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Innovative Chemistry For High-Tech Applications

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AGCL-823

SILVER/SILVER CHLORIDE ELECTRICALLY CONDUCTIVE EPOXY INK FOR BIOMEDICAL SENSORS

AGCL-823 is a unique one part electrically conductive epoxy adhesive used for printing medical sensors such as EEG, EKG and defibrillator pads. AGCL-823 is designed for applications where aggressive gel materials may slowly wick into traditional silver/silver chloride inks causing them to change electrical resistance over time. Because AGCL-823 utilizes a crosslinked polymer binder system, it has excellent mechanical strength, toughness and high temperature and humidity resistance, while still maintaining excellent flexibility. The rheology of AGCL-823 makes it an ideal material for screen printing. AGCL-823 exhibits excellent adhesion to most metal and plastic substrates. AGCL-823 is designed to give a long working time on press, while curing quickly at lower temperatures.

AGCL-823 is compatible with all of our silver conductive inks, UV curable encapsulants, dielectrics and conformal coatings. Contact us for suitability of use with other materials.

TYPICAL PROPERTIES

VALUES

Appearance	Thixotropic Silver Colored Paste
Viscosity	
25°C, Brookfield DV-III SC4-14, 10 sec ⁻¹ shear	< 30,000 cps
Shelf Life @ 0°C	Greater than 60 days in unopened container
Working Time (Room Temperature)	Greater than 12 hours
Hegman Gage	<100 μ
Volume Resistivity (ref. ASTM D-257)	<5.0 x 10 ⁻³ Ω-cm
Surface Resistivity	<0.020 Ω-sq
Coefficient of Thermal Expansion	
Below Tg	6.0 x 10 ⁻⁵ in/in/°C
Above Tg	1.5 x 10 ⁻⁴ in/in/°C
Thermal Conductivity	11 BTU in/ft ² hr °F
Glass Transition Temperature (TMA)	110°C (Fully Cured)
Operating Temperature Range	-55° C To +175° C Continuous Intermittent at higher temperatures when fully cured.

Curing Schedule	(Time at Temperature)	90% Cure	Complete Cure
120°C		5 minutes	15 minutes
140°C		4 minutes	10 minutes

At 90% cure, the assembly can generally be handled carefully without the danger of damaging the adhesive bond. AGCL-823 will not continue to cure at room temperature once heat is removed. Cure times above are intended as guidelines, and should be used as guidelines. Actual performance should be verified in the production processes.

MORE INFORMATION ON REVERSE SIDE

AGCL-823
SILVER FILLED ELECTRICALLY CONDUCTIVE
SINGLE COMPONENT EPOXY ADHESIVE

APPLICATION GUIDELINES

For screening, a monofilament polyester (180 to 280 mesh) with emulsion thickness between .001" and .003" is recommended. **Do not use stainless steel mesh or stencils with AGCL-823, as silver chloride will react with metals.** A polyurethane squeegee with a Shore 'A' durometer between 60 and 70 is recommended. Metal flood bars should be covered with a non-reactive coating or film such as a fluorocarbon film. Silicone materials should not be used as this can produce spot contamination in print patterns.

In general a more open screen, with thicker emulsions, will give a thicker wet lay down. However, a thicker wet pattern will require more time for curing.

Because AGCL-823 has a shelf life of more than 60 days at 0°C, the rheological properties allow for accurate and repeatable print definition over long production runs. As AGCL-823 is used in a screen printing process, the energy from the constant movement of the flood bar and squeegee will cause the material to thicken more quickly. Production runs of between 12 and 24 hours are possible with stable material rheology, dependent on ambient temperature, humidity and process parameters.

While the viscosity of the mixed material will change slightly over the 60 day storage window, most application equipment can easily compensate for the rheological changes to accurately maintain print definition. AGCL-823 can be thinned using small amounts of DPMA solvent. Refreezing AGCL-823 after using it on a long production run is not recommended. If used material is reclaimed off of the screen, care should be taken to mix very small amounts of the reclaimed material back into fresh material just before printing.

PACKAGING

AGCL-823 is available in containers, plastic pouches and EFD type syringes. Minimum purchase quantity does not apply to the open container packaging option. Contact Conductive Compounds, Inc. for more information about plastic pouch or EFD type syringe packaging configurations.

NOTE: Although the above properties are accurate to the best of our knowledge, Conductive Compounds, Inc. makes no guarantees for customer specifications established in applications where this product is used. Customer assumes responsibility for determining fitness of use in their particular application. The above guidelines are intended to provide a starting point for evaluation. Conductive Compounds, Inc. recognizes that each customer's manufacturing process is unique, and we can customize the rheology and curing properties of AGCL-823 to conform more closely to your process parameters. Call us to discuss your application in more detail.

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