

DELO® MONOPOX AD286

heat curing, construction adhesive

Base

- epoxy resin, construction adhesive
- one-component, heat-curing, filled, thixotropic

Use

- for the bonding of all metal types, temperature-resistant plastic, ferrite and ceramic
- especially for high-strength, tough-hard bondings with very high static and dynamic loading capacity, even at increased temperatures
- the cured product is normally used in a temperature range of -55 °C to +200 °C; depending on the application, other limits may be more reasonable
- successfully tested according to UL 94 HB (by an independent test institute)
- compliant with RoHS directive 2015/863/EU

Processing

- the adhesive is supplied ready for use; in case of cool 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. 3 h for a container volume of 310 ml; approx. 6 h for containers up to 1,000 ml; additional heat addition is not allowed
- the surfaces to be bonded must be dry as well as free of dust, grease and other contaminations
- the adhesive can be processed well from the original container or with DELO dispensing units
- use DELOTHEN cleaners for the cleaning of bonding surfaces
- adhesion to the components can be improved by sand blasting, grinding or pickling

Curing

- curing proceeds at temperatures between +130 and +180 °C at the adhesive
- 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
- depending on the adhesive amount used, exothermic reaction heat is developed which can lead to overheating; in this case, the curing temperature must be reduced accordingly
- increased temperatures shorten the curing process, lower temperatures extend it, and can change the properties of the cured product
- the curing times of the adhesive at the curing temperatures recommended can be drawn from the technical data
- fast induction curing is possible

Technical data

Color

silver grey

Filler

aluminium powder

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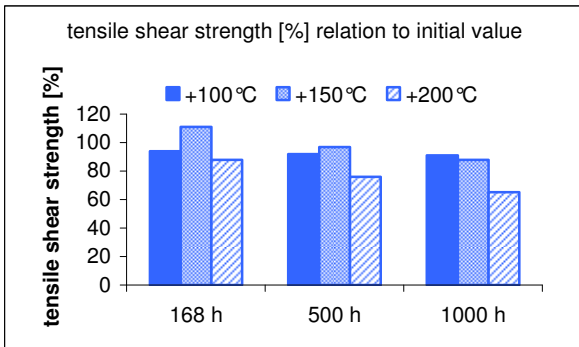
Density [g/cm³] DELO Standard 13 at room temperature (approx. 23 °C)	1.43
Viscosity [mPas] at 23 °C, Brookfield spindle/rpm 7/5	310000
Viscosity [mPas] at 23 °C, rheometer, shear rate 10 1/s	110000
Processing time at room temperature (approx. 23 °C)	4 weeks
Processing time at +36 °C	1 week
Curing time with air convection oven [min] at +130 °C	75
Curing time with air convection oven [min] at +150 °C	40
Curing time with air convection oven [min] at +180 °C	15
Tensile shear strength Al/Al [MPa] DELO Standard 39, sand-blasted component thickness: 6 mm after 40 min at +150 °C	57
<i>Tensile shear strength Al/Al [MPa]</i> by the criteria of DIN EN 1465, sand-blasted, component thickness 1.6 mm, gap 0.2 mm curing: 40 min at +150 °C	33
Temperature stability Al/Al at +100 °C [MPa] according to DIN EN 1465, sand-blasted component thickness: 1.6 mm	25
Temperature stability Al/Al at +150 °C [MPa] according to DIN EN 1465, sand-blasted component thickness: 1.6 mm	6
Temperature stability Al/Al at +200 °C [MPa] according to DIN EN 1465, sand-blasted component thickness: 1.6 mm	3
Compression shear strength Al/Al [MPa] DELO Standard 5 curing: 40 min at 150 °C	52
Tensile strength [MPa] according to DIN EN ISO 527 layer thickness: 2 mm after 40 min at +150 °C	64
Elongation at tear [%] according to DIN EN ISO 527 layer thickness: 2 mm after 40 min at +150 °C	2.8
Young's modulus [MPa] according to DIN EN ISO 527 layer thickness: 2 mm after 40 min at +150 °C	3800
Shore hardness D according to DIN EN ISO 868 after 40 min at +150 °C	80

Decomposition temperature [°C] DELO Standard 36	290
Glass transition temperature [°C] DMTA, 3 point bending	130
Coefficient of linear expansion [ppm/K] TMA, DELO Standard 26 in a temperature range of +35 °C to +100 °C	61
Coefficient of linear expansion [ppm/K] TMA, DELO Standard 26 in a temperature range of +120 °C bis +180 °C	187
Shrinkage [vol. %] DELO Standard 13	2.5
Water absorption [weight %] according to DIN EN ISO 62 after 40 min at +150 °C	0.18
Specific volume resistance [Ωcm] VDE 0303, part 3 specimen: diameter 120 mm, thickness 2 mm	>1xE13
Surface resistance [Ω] VDE 0303, part 3 specimen: diameter 120 mm, thickness 2 mm	1.35xE14
Creep resistance CTI VDE 0303, part 3 specimen: diameter 50 mm, thickness 5 mm	300 M
Storage life at room temperature (approx. 23 °C) in unopened original container	4 weeks
Storage life at 0 °C to +10 °C in unopened original container	6 months

Performance under temperature influence

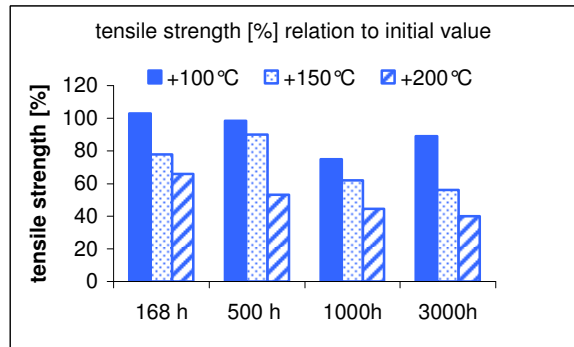
Tensile shear strength Al/Al

after thermal ageing
by the criteria of DIN EN 1465, sand-blasted,
component thickness 1.6 mm, gap 0.2 mm
curing: 40 min at +150 °C
measured at room temperature (approx. 23 °C)



