

**Elecolit®**  
**Electrically and Thermally Conductive Adhesives**

**System Properties**

- TCA thermally conductive adhesives
- ICA isotropic adhesives
- ACA anisotropic adhesives
- Flame-retardant products
- 1-part and 2-part epoxies

**Advantages**

- Suitable for small- and large-series production
- Processing with dispenser, in screen printing and pin transfer
- UV-curing or curable at room and/or high temperature
- Simple processing

## Elecolit® Conductive Adhesives – Always the Right Bond...

Elecolit® is our range of electrically and thermally conductive adhesives.

The Elecolit® products are a progressive solution to current issues in many fields of application.

Elecolit® conductive adhesives are synthetic resins filled with metallic or inorganic filler materials.

- ICA isotropic adhesives
- TCA thermally conductive adhesives
- ACA anisotropic adhesives
- Flame-retardant products

### 1-Part Products for Heat Curing

Benefits: simple processing through dispenser, screen printing or needle transfer – no mixing needed.

### 2-Part Products for RT Curing

Benefits: long shelf life, curing at room temperature possible, very short curing times possible at higher temperatures, low-viscosity settings possible.

## Electrically Conductive

Electrically conductive products usually contain metallic fillers such as palladium, gold, silver, copper, nickel or graphite. The more filler the product contains, the higher is its conductivity.

### Applications

- Die bonding
- Aerial contacting
- Flip-chips
- Anisotropic bonds
- HF screening
- 3D-MID

**Advantages** compared to other techniques:

- Lead- and solvent-free
- Curing at low temperatures < 120 °C
- No change to your process setup
- High flexibility at temperature shock
- High thermal stability
- No bleeding



| Electrically Conductive      |   |  |   |   |   |  |  |
|------------------------------|---|--|---|---|---|--|--|
| Elecolit®                    | 3024  | 3012   | 3043  | 3653  | 3655  | 3025   | 3036   |
| Typical Applications         | Heat-Sensitive Components   | Chips & Electrical/Electronic Components                                 | Antenna Printing, Ceramic Fuses   | Flexible Component Bonds  | Die-Attach, Semi Conductor, Part Assembling   | Suitable for Heat Sensitive Parts  | Suitable for Heat Sensitive Parts  |
| Base                         | 2-part Epoxy  | 1-part Epoxy   | 1-part Epoxy  | 1-part Epoxy  | 1-part Epoxy  | 2-part Epoxy   | 2-part Epoxy   |
| Viscosity (mPas)             | 2,800   | Pasty  | 4,000 – 5,000   | 8,000 – 10,000  | 15,000 – 45,000   | Pasty  | Pasty  |
| Curing                       | 15 min at 120 °C  | 10 min at 150 °C   | 10 min at 150 °C  | 5 min at 150 °C   | 30 min at 150 °C<br>60 min at 120 °C  | 24 h at RT<br>15 min at 120 °C   | 24 h at RT<br>15 min at 120 °C   |
| Temp. Resist. (°C)           | -40 to +150   | -40 to +200  | -40 to +180   | -40 to +180   | -40 to +180   | -40 to +150  | -40 to +150  |
| Contact Resistance ohms x cm | 0.0005  | 0.013  | 0,015   | 0,005   | 0,0003  | 0,05   | 0,01   |
| Characteristics              | Snap Cure at High Temperatures, Pot Life: 8 h, Cures at as Low as 80 °C | Dispenser, Screen Printing, Good Conductivity, Good Gap Filling Capacity | Very low Viscosity, Good Dispensability, Small Fillers Ag<10 µ, Low Ion Content | Highly Flexible, Temperature-, Vibration- and Impact-Resistant, Good Dispensability | Dispensable, Small Filler Grain Size (<10µm), High Thermal Conductivity, High Electrical Conductivity | Curing at RT Possible, Short Production Time at High Temperatures, Dispensable, Screen Printable | Curing at RT Possible, Short Production Time at High Temperatures, Dispensable, Screen Printable, Alternative to El 3025 |

