

DELO® PHOTOBOND® 4494

UV- and light curing acrylate adhesive, medium viscosity

Base

- modified urethane acrylate
- one-component, solvent-free, thixotropic

Use

- multi-purpose for interior plastic/plastic, glass/plastic and glass/glass bondings, e. g., bonding of glass into plastic frames or clips to glass
- combined light and UV curing also enables the curing of components which are difficult to transmit
- the cured product is normally used in a temperature range of -40 °C to +120 °C; depending on the application, other limits may be more reasonable
- compliant with RoHS directive 2015/863/EU

Processing

- Cartridges are supplied ready for use
- the bottle container should be homogenized by rolling before use. The ideal rolling time at room temperature (maximum 25 °C) is 3 h at 1-2 1/min.
- The recommended processing time for bottles in the system is 72 h, afterwards the rolling process should be repeated. It's the user's responsibility to determine the maximum processing time in a system and the rolling time, considering all basic conditions.
- the adhesive can be applied by dispensing
- the surfaces to be bonded must be dry as well as free of dust, grease and other contaminations
- dispensing valves and product-bearing elements must be carefully cleaned before use, residues of other products must be completely removed; isopropanol is recommended to remove DELO PHOTOBOND residues
- for further information please refer to our instructions for use DELO PHOTOBOND and the brochure "Light Curing"

Curing

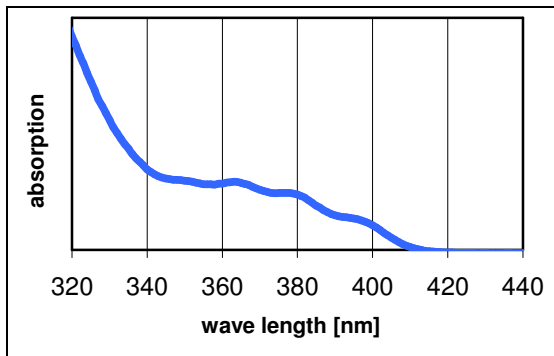
- curing with UV light or visible light in a wavelength range from 320 to 420 nm. DELOLUX LED curing lamps are especially suitable as per the chart below. All standard DELOLUX HID discharge lamps are also suitable
- increased intensities shorten the required irradiation time, lower intensities prolong it

Lamp type	DELOLUX 20 / 50 / 80		
Wavelength [nm]	365	400	460
Suitability	+	++	-

- not suitable + suitable ++ especially suitable

Absorption spectrum

photoinitiation system in acrylate matrix



Curing parameters

- dependent on material thickness and absorption, adhesive layer thickness, lamp type and distance between lamp and adhesive layer

Technical data

Color

cured in a layer thickness of approx. 0.1 mm

colorless clear

Density [g/cm³]

at room temperature (approx. 23 °C)

1.0

Viscosity [mPas]

at 23 °C, Brookfield spindle/rpm 4/5

20000

Minimal curing time [s]

DELO Standard 23, UVA intensity: 60 mW/cm², DELOLUXcontrol

7

Minimal curing time [s]

DELO Standard 23, LED 400nm, intensity: 200 mW/cm², DELOLUXcontrol

3

Compression shear strength glass/glass [MPa]

DELO Standard 5

UVA intensity: 55 - 60 mW/cm², DELOLUXcontrol, irradiation time: 60 s

28

Compression shear strength glass/Al [MPa]

DELO Standard 5

UVA intensity: 55 - 60 mW/cm², DELOLUXcontrol, irradiation time: 60 s

25

Compression shear strength glass/PC [MPa]

DELO Standard 5

UVA intensity: 55 - 60 mW/cm², DELOLUXcontrol, irradiation time: 60 s

15

Compression shear strength glass/PMMA [MPa]

DELO Standard 5

UVA intensity: 55 - 60 mW/cm², DELOLUXcontrol, irradiation time: 60 s

4

Compression shear strength PC/Al [MPa]

DELO Standard 5

UVA intensity: 55 - 60 mW/cm², DELOLUXcontrol, irradiation time: 60 s

5

Compression shear strength PC/PC [MPa]

DELO Standard 5

UVA intensity: 55 - 60 mW/cm², DELOLUXcontrol, irradiation time: 60 s

18

Compression shear strength PMMA/PMMA [MPa]

