   15 min</i>	13000	MPa
Shore hardness D <i>by the criteria of DIN EN ISO 868   130 °C   15 min</i>	> 90	
Glass transition temperature <i>TMA   130 °C   15 min</i>	155	°C
Coefficient of linear expansion <i>DELO Standard 26   TMA   Evaluation T: 30 °C - 115 °C   130 °C   15 min</i>	23	ppm/K
Coefficient of linear expansion <i>DELO Standard 26   TMA   Evaluation T: 175 °C - 230 °C   130 °C   15 min</i>	48	ppm/K
Shrinkage <i>DELO Standard 13   130 °C   15 min</i>	1.3	vol. %
Water absorption <i>by the criteria of DIN EN ISO 62   Layer thickness: 4 mm   130 °C   20 min   Type of storage: Media   Medium: Distilled water   Duration: 24 h</i>	0.1	wt. %
Decomposition temperature <i>DELO Standard 36   130 °C   15 min</i>	345	°C
Extractable ions <i>Chloride</i>	< 10	ppm
Extractable ions <i>Fluoride</i>	< 10	ppm
Extractable ions <i>Potassium</i>	< 10	ppm
Extractable ions <i>Sodium</i>	< 10	ppm
Specific thermal conductivity <i>DELO Standard 47   130 °C   15 min</i>	1.0	W/(m·K)
Comparative Tracking Index <i>by the criteria of DIN EN 60112   130 °C   15 min</i>	600	

**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 adhesive can be tumbled during conditioning if necessary, depending on the chemical basis and container size. After tumbling, a waiting time of 1 – 2 h must be maintained to enable air bubbles to escape. Alternatively, a pressure tank with integrated stirring element can be used to keep the material continuously homogeneous.

The viscosity may decrease during tumbling. Cartridges are excluded from tumbling.

Further information can be found in the instructions for use. 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. The heating time of the components must be added to the actual curing time. It depends on component size and type of heat input. The specified curing temperature must be reached directly at the adhesive. 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. Depending on the adhesive quantity used, exothermic reaction heat is generated which can lead to overheating. In this case, a lower curing temperature is to be selected. 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**