

DELO[®] MONOPOX DA588

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

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
---	-----	---

Processing time

<i>in standard climate +23 °C / 50 % r. h.</i>	72	h
--	----	---

Storage life in unopened original container

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

Technical properties

Color in cured condition in 1 mm layer thickness	blue
--	------

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/cm³
Viscosity <i>liquid Rheometer Shear rate: 10 1/s Gap: 500 µm</i>	31000	mPa·s
Die shear strength <i>DELO Standard 30 Si Chip 2 mm x 2 mm Au 150 °C 15 min</i>	150	N
Die shear strength <i>DELO Standard 30 Si Chip 2 mm x 2 mm FR4 Tape Pretreatment: sand-blasted 150 °C 15 min</i>	200	N
Die shear strength <i>DELO Standard 30 Si Chip 2 mm x 2 mm PEI Tape 150 °C 15 min</i>	200	N
Die shear strength <i>DELO Standard 30 Si Chip 2 mm x 2 mm PET Tape 150 °C 15 min</i>	160	N
Tensile strength <i>by the criteria of DIN EN ISO 527 130 min 30 min</i>	40	MPa
Elongation at tear <i>by the criteria of DIN EN ISO 527 130 °C 30 min</i>	8	%
Young's modulus <i>by the criteria of DIN EN ISO 527 130 °C 30 min</i>	2200	MPa
Shore hardness D <i>by the criteria of DIN EN ISO 868 130 °C 15 min</i>	71	
Glass transition temperature <i>DELO Standard 26 TMA 130 °C 15 min</i>	66	°C
Coefficient of linear expansion <i>DELO Standard 26 TMA Evaluation T: 30 °C - 60 °C</i>	70	ppm/K
Coefficient of linear expansion <i>DELO Standard 26 TMA Evaluation T: 80 °C - 150 °C</i>	166	ppm/K

Shrinkage <i>DELO Standard 13</i>	3.2	vol. %
Water absorption <i>by the criteria of DIN EN ISO 62</i>	0.3	wt. %
Decomposition temperature <i>DELO Standard 36</i>	286	°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.

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