DELO Standard 5

UVA intensity: 55 - 60 mW/cm², DELOLUXcontrol, irradiation time: 60 s

10

Tensile strength [MPa]

according to DIN EN ISO 527

20

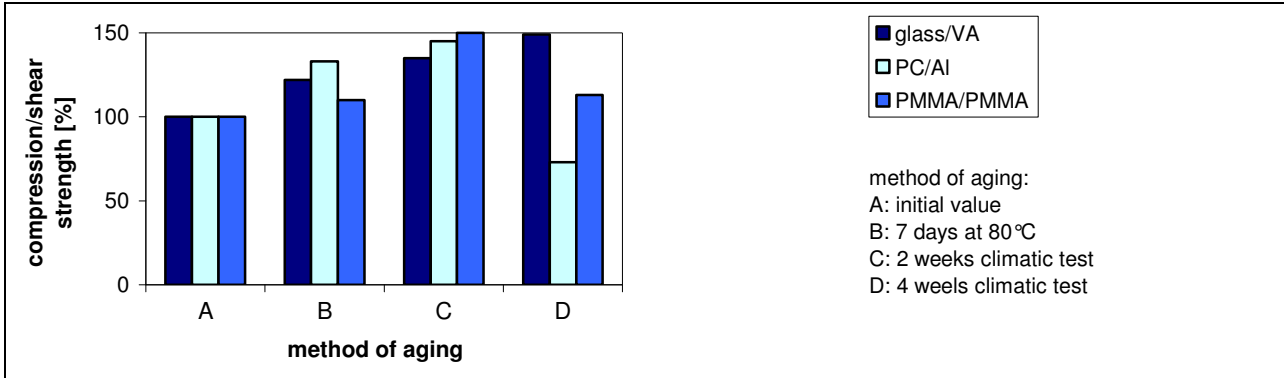
Elongation at tear [%]
according to DIN EN ISO 527

160

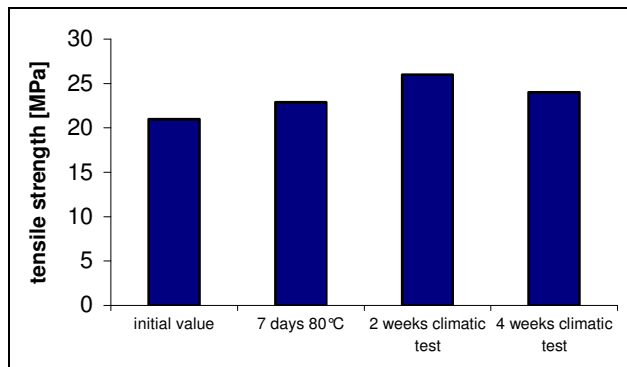
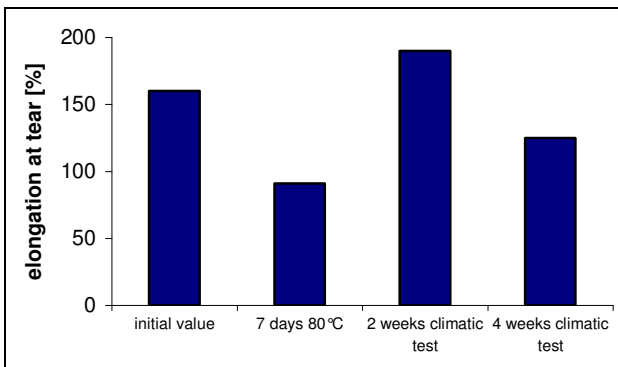
Young's modulus [MPa]
according to DIN EN ISO 527

400

Compression shear strength
after aging



Material properties
after aging



Shore hardness D
according to DIN EN ISO 868

62

Decomposition temperature [°C]
DELO Standard 36

180

Glass transition temperature [°C]
rheometer

100

Coefficient of linear expansion [ppm/K]
in a temperature range of +25 to +140 °C

211

Shrinkage [vol. %]
DELO Standard 13

9

Water absorption [weight %]
according to DIN EN ISO 62, 24 h at room temperature (approx. 23 °C)

