

# DELO<sup>®</sup> MONOPOX DA587

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

free of solvents | thixotropic

### Special features of product

- compliant with RoHS Directive 2015/863/EU
- halogen-free according to IEC 61249-2-21
- compliant with limits of VOC content in adhesive acc. to GB33372-2020

### Function

- die attach adhesive

### Typical area of use

- -40 - 150 °C
- smart card applications
- bonding of bare semiconductors
- chip bonding

### Curing

Typical curing time

<i>at +110 °C in air convection oven</i>	30	min
<i>at +130 °C in air convection oven</i>	5	min
<i>at +150 °C in air convection oven</i>	2	min

### Processing

Conditioning time (typical)

<i>when stored in cold conditions in containers up to 10 ml</i>	0.5	h
<i>when stored in cold conditions in containers up to 50 ml</i>	1	h

Processing time

<i>in standard climate +23 °C / 50 % r. h.</i>	5	d
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Storage life in unopened original container

<i>at -45 °C to -15 °C</i>	6	month(s)
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**Technical properties**

Color in cured condition in 1 mm layer thickness	white
Transparency in cured condition in 1 mm layer thickness	opaque
Filler particle type	minerals
Filler particle size	d95 = 1 µm

**Parameters**

Density <i>DELO Standard 13   liquid</i>	1.45	g/cm <sup>3</sup>
Viscosity <i>liquid   Rheometer   Shear rate: 10 1/s   Gap: 500 µm</i>	31000	mPa·s
Thixotropy index <i>liquid   Viscosimeter</i>	3	
Die shear strength <i>DELO Standard 30   <b>Si</b>   Chip 2 mm x 2 mm   <b>Ag</b>   150 °C   15 min</i>	180	N
Die shear strength <i>DELO Standard 30   <b>Si</b>   Chip 2 mm x 2 mm   <b>Au</b>   25 mm x 15 mm   150 °C   15 min</i>	150	N
Die shear strength <i>DELO Standard 30   <b>Si</b>   Chip 2 mm x 2 mm   <b>FR4</b>   Tape   Pretreatment: sand-blasted   150 °C   15 min</i>	230	N
Die shear strength <i>DELO Standard 30   <b>Si</b>   Chip 2 mm x 2 mm   <b>PEI</b>   Tape   150 °C   15 min</i>	180	N
Die shear strength <i>DELO Standard 30   <b>Si</b>   Chip 2 mm x 2 mm   <b>PET</b>   Tape   150 °C   15 min</i>	170	N
Tensile strength <i>by the criteria of DIN EN ISO 527   130 °C   30 min</i>	33	MPa
Elongation at tear <i>by the criteria of DIN EN ISO 527   130 °C   30 min</i>	19	%
Young's modulus <i>by the criteria of DIN EN ISO 527   130 °C   30 min</i>	1400	MPa
Shore hardness D <i>by the criteria of DIN EN ISO 868</i>	78	

Glass transition temperature <i>DELO Standard 26   TMA</i>	72	°C
Coefficient of linear expansion <i>DELO Standard 26   TMA   Evaluation T: 30 °C - 60 °C</i>	94	ppm/K
Coefficient of linear expansion <i>DELO Standard 26   TMA   Evaluation T: 80 °C - 180 °C</i>	168	ppm/K
Shrinkage <i>DELO Standard 13</i>	3.8	vol. %
Water absorption <i>by the criteria of DIN EN ISO 62</i>	0.5	wt. %
Decomposition temperature <i>DELO Standard 36</i>	284	°C
Extractable ions <i>Ion: Chloride</i>	<10	ppm
Extractable ions <i>Ion: Fluoride</i>	<100	ppm
Extractable ions <i>Ion: Potassium</i>	<10	ppm
Extractable ions <i>Ion: Sodium</i>	<20	ppm

**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. 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

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