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127-12

THERMALLY CONDUCTIVE DIE ATTACH ADHESIVE

DESCRIPTION: 127-12 is a die attach adhesive engineered for high reliability performance and high efficiency production. 127-12 couples low cure shrinkage with low coefficients of thermal expansion to minimize and eliminate chip or device warping and prevent cracking or delamination. With a high degree of thermal stability, 127-12 is designed to prevent gas evolution during high temperature exposure including solder reflow conditions. Low levels of ionics and low moisture absorption provide longer life devices when encapsulation or hermetic sealing is not an option. The rheology has been optimized to allow for a variety of application methods including screen printing, stenciling, and dispensing. 127-12 has virtually no bleed and minimal spreading, tailing, or stringing. 127-12 is recommended for use with pneumatic dispensers, auger dispensers, and high solids jetting systems and is designed to meet the performance criteria of method 5011 in MIL-STD-883.

TYPICAL PROPERTIES:

Property	Value	Units
Viscosity (CP-51 10/s, 25°C)	90,000	cps
Thixotropic Index (1/10, 25°C)	> 3	-
Filler	Aluminum Nitride	-
Volume Resistivity	1 x 10 ¹⁶	Ω-cm
Thermal Conductivity	3.2	W/m-K
Glass Transition Temperature (Tg)	99	°C
Coefficient of Thermal Expansion - Below Tg	40	ppm/°C
- Above Tg	110	ppm/°C
Die Shear Strength, min. (0.09" x 0.16" die)	> 2,000	psi
Lap Shear Strength, min	> 1,800	psi
Ionic content Chlorine (Cl-)	< 10	ppm
Sodium (Na+)	< 10	ppm
Potassium (K+)	< 10	ppm
Specific Gravity	1.99	g/cc
Continuous operation temperature	-55 to +260	°C
Thermal Stability	Good to +325	°C
Weight Loss (300°C)	0.5	%

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.

REVISION DATE: 06/12/19 REVISION: B

SUGGESTED HANDLING AND CURING: Material is ready to use as received. Store frozen to maintain consistent flow properties. Allow material to warm up to room temperature before opening container. Prior to using mix container well to re-suspend filler if packaged in containers. Cure for 60 minutes at 150°C or for 30 minutes at 175°C. End user is advised to experimentally 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: < 4 days at 25°C or 6 months at -10°C or 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.
- 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 fill level and 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 this material 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.

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REVISION DATE: 06/18/19 REVISION: B