DELO

Technical Information

DELOMONOPOX® MK096

heat curing adhesive

Base

- modified epoxy resin
- one-component, heat-curing, solvent-free, unfilled

Use

- for the bonding and fixing of components
- fast reaching of initial strength
- can be processed well with standard equipment, e. g., by Camalot or Asymtek
- due to fast curing at low temperatures, the product is especially suitable for the use on temperature-sensitive substrates, e. g., foil materials
- the cured product is normally used in a temperature range of -40 °C to +150 °C; depending on the application, other limits may be more reasonable
- compliant with RoHS directive 2011/65/EU

Processing

- to heat the components, increased temperatures can be used, as well
- the heating time of the components must be added to the actual curing time
- for curing, the inside of the adhesive layer must have the required temperature
- the adhesive is supplied ready for use, in case of cooled 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. 0,5 h for containers up to 10 ml, approx. 1 h for containers up to 50 ml and approx. 2 h for containers up to 310 ml; additional heat addition is not allowed
- the adhesive is normally applied by dispensing or stencil printing
- the adhesive can be optimally processed within the processing time (storage life at room temperature) as the flow properties and the viscosity remain unchanged
- the surfaces to be bonded must be dry as well as free of dust, grease and other contaminations

Curing

- curing proceeds at temperatures between +120 and +160 °C
- increased temperatures shorten the curing process, lower temperatures extend it, and can change the properties of the cured product
- the minimal curing temperature is +100 °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
- the curing times of the adhesive at the curing temperatures recommended can be drawn from the technical data

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Curing parameters

- initial shear strength in dependence of the curing time (FR4 / SMD resistors 2 x 1.3 mm)
- curing process shear strength
- 60 s +150 °C 9 MPa
- 120 s +150 °C 15 MPa
- 180 s +150 °C 23 MPa
- 300 s +150 °C 26 MPa
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Technical data

Color	red
Density [g/cm³] at room temperature (approx. 23 °C)	1.1
Viscosity at 23°C, rheometer, PP40, crack 800µm, shear rate 20 1/s	pasty
Thixotropy index at 23°C, rheometer, PP20, 100µm crack, lower shear rate 1 1/s, upper shear rate 10 1/s	8
Curing time until final strength [min] at +120 °C in a convection oven	30
Curing time until final strength [min] at +140 °C in a convection oven	15
Tensile strength [MPa] according to DIN EN ISO 527 layer thickness: 1 mm	60
Elongation at tear [%] according to DIN EN ISO 527 layer thickness: 1 mm	2
Young's modulus [MPa] according to DIN EN ISO 527 layer thickness: 1 mm	3500
Shore hardness D according to DIN EN ISO 868	82
Glass transition temperature [°C] rheometer, curing: 20 min/+140 °C	97
Coefficient of linear expansion [ppm/K] TMA, DELO Standard 26 in a temperature range of +30°C to +90 °C	63
Coefficient of linear expansion [ppm/K] TMA, DELO Standard 26 in a temperature range of +110°C to +150°C	175
Shrinkage [vol. %] DELO Standard 13	3.9

Weight loss during curing [%]	0.3
Water absorption [weight %] according to DIN EN ISO 62, 24 h at room temperature (approx. 23 °C)	0.2
Decomposition temperature [°C] DELO Standard 36	203
Ion content Na+ [ppm] extraction	<10
Ion content K+ [ppm] extraction	<10
Ion content F- [ppm] extraction	<10
Storage life at room temperature (max. 25 °C) in unopened original container	4 weeks
Storage life at 0 °C to +10 °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.