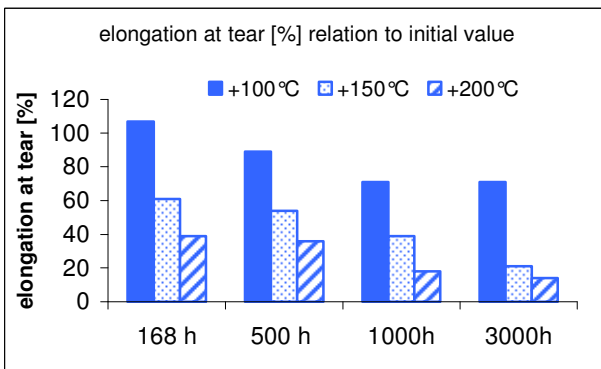
Tensile strength

after thermal ageing
by the criteria of DIN EN ISO 527
layer thickness: 2 mm
curing: 40 min at +150 °C
measured at room temperature (approx. 23 °C)



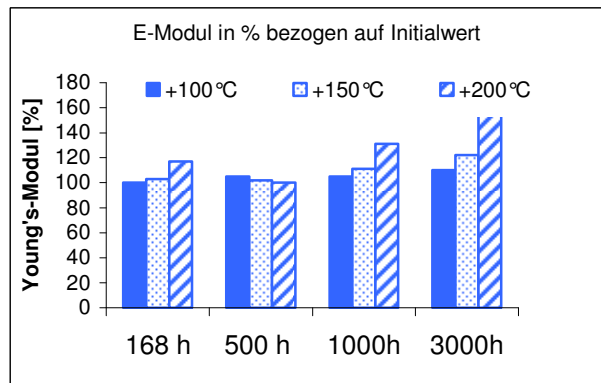
Elongation at tear

after thermal ageing
by the criteria of DIN EN ISO 527
layer thickness: 2 mm
curing: 40 min at +150 °C
measured at room temperature (approx. 23 °C)



Young's Modulus

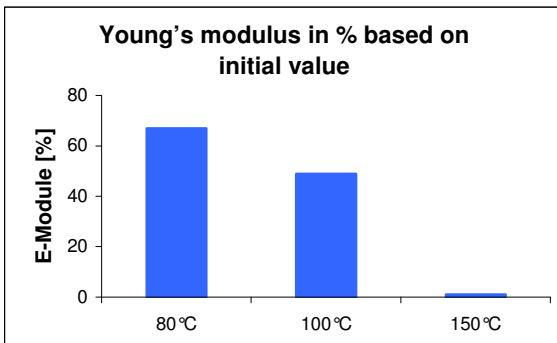
after thermal ageing
by the criteria of DIN EN ISO 527
layer thickness: 2 mm
curing: 40 min at +150 °C
measured at room temperature (approx. 23 °C)



Performance under temperature influence

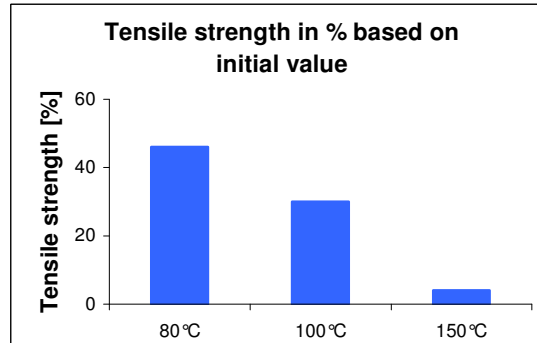
Young's modulus

at temperature
according to DIN EN ISO 527
shouldered test bar 1B, 2mm
measured at room temperature (approx. 23 °C)



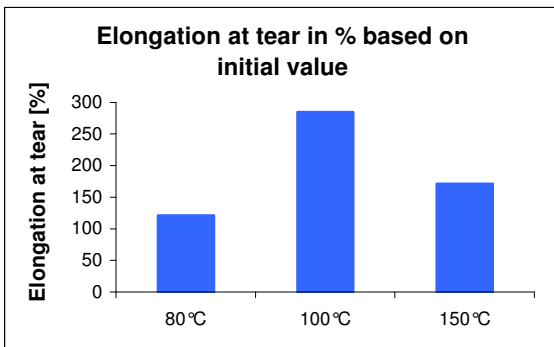
Tensile strength

at temperature
according to DIN EN ISO 527
shouldered test bar 1B, 2mm
measured at room temperature (approx. 23 °C)



Elongation at tear

at temperature
according to DIN EN ISO 527
shouldered test bar 1B, 2mm
measured at room temperature (approx. 23 °C)



Performance under chemical influence

medium	Compression shear strength Al/Al after 100 h [%]	Compression shear strength Al/Al after 500 h [%]	Compression shear strength Al/Al after 1000 h [%]
acetone	100	87	41
ethanol denatured	100	90	61
acetic acid (10%)	90	72	40
sulphuric acid (10%)	74	34	20
ATF gear oil	85	85	75
benzine	81	80	72
diesel	83	82	80
Motor oil 10W40	96	95	95
Demineralised water / glykol compound 50:50	87	86	80
Brake fluid	95	87	86

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 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

The instructions for use of DELO MONOPOX 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.