Technical Datasheet

Elecolit® 3655

Product Description

Modified epoxy | 1 part | solvent-free | thermal-curing | thermally conductive | electrically conductive

- Semiconductor technology
- LED bonding
- Electrically conductive bonding
- Very high filling density
- Good thermal conductivity
- Low ion content (Na+, K+, Cl- <10ppm)
- Silver filled

Curing Properties

This adhesive can be cured with heat. Typical curing temperatures are listed in the table below.

Temperatures	Time
150°C	30 min
180°C	15 min

The heat cure times are only provided as a guideline. They are derived from curing a 2g adhesive sample without affixed substrates in a laboratory environment. Actual cure times can vary based on part size, configuration, adhesive volume, temperature control, and the time required for the component substrates to attain oven temperature.

The final bond strength of the adhesive is achieved no sooner than 24 h after the bonded components are removed from the oven.

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Resin	Epoxy
Appearance	Grey
Filler	Silver
Filler - weight [%]	87
Particle size D95 [µm]	15

Uncured Material	
Viscosity [mPas] (Kinexus Rheometer, 25 °C, $10s^{-1}$) *PE-Norm 064*	5,000 – 15,000
Thixotropic index [1/10] *PE-Norm 064*	5 – 6
Density [g/cm³] *PE-Norm 004*	4.8 – 5.2
Flash point [°C] *PE-Norm 050*	>100

Cured Material	
Hardness shore D *PE-Norm 006*	70 – 85
Temperature resistance [°C]	-40 – 180
Shrinkage [%] *PE-Norm 031*	<2
Water absorption [%] *PE-Norm 016*	<1
Working life [h] *@ room temperature*	4

Glass transition temperature - DSC [°C] *PE-Norm 009*	130 – 150
Coefficient of thermal expansion [ppm/K] below Tg *PE-Norm 017*	30 – 60
Coefficient of thermal expansion [ppm/K] above Tg *PE-Norm 017*	100 – 200

Thermal conductivity [W/m*K] *150°C, 30min* *PE-Norm 062*	8.5 – 9.5
Thermal conductivity [W/m*K] *180°C, 1h* *PE-Norm 062*	10 – 11
Volume resistivity [Ohm*cm] *150°C, 30min* *PE-Norm 040*	1E-4 – 3E-4

Young´s modulus – DMA [MPa] *150°C, 30min* *PE-Norm 022*	1,000 – 1,600

Lap shear strength (silver/copper) [MPa] *150°C, 30min* *PE-Norm 013*	22 – 27
Lap shear strength (silicium/copper) [MPa] *150°C, 30min* *PE-Norm 013*	22 – 26
Lap shear strength (AgPd/copper) [MPa] *150°C, 30min* *PE-Norm 013*	22 – 26
Die shear strength* (copper) [N/die] *150°C, 30min* *PE-Norm 057*	120 – 160
Die shear strength* (AgPd/CuNiAu)) [N/die] *150°C, 30min* *PE-Norm 057*	240 – 300

Si die 3x3mm (12x120mil)

Transport/Storage/Shelf Life

Package type	Transport	Storage	Shelf life*
Syringe/Cartridge	-20°C	-20°C	At delivery min. 3 months max. 6 months
Other packages	0°C – 10°C	0°C – 10°C	

Store in original, unopened containers!

Instructions for use

After storing the container at 0°C - 10°C, Elecolit® 3655 must be homogenized because of possible sedimentation of silver.

Surface preparation

The surfaces to be bonded should be free of dust, oil, grease, mold release, or other contaminants in order to obtain an optimal and reproducible bond. For cleaning we recommend the cleaner IP® from Panacol, or a solution of Isopropyl Alcohol at 90% or higher concentration. Substrates with low surface energy (e.g. polyethylene, polypropylene) must be pretreated in order to achieve sufficient adhesion.

Application

Our products are supplied ready to use. Depending on the packaging, our adhesives may be dispensed by hand directly from the package, or they can be applied using dispensing systems and automation. Many commercially available valve and controller options are available to ensure accurate and consistent adhesive dispensing. For assistance with dispensing and curing questions, please contact our Applications Engineering department. Adhesive and substrate should not be cold for proper bonding. They must be allowed to warm to room temperature prior to processing. After curing, the adhesive must be allowed to cool to ambient temperature before testing the product's performance. For safety information refer to our Material Safety Data Sheet (MSDS)

Storage

Store uncured product in its original, closed container in a dry location. Any material removed from the original container must not be returned to the container as it could be contaminated. Panacol cannot assume responsibility for products that were improperly stored, contaminated, or repackaged into other containers.

Handling and Clean-up

For safe handling information, consult this product's Material Safety Data Sheet (MSDS) prior to use. Uncured material may be wiped away from surfaces with organic solvents. Do not use solvents to remove material from eyes or skin!

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Disclaimer

The product is free of heavy metals, PFOS and Phthalates and is conform to the current EU-Directive RoHS.

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Contact

Panacol-Elosol GmbH
Stierstädter Straße 4
61449 Steinbach
Germany
Phone: +49 6171 6202-0
Mail: info@panacol.de
www.panacol.com

Panacol-USA, Inc.
142 Industrial Lane
Torrington CT 06790
USA
Phone: +1 860-738-7449
Mail: info@panacol-usa.com
www.panacol-usa.com

Panacol-Korea Co., Ltd.
#707, Kranz Techno,
388 Dunchon-daero
Junwon-gu, Seongnam
Gyeonggi-do, 13403 KOREA
Phone: +82 31 749 1701
Mail: info@panacol-korea.com
www.panacol-korea.com

Eleco Panacol – EFD
125, av Louis Roche
Z.A. des Basses Noëls
92238 Gennevilliers Cdx FRANCE
Tél.: +33 (0)1 47 92 41 80
Mail: eleco@eleco-panacol.fr
www.eleco-panacol.fr