

### **DELO DUALBOND® AD761**

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

#### **Base**

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

#### **Use**

- for the bonding of metal, glass, plastic and other materials as well as for the coating, fixing or sealing of electronic components; in the process, components can be fixed in seconds and cured completely with heat afterwards
- especially suitable for tension-equalizing bonding and sealing, in particular, in case of high temperature fluctuations at the component
- 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

#### **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. 0.5 h for containers up to 50 ml, approx. 4 h for containers up to 1,000 ml and approx. 10 h for containers up to 10 l; additional heat addition is not allowed
- the adhesive is usually applied by dispensing
- the adhesive can be processed well from the original container or with DELO dispensing units
- 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; DELOTHEN EP as well as acetone are recommended to remove DELO DUALBOND residues
- for further information please refer to our instructions for use DELO DUALBOND

## Curing

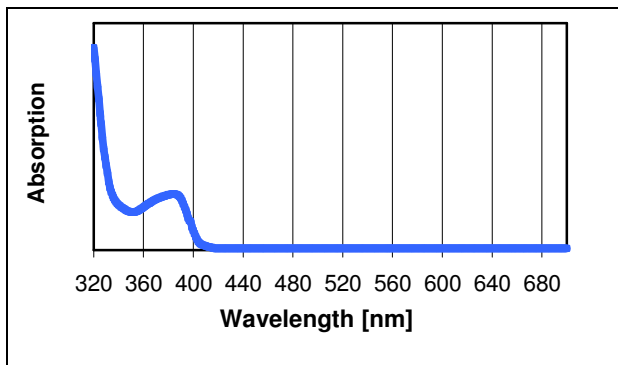
- curing with UV light or visible light in a wavelength range of 320 – 420 nm or with heat. DELOLUX LED curing lamps are especially suitable as per the chart below. All standard DELOLUX HID discharge lamps are also suitable.
- the light-curing mechanism and the heat-curing mechanism can be used independently
- 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, 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. 0.1 mm

yellowish clear

### *Color*

cured in a layer thickness of approx. 1 mm

yellowish translucent

### Density [g/cm<sup>3</sup>]

at room temperature (approx. 23 °C)

1.14

### Viscosity [mPas]

at 23 °C, Brookfield spindle/rpm 7/5

11000

<b>Processing time</b> at room temperature (max. 25 °C)	<b>4 weeks</b>
<b>Minimal irradiation time [s]</b> DELO Standard 37, DSC LED 365 nm, intensity: 200 mW/cm <sup>2</sup> ; DELOLUXcontrol, at 30 °C	<b>8</b>
<b>Minimal irradiation time [s]</b> DELO Standard 37, DSC UVA intensity: 55 - 60 mW/cm <sup>2</sup> DELOLUXcontrol, at 30 °C	<b>10</b>
<b>Recommended irradiation time [s]</b> UVA-intensity: 55 - 60 mW/cm <sup>2</sup> DELOLUXcontrol	<b>30</b>
<b>Curable layer thickness [mm]</b> DELO Standard 20 curing lamp DELOLUX 03 S UVA intensity: 55 - 60 mW/cm <sup>2</sup> DELOLUXcontrol	<b>2</b>
<b>Curing time until initial strength [min]</b> at +130 °C	<b>5</b>
<b>Curing time until initial strength [min]</b> at +150 °C	<b>3</b>
<b>Curing time until final strength [h]</b> at room temperature (approx. 23 °C) after heat addition or irradiation	<b>24</b>
<b><i>Compression shear strength glass/glass [MPa]</i></b> DELO Standard 5 UVA intensity: 55 - 60 mW/cm <sup>2</sup> DELOLUXcontrol, irradiation time: 30 s curing time: 24 h at room temperature (approx. 23 °C)	<b>25</b>
<b>Compression shear strength glass/Al [MPa]</b> DELO Standard 5 UVA intensity: 55 - 60 mW/cm <sup>2</sup> DELOLUXcontrol, irradiation time: 30 s curing time: 24 h at room temperature (approx. 23 °C)	<b>18</b>
<b>Compression shear strength glass/FR4 [MPa]</b> DELO Standard 5 UVA intensity: 55 - 60 mW/cm <sup>2</sup> , DELOLUXcontrol, irradiation time: 30 s curing time: 24 h at room temperature (approx. 23 °C)	<b>24</b>
<b>Compression shear strength PC/Al [MPa]</b> DELO Standard 5 UVA intensity: 55 - 60 mW/cm <sup>2</sup> DELOLUXcontrol, irradiation time: 30 s curing time: 24 h at room temperature (approx. 23 °C)	<b>6</b>
<b>Compression shear strength PC/PC [MPa]</b> DELO Standard 5 UVA intensity: 55 - 60 mW/cm <sup>2</sup> DELOLUXcontrol, irradiation time: 30 s curing time: 24 h at room temperature (approx. 23 °C)	<b>10</b>
<b>Compression shear strength PMMA/PMMA [MPa]</b> DELO Standard 5 UVA intensity: 55 - 60 mW/cm <sup>2</sup> DELOLUXcontrol, irradiation time: 30 s curing time: 24 h at room temperature (approx. 23 °C)	<b>8</b>
<b>Compression shear strength PBT/PBT [MPa]</b> DELO Standard 5 curing: 10 min at 130 °C + 24 h at room temperature (approx. 23 °C)	<b>6</b>
<b>Compression shear strength PETP/PETP [MPa]</b> DELO Standard 5 curing: 10 min at 130 °C + 24 h at room temperature (approx. 23 °C)	<b>4</b>
<b>Compression shear strength FR4/FR4 [MPa]</b> DELO Standard 5 curing: 10 min at 130 °C + 24 h at room temperature (approx. 23 °C)	<b>20</b>

