DELO

Technical Information

DELO DUALBOND® OB749

UV-/light-/heat curing adhesive, medium viscosity

Base

- modified epoxy resin
- one-part, solvent free, filled
- UV-/light-/heat curing

Use

- especially for a fast fixing of components with high strength after irradiation
- for the bonding of metal, glass, plastic and other materials as well as for the coating, fixing or sealing of electronic components
- 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 2015/863/EU
- halogen-free according to IEC 61249-2-21
- complies with the requirements on low outgassing according to ECSS-Q-70 02 respectively ASTM E 595-93 also known as NASA-outgassing test

Processing

- the adhesive is supplied ready for use; in case of 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. 1.5 h for containers up to 30 ml; approx. 2 h for containers up to 160 ml; additional heat addition is not allowed
- the adhesive is usually applied by dispensing
- the adhesive can be processed well from the original container
- the surfaces to be bonded must be dry as well as free of dust, grease and other contaminations
- use DELOTHEN cleaners for the cleaning of bonding surfaces
- 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; acetone or DELOTHEN EP are recommended as cleaners
- for further information please refer to our instructions for use DELO DUALBOND and the brochure “Radiation Curing”

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Curing

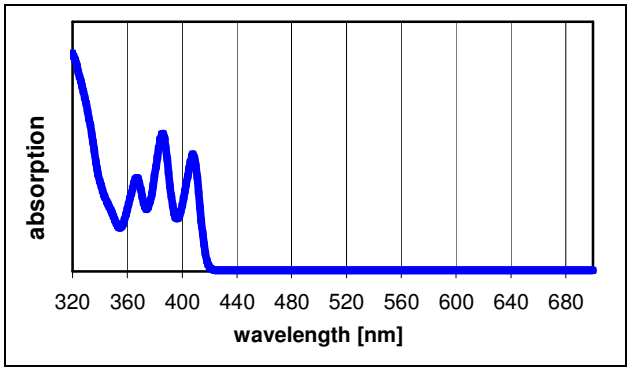
- curing with UV light or visible light in a wavelength range of 320 – 440 nm or with heat. DELOLUX LED curing lamps are especially suitable as per the chart below. All standard DELOLUX HID discharge lamps are also suitable.
- the light-curing mechanism and the heat-curing mechanism can be used independently
- 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

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 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 +80 °C
- the heating time of the components must be added to the curing time

Technical data

Color cured in a layer thickness of approx. 0.1 mm	white translucent
Density [g/cm³] at room temperature (approx. 23 °C)	1.48
Filler content [weight %]	50
Viscosity [mPas] at 23 °C, Brookfield spindle/rpm 7/5	14000
Viscosity [mPas] at 23 °C, rheometer, 10 1/s	2700
Thixotropy index at 23 °C, rheometer, PP 20, 100 1/s	2
Processing time at room temperature (max. 25 °C)	5 days

Minimal irradiation time [s] DELO Standard 37, DSC UVA intensity: 55 - 60 mW/cm² DELOLUXcontrol, at 30 °C	9
Recommended irradiation time [s] DELOLUX 03 S, UVA intensity: 55 - 60 mW/cm² DELOLUXcontrol	15
Curing time until initial strength [min] at +80 °C	60
Curing time until initial strength [min] at +100 °C	30
Curing time until initial strength [min] at +130 °C	15
Curing time until initial strength [min] at +150 °C	10
Curing time until final strength [h] at room temperature (approx. 23 °C) after heat addition or irradiation	24
Compression shear strength glass/glass [MPa] DELO Standard 5 UVA intensity: 55 - 60 mW/cm² DELOLUXcontrol, irradiation time: 15 s curing time: 24 h at room temperature (approx. 23 °C)	25
Compression shear strength glass/Al [MPa] DELO Standard 5 UVA intensity: 55 - 60 mW/cm² DELOLUXcontrol, irradiation time: 15 s curing time: 24 h at room temperature (approx. 23 °C)	16
Compression shear strength glass/FR4 [MPa] DELO Standard 5 UVA intensity: 55 - 60 mW/cm² DELOLUXcontrol, irradiation time: 15 s curing time: 24 h at room temperature (approx. 23 °C)	16
Compression shear strength glass/PBT [MPa] DELO Standard 5 UVA intensity: 55 - 60 mW/cm² DELOLUXcontrol, irradiation time: 15 s curing time: 24 h at room temperature (approx. 23 °C)	7
Compression shear strength glass/PC [MPa] DELO Standard 5 UVA intensity: 55 - 60 mW/cm² DELOLUXcontrol, irradiation time: 15 s curing time: 24 h at room temperature (approx. 23 °C)	7
Compression shear strength glass/LCP [MPa] LCP Vectra E130i DELO Standard 5 UVA intensity: 55 - 60 mW/cm² DELOLUXcontrol, irradiation time: 15 s curing time: 24 h at room temperature (approx. 23 °C)	5
Compression shear strength PC/PC [MPa] DELO Standard 5 UVA intensity: 55 - 60 mW/cm² DELOLUXcontrol, irradiation time: 90 s curing time: 24 h at room temperature (approx. 23 °C)	8
Compression shear strength PMMA/PMMA [MPa] DELO Standard 5 curing: 50 min at +100 °C after 24 h room temperature	9
Compression shear strength FR4/FR4 [MPa] DELO Standard 5 curing: 50 min at +100 °C after 24 h room temperature	12

Compression shear strength Al/Al [MPa] DELO Standard 5 curing: 50 min at +100 °C after 24 h room temperature	38
Die shear strength [N] DELO Standard 30 substrate: ceramic, glass cube with edge length 4 mm curing: combination of irradiation and heat curing	350
Tensile strength [MPa] according to DIN EN ISO 527 layer thickness: 2 mm curing: combination of irradiation and heat curing + 24 h at room temperature (approx. 23 °C)	41
Elongation at tear [%] according to DIN EN ISO 527 layer thickness: 2mm curing: combination of irradiation and heat curing + 24 h at room temperature (approx. 23 °C)	0.9
Young's modulus [MPa] according to DIN EN ISO 527 layer thickness: 2mm curing: combination of irradiation and heat curing curing time: 24 h at room temperature (approx. 23 °C)	5200
Shore hardness D according to DIN EN ISO 868 curing: combination of irradiation and heat curing	81
Glass transition temperature [°C] DMTA	154
Glass transition temperature [°C] TMA	95
Coefficient of linear expansion [ppm/K] TMA, in a temperature range of +25 to 60 °C	44
Coefficient of linear expansion [ppm/K] TMA, in a temperature range of +120 to +150 °C	113
Shrinkage [vol. %] DELO Standard 13 curing: combination of irradiation and heat curing	2.2
Water absorption [weight %] according to DIN EN ISO 62, 24 h at room temperature (approx. 23 °C) curing: combination of irradiation and heat curing	0.1
Index of refraction cured product	1.51
Decomposition temperature [°C] DELO Standard 36	299
Storage life at -40 °C to -18 °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 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.