

DELO DUALBOND® IC343

UV-/ heatcuring, isotropic conductive adhesive

Base

- dual-curing modified polycarbamin acid derivative
- one-component, solvent-free, UV-/heatcuring, silver filled, thixed

Use

- for the electrically conductive bonding of electronic components to printed circuit boards or flexible circuit carriers
- especially for a fast fixing of components and curing at low temperature
- the cured product is normally used in a temperature range of -40 °C to +130 °C; depending on the application, other limits may be more reasonable
- compliant with RoHS directive 2015/863/EU
- halogen-free by the criteria of IEC 61249-2-21

Processing

- the adhesive is supplied ready for use; in case 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. 0.5 h for containers up to 10 ml, 1 h for containers up to 50 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
- dispensing valves and product-bearing elements must be carefully cleaned directly after adhesive use
- adequate cleaners are acetone and BDGA (butyldiglykolacetate); for BDGA use acetone as a chaser, do not use alcoholic or hydrous cleaners

Curing

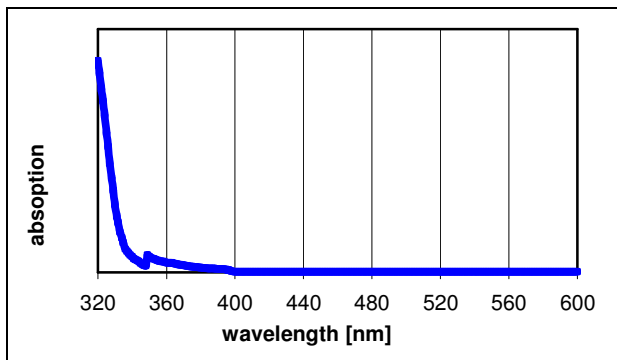
- fixing by curing with UVA light in a wavelength range of 320 - 400 nm in 1 - 5 seconds. Curing by heat in a temperature range of +80 °C to +150 °C is mandatory
- the predominant part which has to be bonded should not get fixed with light, the maximum adhesion is given with an only heat cured product
- the time between fixing and heat curing should not be longer than 1 hour at room temperature (max. +25 °C)
- different curing temperatures or curing profiles e.g. ramp-curing can affect different characteristics of the cured adhesive, for ramp-curing it is recommended to expose the adhesive the curing profile when +80 °C is already reached
- the adhesive features a post-curing attitude. After a heat curing step at low temperatures (< +120 °C) and a short curing time a strength is given. Furthermore the adhesive shows a post curing at room temperature and rises up to the strength after about 24 h recording to the temperature of the heat curing step
- 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

Lamp type	DELOLUX		
Wavelength [nm]	365	400	460
Suitability	++	+	-

- not suitable + suitable ++ especially suitable

Absorption spectrum

- photoinitiation system in mCD basic matrix



Technical data

<i>Color</i>	silver grey
<i>Viscosity [mPas]</i> rheometer, PP20, gap 200µm, shear rate 10 1/s, at room temperature (23 °C)	42000
<i>Filler</i>	silver
<i>Density [g/cm³]</i> DELO Standard 13 at room temperature (approx. 23 °C)	3
<i>Processing time [h]</i> at room temperature (max. 25 °C)	72
<i>Fixing time by light [s]</i> LED 365 nm, Intensity 55 - 60 mW/cm ² , DELOLUXcontrol	1 - 5
<i>Curing time with air convection oven [min]</i> at +80 °C	30

Curing time with air convection oven [min] at +90 °C	15
Curing time with air convection oven [min] at +100 °C	10
Water absorption [%] according to DIN EN ISO 62 after 30 min at +100 °C	0.2
Compression shear strength PC/PC [MPa] DELO Standard 5 curing: 15 min at +100 °C after 24 h room temperature	12.8
Compression shear strength PBT/PBT [MPa] DELO Standard 5 curing: 15 min at +100 °C after 24 h room temperature	4.2
<i>Compression shear strength FR4/FR4</i> [MPa] DELO Standard 5 curing: 15 min at +100 °C after 24 h room temperature	11.5
Compression shear strength PC/ABS [MPa] DELO Standard 5 curing: 15 min at +100 °C after 24 h room temperature	10
Compression shear strength PETP/PETP [MPa] DELO Standard 5 curing: 15 min at +100 °C after 24 h room temperature	4.5
Compression shear strength FR4/PC [MPa] DELO Standard 5 curing: 15 min at +100 °C after 24 h room temperature	10
Compression shear strength FR4/PBT [MPa] DELO Standard 5 curing: 15 min at +100 °C after 24 h room temperature	6.5
Compression shear strength FR4/LCP [MPa] DELO Standard 5 curing: 15 min at +100 °C after 24 h room temperature	5
Coefficient of linear expansion [ppm/K] TMA, DELO Standard 26 in a temperature range of +35 to +150 °C	150
Shrinkage [vol. %] DELO Standard 13 curing: 30 min at +100 °C	2.2
Specific thermal conductivity [W/(m·K)] DELO Standard 47, stationary method according to ASTM D 5470	2.1
Specific thermal conductivity [W/(m·K)] Photoflash method according to ASTM E 1461 layer thickness 0.4 mm	1.54
Apparent thermal conductivity [W/(m·K)] DELO standard 50, stationary method	8.2

Thermal contact area resistivity (AI) [(mm ² ·K)/W] DELO Standard 47, stationary method according to ASTM D 5470	6
Resistivity [mΩcm] DELO Standard 29	0.11
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.