1.3

Index of refraction

1.503

Dielectric constant
RF-IV method, 1 MHz

3.5

Dielectric constant
RF-IV method, 10 MHz

3.4

Dielectric constant
RF-IV method, 100 MHz

3.2

Dielectric constant
RF-IV method, 1 GHz

3.0

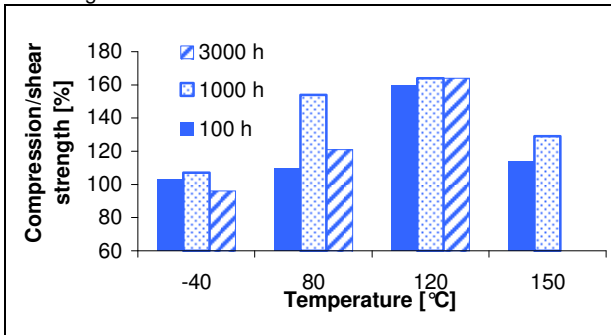
Storage life

9 months

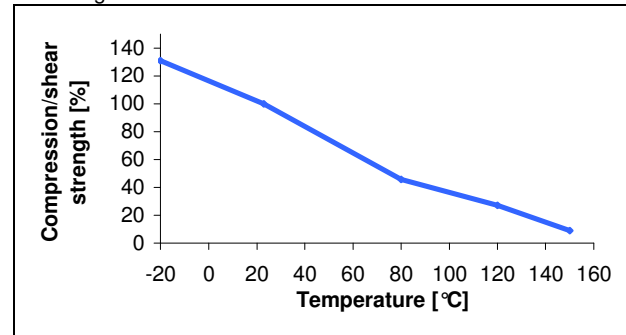
at room temperature (+18 °C to +25 °C) in unopened original container

Performance under temperature influence

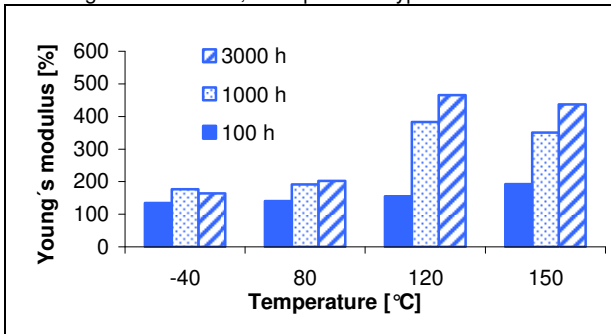
compression/shear strength glass/glass after temperature storage based on initial value at room temperature measured at room temperature (approx. 23 °C) according to DELO standard 5



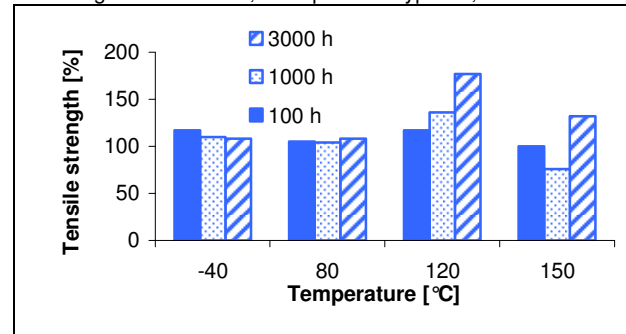
compression/shear strength glass/glass at temperature based on initial value at room temperature measured at determined temperature according to DELO standard



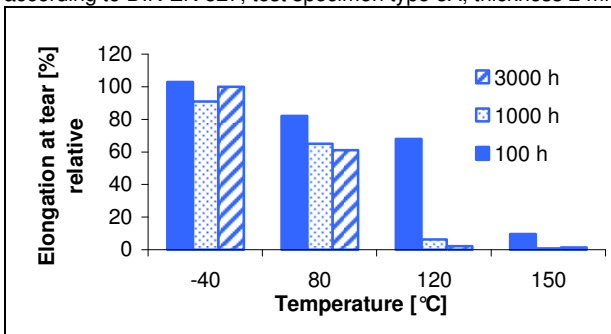
Young's modulus after temperature storage based on initial value at room temperature measured at room temperature (approx. 23 °C) according to DIN EN 527, test specimen type 5A thickness 2 mm



tensile strength after temperature storage based on initial value at room temperature measured at room temperature (approx. 23 °C) according to DIN EN 527, test specimen type 5A, thickness 2 mm



elongation at tear after temperature storage based on absolute initial value at room temperature measured at room temperature (approx. 23 °C) according to DIN EN 527, test specimen type 5A, thickness 2 mm



Performance under chemical influence

compression shear strength after storage for 1,000 h
based on initial value at room temperature
measured at room temperature (approx. 23 °C)
according to DELO Standard 5

Chemical medium	Compression/shear strength glass/Al [%]
ATF gear oil	91
Diesel fuel	74
engine oil 10W40	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 PHOTOBOND 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.