

DELO[®] MONOPOX TC2270

modified epoxy resin | 1C | heat-curing

free of solvents | low-temperature-curing from + 60 °C, electrically insulating, thermally conductive, filled

Special features of product

- compliant with RoHS Directive 2015/863/EU
- halogen-free according to IEC 61249-2-21
- reliable according to JEDEC MSL 1 (referring to IPC/JEDEC J-STD-020D.1)
- compliant with limits of VOC content in adhesive acc. to GB33372-2020

Function

- electronic adhesive

Typical area of use

- -40 - 150 °C

Curing

Typical curing time

<i>at +60 °C in air convection oven</i>	90	min
<i>at +80 °C in air convection oven</i>	15	min

Processing

Conditioning time (typical)

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

<i>in standard climate +23 °C / 50 % r. h.</i>	48	h
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Storage life in unopened original container

<i>at -25 °C to -15 °C</i>	5	month(s)
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Technical properties

Color in cured condition in 1 mm layer thickness	gray
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Transparency in cured condition in 1 mm layer thickness opaque

Filler particle type aluminum nitride

Parameters

Density 2.15 g/cm³
DELO Standard 13 | liquid

Viscosity 145000 mPa·s
liquid | Rheometer | Shear rate: 10 1/s | Gap: 500 µm

Thixotropy index 4.5
liquid | Rheometer | Gap: 500 µm

Compression shear strength 20 MPa
*DELO Standard 5 | **ABS** | **ABS** | 80 °C | 30 min*

Compression shear strength 34 MPa
*DELO Standard 5 | **FR4** | **FR4** | Pretreatment: Annealing | 80 °C | 30 min*

Compression shear strength 11 MPa
*DELO Standard 5 | **LCP MR25** | **LCP MR25** | 80 °C | 30 min*

Die shear strength 60 N
*DELO Standard 30 | **Si** | Chip 1 mm x 1 mm | **Au** | 25 mm x 15 mm | 80 °C | 30 min*

Die shear strength 62 N
*DELO Standard 30 | **Si** | Chip 1 mm x 1 mm | **FR4** | 20 mm x 20 mm x 5 mm | Pretreatment: Annealing | 80 °C | 30 min*

Tensile strength 28 MPa
by the criteria of DIN EN ISO 527 | 80 °C | 30 min

Elongation at tear 11 %
by the criteria of DIN EN ISO 527 | 80 °C | 30 min

Young's modulus 18000 MPa
DMTA | 80 °C | 30 min

Shore hardness D 88
by the criteria of DIN EN ISO 868 | 80 °C | 30 min

Glass transition temperature 40 °C
DMTA | 80 °C | 30 min

Coefficient of linear expansion 98 ppm/K
DELO Standard 26 | TMA | Evaluation T: 70 °C - 120 °C | 80 °C | 30 min

Shrinkage <i>80 °C / 30 min</i>	2.8	vol. %
Water absorption <i>by the criteria of DIN EN ISO 62 / 80 °C / 30 min / Type of storage: Media / Medium: Distilled water / Duration: 24 h</i>	0.1	wt. %
Specific thermal conductivity <i>by the criteria of ASTM D 5470 / 80 °C / 30 min</i>	1.7	W/(m·K)
Volume resistivity <i>by the criteria of DIN EN 62631-3-1 / 80 °C / 30 min</i>	>1E14	Ohm·cm
Surface resistance <i>by the criteria of DIN EN 62631-3-2 / 80 °C / 30 min</i>	>1E13	Ohm

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.

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Instructions for use

You can find further details in the instructions for use.
 The instructions for use are available on 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