| Electrically Conductive      |  |   |  |  |   |   |  |
|------------------------------|--|---|--|--|---|---|--|
| Elecolit®                    | 323  | 325   | 336  |  | 327   | 342   | 414  |
| Typical Applications         | Component Bonding/ Electronics   | Heat-Sensitive Components   | Heat-Sensitive Components  |  | High-Temperature Range  | Electrically Conductive Contacts, HF Shielding  | Flexible Conductive Paths on Film  |
| Base                         | 2-part Epoxy   | 2-part Epoxy  | 2-part Epoxy   |  | 1-part Polyamide  | 1-part Acrylate   | 1-part Polyester   |
| Viscosity (mPas)             | 45,000   | Pasty   | Pasty  |  | 8,500   | 1,000 – 2,000   | 20,000 – 25,000  |
| Curing                       | 4 min at 150 °C  | 5 min at 150 °C   | 5 min at 150 °C  |  | 1 h at 150 °C   | 10 min at 120 °C  | 5 min at 150 °C  |
| Temp. Resist. (°C)           | -60 to +175  | -40 to +150   | -40 to +150  |  | -40 to +275   | -40 to +150   | -55 to +200  |
| Contact Resistance ohms x cm | 0.0002   | 0.0005  | 0.001  |  | 0.0001  | 0.001   | 0.0005   |
| Characteristics              | Pot Life 96 hours, Cures at Low Temperatures, Suitable for Semiconductors, Good Dispensability | Short Times at High Temper., Dispensers, Printing and Screen Printing, Very Good Conductivity | Cures at Room and Low Temperatures, Dispenser, Printing and Screen Printing, Inexpensive |  | High Electrical & Thermal Conductivity, Good on Gold, Aluminium, Tantalum, Germanium and Ceramics | Latex-like Film, Low Mechanical Strength, Good Adhesion to Many Substrates, Curing at Room Temp. Possible | Extremely Flexible, Very Good Conductivity, Can be Bonded and Crumpled, Abrasion-Proof |

## Thermally Conductive

The best thermal conduction coefficients can be achieved with metallic fillers. They also make the adhesive electrically conductive, which is undesirable for some applications and should be verified before use.

### Applications

Applications that release heat energy:

- Bonding of power modules
- Spacers for coating thickness testing
- Bonding of heat sinks

**Advantages** compared to other techniques:

- Simultaneous dissipation of the high thermal energy and fixing/mounting in contrast to pastes
- Solvent-free
- Fast curing
- High ion purity
- 1-part, simple processing

## Processing

Elecolit® products are versatile and reliable, even under extreme conditions.

- Suitable for small- and large-series production
- Processing with dispenser, screen printing and pin transfer

## System Solutions

Panacol-Elosol also supplies suitable processing equipment for your applications, such as heat-sealing presses.

## Leading the Field through Innovation and Research:

We continually develop and improve our proven Elecolit® range.

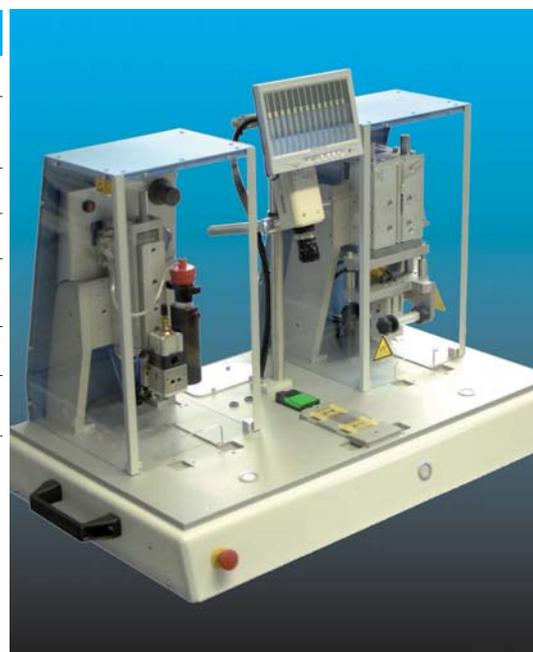
Working both in our own laboratories and on ongoing research projects in close cooperation with renowned institutes and leading partners in industry. We are continually developing progressive solutions for new applications.

