

DELO DUALBOND® GE731

UV and heat curing encapsulant, flexible, medium viscosity

Base

- modified epoxy resin
- one-part, solvent free, UV-/heat curing, thixotropic
- fluorescent before and during light curing

Use

- for the coating or sealing of electronic components; especially in case of high temperature fluctuations at the component
- the cured product is normally used in a temperature range of -40 °C to +180 °C; depending on the application, other limits may be more reasonable
- compliant with RoHS directive 2015/863/EU
- positively tested according to UL 94 HB

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
- store in a cool and dry place at 0 °C to +10 °C, keep out of direct sun light
- the containers are conditioned at room temperature (max. 25 °C); the conditioning time is approx. 5 h for containers up to 1,000 ml; additional heat addition is not allowed
- the adhesive is usually applied by dispensing
- the surfaces to be bonded must be dry as well as free of dust, grease and other contaminations
- when using aqueous cleaners with alkaline properties, they must be removed from the bonding surface after cleaning through appropriate rinsing cycles
- dispensing valves and product-bearing elements must be carefully cleaned before use, residues of other products must be completely removed; DELOTHEN EP as well as acetone are recommended to remove DELO DUALBOND residues
- stainless steel, PE, HDPE, PP and PTFE are suitable materials for product-bearing elements; it is not recommended to use PU, silicone and non-ferrous metals
- for further information please refer to our instructions for use DELO DUALBOND

Curing

- curing with UV light or visible light in a wavelength range of 320 – 420 nm or with heat. DELOLUX LED curing lamps are especially suitable and all standard DELOLUX HID discharge lamps are also suitable.
- the light-curing mechanism and the heat-curing mechanism can be used independently
- after heat addition or irradiation curing until final strength within 24 h at room temperature
- pure light curing, pure heat curing and combination of irradiation and heat curing can result in deviations of the specific values
- increased temperatures accelerate the reaction, lower temperature decelerate it
- increased intensities shorten the required irradiation time, lower intensities prolong it

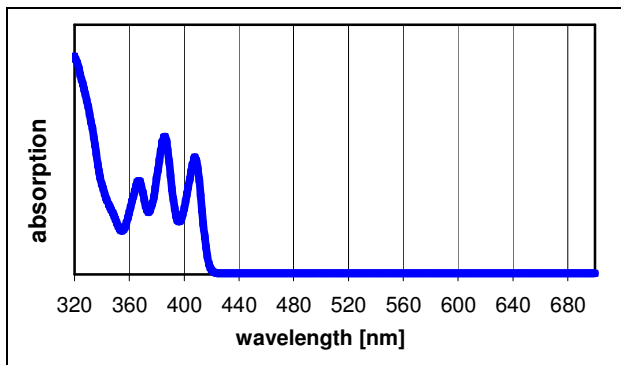
Lamp type	DELOLUX 20 / 50 / 80		
Wavelength [nm]	365	400	460
Suitability	++	+ *)	-

- not suitable + suitable ++ especially suitable

*) not suitable for fast fixturing, only in combination with heat curing

Absorption spectrum

- photoinitiation system in epoxy resin basic matrix



Curing parameters

- in case of light curing dependent on material thickness and absorption, adhesive layer thickness, lamp type, spectrum of the lamp, lamp intensity and distance between lamp and adhesive layer
- for the heat curing of shadowed areas a temperature of +130 °C can be preferably applied
- the minimal curing temperature is +120 °C
- increased temperatures shorten the curing process, lower temperatures extend it, and can change the properties of the cured product
- 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 heating time depends on the component size and the oven type

Technical data

Color

cured in a layer thickness of approx. 1 mm

translucent

Density [g/cm³]

DELO Standard 13
at room temperature (approx. 23 °C)

1,09

Viscosity [mPas]

at 23 °C, Brookfield spm 4/10

17000

Viscosity [mPas]

at 23 °C, rheometer, PP20, gap 200µm, shear rate 2 1/s

13000

Processing time at room temperature (max. 25 °C)	3 weeks
Minimal irradiation time [s] DELO Standard 37, DSC LED 365 nm, intensity: 150 mW/cm ² ; DELOLUXcontrol, at 30 °C	6
Minimal irradiation time [s] DELO Standard 37, DSC LED 400 nm, intensity: 200 mW/cm ² ; DELOLUXcontrol, at 30 °C	11
Recommended irradiation time [s] LED 365 nm, intensity: 150 mW/cm ² DELOLUXcontrol	60
Curing time until final strength [min] at +130 °C	10
Curing time until final strength [min] at +150 °C	5
Curable layer thickness [mm] DELO Standard 20 intensity: 150 mW/cm ² DELOLUXcontrol, DELOLUX 80 / 365 nm	4
Compression shear strength glass/glass [MPa] DELO Standard 5 curing: combination of irradiation and heat curing intensity: 150 mW/cm ² DELOLUXcontrol, irradiation time: 30 s 10 min at +130 °C curing time: 24 h at room temperature (approx. 23 °C)	4
Compression shear strength glass/glass [MPa] DELO Standard 5 curing: 10 min at +130 °C curing time: 24 h at room temperature (approx. 23 °C)	4
Elongation at tear [%] DIN EN ISO 527 Prefixing: 60 sec DELOLUX 20 / 365, intensity 150 mW/cm ² , DELOLUXcontrol Heat curing: Convection oven 15 min at +130 °C 24 h at room temperature (approx. 23 °C)	98
Young's modulus [MPa] at 23 °C, DMTA	< 10
Young's modulus after 1000 h at 150 °C [MPa] at 23 °C, DMTA	< 10
Shore hardness A according to DIN EN ISO 868	43
Glass transition temperature [°C] DELO Standard 28, TMA	-40
Coefficient of linear expansion [ppm/K] DELO-Standard 26, TMA in a temperature range of -20 °C to +150 °C	274
Volume shrinkage [vol. %] DELO Standard 13	2
Water absorption [weight %] according to DIN EN ISO 62, 24 h at room temperature (approx. 23 °C) curing: combination of irradiation and heat curing	0,4
Decomposition temperature [°C] DELO Standard 36	279

Specific volume resistance [Ωcm] >1xE10

VDE 0303, part 3

specimen: diameter 120 mm, thickness 2 mm

LED 365 nm, intensity: 150 mW/cm² DELOLUXcontrol, irradiation time: 2x30 s + 10 min at 130 °C

after 24 h at room temperature (approx. 23 °C)

Surface resistance [Ω] >1xE10

VDE 0303, part 3

specimen: diameter 120 mm, thickness 2 mm

LED 365 nm, intensity: 150 mW/cm² DELOLUXcontrol, irradiation time: 2x30 s + 10 min at 130 °C

after 24 h at room temperature (approx. 23 °C)

Storage life of bottle and canister at room temperature (max. 25 °C) 4 weeks

in unopened original container

Storage life at 0 °C to +10 °C 6 months

in unopened original container

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 DUALBOND 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.