Technical Datasheet
Elecolit® 3655

Product Description

Panacol Elecolit® adhesives are solvent free single or two-component adhesives. They are mostly based on epoxy resin and can be cured at room temperature or by exposure of heat. Elecolit® adhesives are electrically and / or thermally conductive adhesives which are designed for potting, bonding or contacting of conductors.

Elecolit® 3655 is a one-component, silver filled and low-viscosity conductive adhesive. Due to the small grain size of the silver particles it can be dosed well, even with small needle diameters without clogging. Elecolit® 3655 is distinguished by its very high filling density, good thermal conductivity and low ion content (Na +; K +; Cl- <10 ppm). It has been developed especially for the requirements in semiconductor technology as well as for LED-attach production.

After prolonged storage, the product must be homogenized because the silver naturally sediments in the low-viscosity resin.

Curing Properties

The product is a one-component adhesive and cures under exposure to heat. Possible curing temperatures are listed in the table below.

Thermal curing	[min]
Time at 180°C	60 (for optimum electrical conductivity)
Time at 150°C	30

The curing times given are guidelines. They refer to the curing of 2 g of adhesive. The heating up of the joining members are not taken into account.

The final strength of the adhesive is reached at the earliest after 24 h.

Technical Data

Resin	epoxy
Appearance	silver
Filler	silver
Filler – weight [%]	87
Particle size D95 [µm]	15

Uncured material

Viscosity [mPas] *[cP]* (Kinexus Rheometer, 25°C, 20s^{-1}) *PE-Norm 064*	5 000 - 15 000
Density [g/cm³] *PE-Norm 004*	5,3
Flash point [°C] *PE-Norm 050*	>93

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Cured material

Hardness shore D *PE-Norm 006*	70 - 85
Temperature resistance [°C]	-40 - 180
Water absorption [mass %] *PE-Norm 016*	<1

Glass transition temperature DSC [°C] *PE-Norm 009*	134 - 140
Coefficient of thermal expansion [ppm/K] below Tg *PE-Norm 017*	32
Coefficient of thermal expansion [ppm/K] above Tg *PE-Norm 017*	135

Thermal conductivity [W/m*K] *PE-Norm 062*	9
Volume resistivity [Ohm*cm] *cured @ 180°C, 60min* *PE-Norm 040*	3,0E-04

Young's modulus E [MPa] *PE-Norm 056*	1098
Lap shear strength (silver/copper) [MPa] *PE-Norm 013*	25
Lap shear strength (silicium/copper) [MPa] *PE-Norm 013*	24
Lap shear strength (AgPd/copper) [MPa] *PE-Norm 013*	24
Die* shear strength (bare copper) [N/die] *PE-Norm 057*	140
Die* shear strength (AgPd/CuNiAu) [N/die] *PE-Norm 057*	260

**Si 3x3mm (120x120mil)*

Transport/Storage/Shelf Life

Trading unit	Transport	Storage	Shelf-life*
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!

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Instructions for Use

Surface preparation

The surfaces to be bonded should be free of dust, oil, grease or other dirt in order to obtain an optimal and reproducible bond.

For cleaning we recommend the cleaner IP® Panacol. 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 packaging they can be applied by hand directly from the container or semi or fully automatically. With automated application from the cartridge the adhesive is conveyed by a compressed air-operated displacement plunger via a valve in the needle. When metering low viscosity materials from bottles the adhesive is transported by a diaphragm valve. If help is required, please contact our application engineering department.

Adhesive and substrate may not be cold and must be warmed up to room temperature prior to processing.

For safety information refer to our safety data sheet.

Disclaimer

The product is free of heavy metals, PFOS and Phthalates and is conform to the EU-Directive 2017/2102/EU "RoHS III".

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