

DELOMONOPOX® DA375

isotropic conductive adhesive

Base

- modified polycarbaminacid derivat
- one-component, heat-curing, solvent-free, filled

Use

- for the bonding of bare semiconductors (ICs) to metal lead frames, rigid printed circuit boards and ceramic substrates
- especially for a fast fixing of components an curing at low temperatures
- the cured product is normally used in a temperature range of -40 °C to +130 °C; depending on the application, other limits may be more reasonable
- compliant with RoHS directive 2015/863/EU
- halogen-free by the criteria of IEC 61249-2-21

Processing

- the adhesive is supplied ready for use; in case refrigerated storage, it must be ensured that the container is conditioned to room temperature before use
- the containers are conditioned at room temperature (max. +25 °C); the conditioning time is approx. 2 h for containers up to 10 ml; additional heat addition is not allowed
- the surfaces to be bonded must be dry as well as free of dust, grease an other contaminations
- dispensing valves and product-bearing elements must be carefully cleaned directly after adhesive use
- adequate cleaners are acetone and BDGA (butyldiglykolacetate); for BDGA use acetone as a chaser, do not use alcoholic or hydrous cleaners

Curing

- curing proceeds in a convection oven at a temperature of +175 °C in 2 min plus heating time of the components, by thermode at +150 °C in 8 s
- the minimal curing temperature is +80 °C
- the maximal curing temperature is +180 °C
- the actual curing times at the respective temperatures are dependent on the heating time of the components, the heating time of the components must be added to the curing time of the adhesive
- increased temperatures shorten the curing process, lower temperatures extend it, and can change the properties of the cured product
- the heating time depends on the component size and the oven type

Technical data

<i>Color</i>	grey
Filler	silver particle

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Density [g/cm³] at room temperature (approx. 23 °C)	3.4
Viscosity [mPas] at 25 °C, Rheometer PP9	39000
Curing time with air convection oven [min] at +175 °C	2
Curing time with thermode [s] at +150 °C adhesive temperature	8
Compression shear strength Al/Al [MPa] DELO Standard 5 curing: 30 min at +130 °C	13
Die shear strength [kg] DELO Standard 30 substrate preplated leadframe, chip 2.0 x 2.0 mm, at room temperature (approx. 23 °C)	7
Die shear strength [kg] DELO Standard 30 substrate preplated leadframe, chip 2.0 x 2.0 mm, measured at 250 °C	0.8
Die shear strength [kg] DELO Standard 30 substrate preplated leadframe, chip 2.0 x 2.0 mm, after pre-conditioning 168 h at 85 °C / 85 %r.h., at room temperature (approx. 23 °C)	3.5
Die shear strength [kg] DELO Standard 30 substrate preplated leadframe, chip 2.0 x 2.0 mm, after pre-conditioning 168 h at 85 °C / 85 %r.h., measured at 200 °C	0.9
Die shear strength [kg] DELO Standard 30 substrate preplated leadframe, chip 2.0 x 2.0 mm, after pre-conditioning 168 h at 85 °C / 85 %r.h., measured at 250 °C	0.7
Young's modulus [MPa] at -40 °C, DMTA	4900
Young's modulus [MPa] at 25 °C, DMTA	3800
Young's modulus [MPa] at 150 °C, DMTA	300
Young's modulus [MPa] at 250 °C, DMTA	280
Glass transition temperature [°C] TMA, DELO Standard 28	78
Coefficient of linear expansion [ppm/K] TMA, DELO Standard 26 in a temperature range of +30 °C to +60 °C	65
Coefficient of linear expansion [ppm/K] TMA, DELO Standard 26 in a temperature range of +80 to +140 °C	160
Water absorption [weight %] 168 h at 85 °C/85%r.h.	0.5
Ion content Na+ [ppm] extraction	<10
Ion content K+ [ppm] extraction	<10

Ion content Cl- [ppm] extraction	<10
Ion content F- [ppm] extraction	<10
Resistivity [Ω cm] measured at room temperature (max. 25 °C) with Keithley Sourcemeter 10 mA	1xE-04
Thermal conductivity [W/(m·K)] DELO Standard 50	7.2
Thermal conductivity [W/(m·K)] photoflash method according to ASTM E 1461 layer thickness: 0.5 mm	2.3
Storage life at room temperature (approx. 23 °C) in unopened original container	48 hours
Storage life at -40 °C in unopened original container	6 months

Instructions and advice

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 the product for the intended purpose by considering all specific requirements. Type and 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. The data and information provided are therefore no guarantee for specific product properties or the suitability of the product for the intended 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 DELOs' General Terms of Business. Verbal side agreements are not permitted. This document is subject to change.

Instructions for use

The instructions for use of DELOMONOPOX are available on: www.DELO.de. We will be pleased to send them to you on demand.

Occupational health and safety

see material safety data sheet

Specification

The properties in italics are part of the specification. Ranges with clear limits are defined for them and others, where applicable. In the course of the QA test, each batch is tested for these properties and the maintenance of the limits is ensured. The measuring methods used can deviate from those specified in the data sheet. Details can be found in the QA test report.