<b>Compression shear strength A/AI [MPa]</b>	<b>30</b>
DELO Standard 5 curing: 10 min at 130 °C + 24 h at room temperature (approx. 23 °C)	
<b>Compression shear strength VA/VA [MPa]</b>	<b>25</b>
DELO Standard 5 curing: 10 min at 130 °C + 24 h at room temperature (approx. 23 °C)	
<b>Tensile strength [MPa]</b>	<b>23</b>
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)	
<b>Elongation at tear [%]</b>	<b>84</b>
according to DIN EN ISO 527 layer thickness: 2mm curing: combination of irradiation and heat curing + 24 h at room temperature (approx. 23 °C)	
<b>Young's modulus [MPa]</b>	<b>113</b>
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)	
<b>Shore hardness D</b>	<b>58</b>
according to DIN EN ISO 868 curing: combination of irradiation and heat curing	
<b>Decomposition temperature [°C]</b>	<b>265</b>
DELO Standard 36	
<b>Glass transition temperature [°C]</b>	<b>42</b>
rheometer	
<b>Coefficient of linear expansion [ppm/K]</b>	<b>216</b>
TMA, in a temperature range of +30 to +150 °C	
<b>Shrinkage [vol. %]</b>	<b>3.0</b>
DELO Standard 13 curing: combination of irradiation and heat curing	
<b>Water absorption [weight %]</b>	<b>0.3</b>
according to DIN EN ISO 62, 24 h at room temperature (approx. 23 °C) curing: combination of irradiation and heat curing	
<b>Index of refraction</b>	<b>1.5013</b>
cured product	
<b>Specific volume resistance [<math>\Omega</math>cm]</b>	<b>&gt;1xE13</b>
VDE 0303, part 3 specimen: diameter 120 mm, thickness 2 mm curing: combination of irradiation and heat curing	
<b>Surface resistance [<math>\Omega</math>]</b>	<b>&gt;1xE13</b>
VDE 0303, part 3 specimen: diameter 120 mm, thickness 2 mm curing: combination of irradiation and heat curing	
<b>Dielectric constant</b>	<b>3.5</b>
RF-IV method, 1 MHz, at 25 °C +/- 3 °C	
<b>Dielectric constant</b>	<b>3.5</b>
RF-IV method, 10 MHz, at 25 °C +/- 3 °C	
<b>Dielectric constant</b>	<b>3.3</b>
RF-IV method, 100 MHz, at 25 °C +/- 3 °C	
<b>Dielectric constant</b>	<b>3.0</b>
RF-IV method, 1 GHz, at 25 °C +/- 3 °C	

## Dielectric loss factor

RF-IV method, 1 MHz, at 25 °C +/- 3 °C

0.11

Storage life cartridge and bottle at 0 °C to +10 °C  
in unopened original container

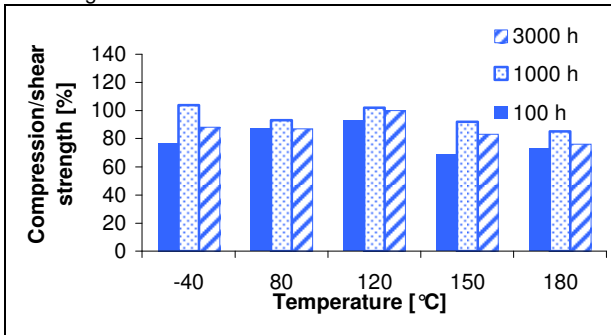
6 months

Storage life canister at 0 °C to +10 °C  
in unopened original container

3 months

## 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



## 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 [%]
brake fluid DOT4	67
ATF gear oil	60
kerosine	68
diesel fuel	64
biodiesel fuel	76
engine oil 10W40	78
demineralised water / glycol mixture 50:50	69
glycol	95
demineralised water / 32.5 % urea mixture	52

## **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](http://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.