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ELECTRASET™ 620-4

ELECTRICALLY CONDUCTIVE DIE ATTACH ADHESIVE

DESCRIPTION: Electraset™ 620-4 is a high thermal conductivity, electrically conductive adhesive optimized for a variety of die attachment applications. It features a thixotropy well-suited to syringe dispensing and is compatible with most dispensers. It is capable of dispensing lines as fine as 70 µm with no sag, bleed, or slump on many IC substrates including but not limited to copper, silicon, gold, aluminum, silver, Kapton, Mylar, as well as a variety of ceramics and array packages. Many applications for stacked dies have made the change to very fine line dispensed conductive adhesive instead of wire bonding to make layer-to-layer connections, to which Electraset™ 620-4 is very well-suited. Other applications include but are not limited to bus bars for touch screens, emi/rf shielding of circuitry, polymer thick film circuitry, and electrical attachments of SMDs.

Due to the high conductivity of Electraset™ 620-4 it provides a cost and space savings compared to traditional wire bonding and with its high thermal conductivity it is uniquely-suited for helping cool mounted devices, with the epoxy acting as built-in cooling fins. The high temperature stability of Electraset™ 620-4 provides a versatility that few other materials can match.

Property	Value	Units
Viscosity (CP-51 10/s, 25°C)	50,000 – 60,000	cps
Thixotropic Index (1/10, 25°C)	~4	-
Volume Resistivity	0.00003	Ω-cm
Thermal Conductivity	7.5	W/m-K
Glass Transition Temperature (Tg)	53	°C
Coefficient of Thermal Expansion - Below Tg	45	ppm/°C
- Above Tg	103	ppm/°C
Die Shear Strength (w/o B-stage)	> 2,500	psi
Die Shear Strength (with B-stage)	> 5,500	psi
Hydrolytic Stability	Excellent	-
Solvent Resistance	Excellent	-
Specific Gravity	3.37	g/cc
Continuous operation temperature	-55 to +230	°C
Thermal Stability	Good to +280	°C
Ionic content Chlorine (Cl-)	< 10	ppm
Sodium (Na+)	< 5	ppm
Potassium (K+)	< 5	ppm

All technical information is based on data obtained by CMI personnel and is believed to be reliable. No warranty is either implied or expressed with respect to results or possible infringements on patents.

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CURING INSTRUCTIONS: For larger bond areas a B-stage step at 80°C is recommended for maximum performance. Excellent properties can be obtained by curing at 175°C for 20 minutes, 150°C for 45 minutes or 125°C for 60 minutes. It is recommended that the end user experiment to determine the best time and temperature for each individual application.

SAFETY & HANDLING: Use with adequate ventilation. Keep away from sparks and open flames. Avoid prolonged contact with skin and breathing of vapors. Wash with soap and water to remove from skin.

STORAGE: Shelf life: 5 days at 25°C; 6 months at -10°C; 12 months at -40°C.

- Upon receipt of shipment, syringes should be unpacked immediately and stored in freezer at -10° C or below.
- Do not handle syringes from the body of the packaging. Handle from the ends of the packaging.
- Store syringes vertically (upright) with tip side down. Do not store syringes horizontally (sideways). Syringes should be stored in this manner until needed for production. Shelf life of syringes will be indicated on the products technical data sheet.
- Syringes are labeled with product number, lot number, and manufacturing date. It is important that the syringes are used according to earliest manufacturing date, "FIFO" (first in, first out).

PREPARING SYRINGES FOR USE:

- To thaw syringes, remove them from the freezer taking care not to handle the body of the syringe (handle from the top and/or the tip) and allow them to acclimate to ambient temperature with the tip down.
- Do not use hands to warm syringe.
- The thawing time for each syringe will vary based on mass and composition but a minimum of 45 minutes for 3cc, 5cc, and 10cc and a minimum of 90 minutes for 30cc syringes should be observed.
- Using a heat source to thaw syringes is not advised.
- Proximity to a heat source during thawing should be greater than 3 feet.
- Although most materials can be refrozen, minimizing freeze-thaw cycles is recommended.
- Once material is fully thawed remove protective wrapping.

SYRINGE INFORMATION:

- Creative Materials syringes have luer-lock fittings and are compatible with most types of dispensing equipment.
- Creative Materials syringe are provided packaged with smooth flow piston technology design for use on automated or manual dispense equipment but are not hand plunger equipped.
- Creative Materials routinely provides syringes in volumes of 3cc, 5cc, 10cc, and 30cc. Other sizes may be available upon request.
- Other information regarding syringes can be obtained by sending an email to info@creativematerials.com.

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