

DELO[®] MONOPOX TC2270

modified epoxy resin | 1C | heat-curing

free of solvents | thermally conductive, electrically insulating

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</i>	90	min
<i>in air convection oven</i>		

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

Processing

Conditioning time (typical)

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

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>	6	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
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Filler information

aluminum nitride

Parameters

Density <i>DELO Standard 13 liquid</i>	2.15	g/cm ³
Viscosity <i>liquid Rheometer Shear rate: 10 1/s Gap: 500 µm</i>	145000	mPa·s
Thixotropy index <i>liquid Rheometer Gap: 500 µm</i>	4.5	
Compression shear strength <i>DELO Standard 5 ABS ABS 80 °C 30 min</i>	20	MPa
Compression shear strength <i>DELO Standard 5 FR4 FR4 Pretreatment: Annealing 80 °C 30 min</i>	34	MPa
Compression shear strength <i>DELO Standard 5 LCP MR25 LCP MR25 80 °C 30 min</i>	11	MPa
Die shear strength <i>DELO Standard 30 Si Chip 1 mm x 1 mm Au Platine 25 mm x 15 mm 80 °C 30 min</i>	60	N
Die shear strength <i>DELO Standard 30 Si Chip 1 mm x 1 mm FR4 20 mm x 20 mm x 5 mm Pretreatment: h, 80 °C 30 min</i>	62	N
Tensile strength <i>by the criteria of DIN EN ISO 527 80 °C 30 min</i>	28	MPa
Elongation at tear <i>by the criteria of DIN EN ISO 527 80 °C 30 min</i>	11	%
Young's modulus <i>DMTA 80 °C 30 min</i>	18000	MPa
Shore hardness D <i>by the criteria of DIN EN ISO 868 80 °C 30 min</i>	88	
Glass transition temperature <i>DMTA 80 °C 30 min</i>	40	°C
Coefficient of linear expansion <i>DELO Standard 26 TMA Evaluation T: 70 °C - 120 °C 80 °C 30 min</i>	98	ppm/K
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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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.
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.

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