

### **DELOMONOPOX® AC365**

Anisotropic conductive, heat-curing adhesive to contact flip chip

#### **Base**

- modified polycarbaminacid derivative
- one-component, heatcuring, solvent-free

#### **Use**

- for the bonding and electrical contacting of bare semiconductors (ICs) in flip-chip technology
- especially suitable for the smart card and smart label sector
- fast curing at moderate temperatures (+80 to +170 °C at the adhesive)
- 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 2011/65/EU
- halogen-free according to IEC 61249-2-21

#### **Processing**

- the adhesive is supplied ready for use, in case of cool or 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; additional heat addition is not allowed
- processing time at room temperature: 3 days
- the adhesive is applied by dispensing
- the process steps for the adhesive application are as follows:
  1. Application of adhesive to the substrate. It must be ensured that the adhesive layer is bubble-free.
  2. Placement of the semiconductor into the adhesive.
  3. Pressing of the semiconductor with defined contact pressure and pressing time (at temperatures between +80 and +170 °C at the adhesive) by means of a thermode

#### **Curing**

- curing proceeds, e. g., at temperatures between +80 and +170 °C at the adhesive in 4 to 6 seconds using a thermode
- increased temperatures shorten the curing process, lower temperatures extend it, and can change the properties of the cured product
- the minimal curing temperature is +80 °C
- the adhesive features a post-curing attitude. After a curing step by means of a thermode at low temperatures (< 140 °C) a initial strength is given. Furthermore the adhesive shows a post curing at room temperature and rises up to final strength after about 24 hours.
- 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 curing times of the adhesive at the curing temperatures recommended can be drawn from the technical data

## **Technical data**

<i>Color</i>	brown
particle	Ni-Au particle
Particle size [ $\mu\text{m}$ ] d50	2.5
Density [ $\text{g}/\text{cm}^3$ ] DELO Standard 13 at room temperature (approx. 23 °C)	1.25
<i>Viscosity</i> [mPas] at 23 °C, rheometer, 10 1/s	40000
Curing time with thermode [s] at +150 °C adhesive temperature	5
Die shear strength [MPa] DELO-Norm 30 Curing: 5 s at +150 °C substrate: Toyo Al/PET antenna Si-chip 0.8 x 0.8 mm with Au-bumps (Impinj) at room temperature (max. 25 °C)	25
Tensile strength [MPa] according to DIN EN ISO 527 layer thickness: 2 mm	30
Elongation at tear [%] according to DIN EN ISO 527 layer thickness: 2 mm	2.4
Young's modulus [MPa] according to DIN EN ISO 527 layer thickness: 2 mm	1500
Shore hardness D according to DIN EN ISO 868	78
<i>Glass transition temperature</i> [°C] TMA	74
Coefficient of linear expansion [ppm/K] TMA, in a temperature range of +30 to +60 °C	99
Shrinkage [vol. %] DELO Standard 13	2.7
Water absorption [weight %] according to DIN EN ISO 62, 24 h at room temperature (approx. 23 °C)	0.5
<i>Ion content Na+</i> extraction	<10
<i>Ion content K+</i> extraction	<10
<i>Ion content Cl-</i> extraction	<10
<i>Ion content F-</i> extraction	<10
Storage life at room temperature (max. 25 °C) in unopened original container	3 days

storage life at -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.

Many product properties are subject to temperature and may change permanently, especially at high temperatures.

It is the user's responsibility to test the suitability of the product for the intended purpose and temperature range of use by considering all specific requirements. Type and 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. Verbal ancillary agreements are deemed not to exist.

### **Instructions for use**

The instructions for use of DELOMONOPOX 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.