ELANTAS

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EN

Preliminary Technical Data Sheet

Bectron®
CG 5661

Printed Electronics - 1 K - Thermal Cure
Electrically Conductive Adhesive (ECA)

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Description

Bectron® CG 5661 is a single component, conductive, thermal curing epoxide adhesive for electronic application and printing. Bectron® CG 5661 can be used as an Electrically Conductive Adhesive (ECA).

Key Properties:

- Single component, no mixing required
- 100%-material, solvent free
- Electrical conductivity
- High thermal conductivity
- Temperature curing at 90°C possible
- Max. operation temperature 100°C
- Dispensable
- Printable
- Jetable
- Very good adhesion on various substrates

Areas of application

Bectron® CG 5661 is designed to be used in printed electronics as an Electrically Conductive Adhesive (ECA) providing a conductive connection between printed silver inks and electronic components. It is also suitable to provide conductive connections on printed circuit boards (PCB). Due to its high silver content Bectron® CG 5661 provides an good thermal conductivity which makes the material suitable as a powerful thermocoupling interface material between non-conductive hot components and metal heat-sinks.

Compatibility with the following conductive screen printing inks has been sucessfully evaluated:

- Bectron® CP 6662
- Bectron® CP 6668
- Bectron® CP 6681
- Bectron® CP 6680
- Bectron® CP 6690

The material shows excellent adhesion on various substrates.

Material	Adhesion
Steel	+++
Aluminium	+++
Fiber reinforce PC	+++
PET film	+++
Polycarbonate	+++

Processing methods

Application: Bectron® CG 5661 can be applied by manual and automated by dispensing, jetting or in thin layer by screen printing. Dispensing and jetting in dots and lines is possible as well for applications on printed circuit boards. Prior to use the material shall be homogenized properly excluding air bubbles.

Screen printing equipment: Semi-automatic, manual flatbed

Screen types: 70-100 1/cm stainless steel or polyester

Tension: 25 N/cm, EOM ~ 10-15µm

Squeegee: 75° Shore A, polyurethane at 70° angle, printing speed 50 mm/s

Re-work: Being an adhesive and glue Bectron® CG 5661 can only be removed by mechanical force.

Curing/Post-curing

Bectron® CG 5661 cures by temperature between 80 – 150°C. The higher the temperature, the shorter the cure time. Intrinsic overheating of the resin has to be avoided to obtain full material properties. The evolution of heat is a function of the volume of material used, of the cure temperature, and the capacity of the surrounding to absorb heat - namely the substrates. A batch oven a conveyer furnaces and a thermode can be used for thermal cure.

To ensure satisfactory adhesion all surfaces shall be dry, clean, and free of residues. Additional activation of the surface may increase the adhesion of the product.

Compatibility of adhesive and respective surface should be checked individually by application.

Successfull cure has been obatained e.g. at approx. 45 min at 90°C in bulk or at approx. 10 min at 130°C in thin layer on fiber reinforced polycarbonate (PC), thermally insulating.

Storage and stability

Product should be stored in its original sealed container to avoid any potential contamination at a temperature between -18°C till 8°C. Store accordingly to any specific instruction listed on the product label. Product should be used prior to the expiring date marked on the label. Keeping the material at 25°C for 48h is possible. Keeping the material at higher temperatures and/or longer duration at 25°C the curing reaction will start.

Handling precautions

Refer to the safety data sheet and comply with regulations relatingto industrial health andwaste disposal.

Typical product characteristics

Properties	Conditions	Test Method	Value	M/U
Colour		--	Silver-grey	
Shelf life	-18 to 8 °C	Internal Test	6	months
Density	20,8 °C	DIN 53217	4,9 ÷ 5,1	g/cm³

Typical mechanical properties of the cured product

Properties	Conditions	Test Method	Value	M/U
Cross-cut test		DIN EN ISO 2409 (Internal Test L42a)	ISO-0	

Typical thermal properties of the cured product

Properties	Conditions	Test Method	Value	M/U
Glass transition temperature (Tg)		TMA (Internal Test M56)	125 ÷ 135	°C
Linear expansions coefficient	above Tg (135 to 190 °C)	TMA (Internal Test M56)	85	ppm/K
	below Tg (-30 to 125 °C)		45	ppm/K

Typical electrical conductivity of the cured product

Properties	Conditions	Test Method	Value	M/U
Sheet resistivity		DIN EN 62899-2 (Internal Test U22)	400	mΩ/sq/mil