## Thermally Conductive

| Elecolit®                   | 6601  | 6603   | 6604   |  | 6616  | 6207  |
|-----------------------------|---|--|--|--|---|---|
| <b>Typical Applications</b> | Heat Sinks, Sensors   | Bonding Magnets and Heat Sinks                                       | Sensors for Measuring Instruments                                    |  | Sealant for Hardening at Room Temper.   | Capsule and Sealant   |
| Base                        | 1-part Epoxy  | 1-part Epoxy   | 1-part Epoxy   |  | 2-part Epoxy  | 2-part Epoxy  |
| Viscosity (mPas)            | 12,000 – 20,000   | 95,000 – 115,000   | 110,000 – 140,000  |  | Pasty   | 9,000 – 12,000  |
| Curing                      | 20 min at 150 °C  | 20 min at 150 °C   | 10 min at 150 °C   |  | 2 h at 80 °C  | 2 h at 65 °C  |
| Temp. Resist. (°C)          | -40 to +200   | -40 to +200  | -40 to +200  |  | -50 to +150   | -55 to +110   |
| Heat Conductivity (W/mK)    | 1.05  | 1.3  | 1.05   |  | 1.01  | 0.9   |
| <b>Characteristics</b>      | Very Good Adhesion to Metals, Good Flow Behaviour, High Strength, Good Dispensability | Somewhat Flexible, Impact- and Temperature-Resistant, High Viscosity | Low Heat Expansion, Good Measured Value Transmission, High Viscosity |  | Pot Life 45 min, Flexible at Low Temperatures, Vibration- and Impact-Resistant, Visco-Plastic | Low Viscosity, Flame-Retardant, Low Shrinkage, Pot Life 2 hours, UL 94 V0 |

## Anisotropically Conductive

| Elecolit®                   | 3061   | 3063  | 3064  | 3065   |
|-----------------------------|--|---|---|--|
| <b>Typical Applications</b> | LCD, Flexible Circuits                                   | Flexible Circuits   | Flexible Circuits   | Display/ Touch Panel   |
| Base                        | 1-part Epoxy   | 1-part UV Acrylate  | 1-part UV Acrylate  | 1-part UV Acrylate   |
| Viscosity (mPas)            | 35,000 – 45,000  | Thixotropic   | Thixotropic   | Thixotropic  |
| Curing                      | 10 s at 150 °C   | 1 min at 200 mW/cm <sup>2</sup> + 40 N  | 1 min at 200 mW/cm <sup>2</sup> + 40 N  | 1 min at 200 mW/cm <sup>2</sup> + 40 N   |
| Temp. Resist. (°C)          | -40 to +180  | -40 to +150   | -40 to +150   | -50 to +150  |
| Heat Conductivity (W/mK)    | 0.0001   | 0,001   | 0,001   | 0,001  |
| <b>Characteristics</b>      | Anisotropic Electrically Conductive, Ion Purity < 10 ppm | Anisotropic, UV-Curing, for Transparent Film with Printed Conductive Paths, Highly Flexible | Anisotropic, UV-Curing, for Transparent Film with Printed Conductive Paths, Highly Flexible, Alternative to EI 3063 | Anisotropic, UV- and Heat Curing, for Transparent Film with Printed Conductive Paths, Highly Flexible, Dual Curable for Bigger Connector Sizes |



## UV Lamps and UV LEDs

### Hönle UV Lamps

are the ideal addition to, for example, our UV products and are ideally suited for curing adhesives, coatings, sealants and paints.

- UV hand lamps
- UV point sources
- UV flood lamps
- UV conveyors

Handy and compact, suitable for mobile and stationary systems, with a homogeneous intensity distribution.



### Hönle UV LED Lamps

UV LED point source and LED Powerline: the innovative UV technology that cures without heat generation! Ideal in combination with the specially developed Panacol UV LED adhesives.



## Dispensing Equipment

We can supply the suitable dispensing equipment for your application, from standard devices to custom-made machines. Ideal for precisely metered application of various low- and high-viscosity materials.



And we also have the suitable accessories.

You can find further information about our product groups in our special product data sheets. For our comprehensive range of accessories for each product series, please ask for our detailed information sheets.

|                    |           |  |        |              |                      |                          |
|--------------------|-----------|--|--------|--------------|----------------------|--------------------------|
| <b>hönle group</b> |           | Dispensing   | Curing | UV-adhesives | Conductive adhesives | Potting                  |
|                    |           |  |        |              |                      |                          |
| aladin             | eleco-efd | eltosch  | hönle  | mitronic     | panacol              | printconcept             |
|                    |           |  |        |              |                      | uv-technik speziallampen |
|                    |           | Panacol-Elosol GmbH, Daimlerstr. 8, 61449 Steinbach/Taunus, Germany<br>Telefon: +49 6171 6202-0, Fax: +49 6171 6202-590. <a href="http://www.panacol.de">www.panacol.de</a><br>Operating parameters depend on production characteristics and may differ from the foregoing information. We reserve the right to modify technical data. © Copyright Panacol-Elosol GmbH. Updated 10/11. |        |              |                      |                          |