

DELO® KATIOBOND® 4668

UV-curing encapsulant for Smart-Card technology, fill for Dam&Fill

Base

- modified epoxy resin
- one-component, solvent-free, UV-curing

Use

- encapsulation of chip modules in the Dam&Fill method as Fill compound. We recommend DELO KATIOBOND KB694 as Dam compound forming a homogeneous unit with DELO KATIOBOND 4668
- especially suitable for smart card technology, e. g., phone or health insurance cards
- the system enables extremely short cycle times and, therefore, an increase in productivity and a decrease in production costs
- very hard encapsulation for optimal protection during module implanting
- for many years this system has proven to be highly reliable
- low corrosion potential due to high ion purity
- 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. 6 h for containers up to 1,000 ml; additional heat addition is not allowed
- filler sedimentation is possible
- store in a cool place (0 °C to +10 °C) and homogenize during conditioning by tumbling at 1 - 2 rpm before use
- the maximal processing time in the system is 24 h; then, tumbling must be repeated; tumbling time at room temperature (max. 25 °C): 3 h at 1 - 2 rpm
- an integrated agitator can be used in case of processing from pressure tanks
- a variation of the flow properties is possible by a dispensing valve heating
- for further information please refer to our brochure "Smart Card"

Curing

- curing with UVA light in a recommended wavelength range of 320 - 400 nm
- high initial strength after irradiation; therefore, complete protective function
- after irradiation curing until final strength within 24 h at room temperature
- increased temperatures accelerate the reaction, lower temperature decelerate it
- increased intensities shorten the required irradiation time, lower intensities prolong it

Curing parameters

- dependent on the layer thickness of the encapsulation compound, lamp type and irradiation intensity

Technical data

<i>Color</i> cured in a layer thickness of approx. 0.1 mm	transparent
<i>Color</i> cured in a layer thickness of approx. 0.5 mm	light gray translucent
<i>Color</i> cured in a layer thickness of approx. 2 mm	light gray translucent
Filler content [weight %]	40
Filler particle size [μm]	≤ 32
Density [g/cm^3] at room temperature (approx. 23 °C)	1.4
<i>Viscosity</i> [mPas] at 23 °C, Brookfield spindle/rpm 4/5	3300
Recommended irradiation time [s] UVA-intensity: 55 - 60 mW/cm ² DELOLUXcontrol	60
Recommended irradiation time [s] LED 365 nm, intensity: 150 - 160 mW/cm ² DELOLUXcontrol; at approx. 70 °C	20
Curing time until final strength [h] at room temperature (approx. 23 °C) after irradiation	24
<i>Compression shear strength glass/glass</i> [MPa] DELO Standard 5 UVA intensity: 55 - 60 mW/cm ² , DELOLUXcontrol, irradiation time: 60 s curing time: 24 h at room temperature (approx. 23 °C)	32
Tensile strength [MPa] DIN EN ISO 527	37
Elongation at tear [%] DIN EN ISO 527	0.9
Young's modulus [MPa] DIN EN ISO 527	5390
<i>Shore hardness D</i> according to DIN EN ISO 868	82
Decomposition temperature [°C] DELO Standard 36	290
<i>Glass transition temperature</i> [°C] DMTA, tensile measurement, at room temperature (approx. 23 °C) 2nd measurement run	105
Glass transition temperature [°C] TMA	86
Coefficient of linear expansion [ppm/K] TMA, in a temperature range of +25 to 60 °C	65
Coefficient of linear expansion [ppm/K] TMA, in a temperature range of +109 to +150 °C	162
Water absorption [weight %] according to DIN EN ISO 62, 24 h at room temperature (approx. 23 °C)	0.18
Shrinkage [vol. %] DELO Standard 13	3.6

<i>Ion content Na+</i> [ppm] extraction	<10
<i>Ion content K+</i> [ppm] extraction	<10
<i>Ion content Cl-</i> [ppm] extraction	<10
<i>Ion content F-</i> [ppm] extraction	<100
Specific volume resistance [Ωcm] VDE 0303, part 3	>1xE13
Surface resistance [Ω] VDE 0303, part 3	>1xE13
Storage life at 0 °C to +10 °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 KATIOBOND 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.