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## 110-19UT

### HIGH TEMPERATURE ELECTRICALLY CONDUCTIVE INK AND ADHESIVE

**DESCRIPTION:** 110-19UT is an electrically conductive ink and adhesive suitable for application by screen printing, dipping and syringe dispensing and designed with high temperature applications in mind. Unlike conventional conductive materials, this product features a unique high continuous operation temperature and very high glass transition temperature making it especially well-suited for extreme conditions found in furnace, heater, and aerospace applications. This product features excellent adhesion to a wide range of substrates such as Kapton, Mylar, ITO sputtered surfaces, glass, and a variety of other surfaces without the addition of treatment via acid or plasma etch. This product is very resistant to flexing and creasing and is suitable for very fine lines and spaces. Some applications for 110-19UT include, but are not limited to, EMI/RFI shielding of polyimide flexible circuits, polymer thick film circuitry, and membrane switches.

#### TYPICAL PROPERTIES:

|   |                 |
|---|-----------------|
| Viscosity (cps)                                     | 30,000 - 40,000 |
| Filler  | Silver          |
| Percent Silver, cured                               | > 90            |
| Crease Resistance                                   | Excellent       |
| Volume Resistivity* ( $\Omega$ -cm)                 | 0.00008         |
| Sheet Resistivity* ( $\Omega$ /sq/mil)              | 0.03            |
| Solderable  | No              |
| Hydrolytic Stability                                | Excellent       |
| Useful Temperature Range ( $^{\circ}$ C)            | -55 to +350     |
| Thermal Stability ( $^{\circ}$ C)                   | Good to +410    |
| Wet Coverage ( $\text{in}^2/\text{gm}/\text{mil}$ ) | 19.5            |
| Specific Gravity                                    | 3.1             |

**SUGGESTED HANDLING & CURING:** 110-19UT is ready to use as supplied. Further thinning may be accomplished by adding small amounts of CMI thinner 102-03. Prior to using, be certain to resuspend silver. Best properties for most applications result when pre-curing for half an hour at 150 $^{\circ}$ C followed by curing for 60 minutes at 250 $^{\circ}$ C. Good properties are obtained on a variety of substrates by dry and curing at temperatures ranging from 180 $^{\circ}$ C to 300 $^{\circ}$ C. For larger component bonding, it is recommended to use a pre-cure step at 80 – 125 $^{\circ}$ C for 30 minutes and/or curing under vacuum before completing the cure.

End user is advised to experimentally determine temperature and time best suited for individual applications.

**STORAGE:** Shelf Life – 1 month at 25 $^{\circ}$ C; or 6 months at 5 $^{\circ}$ C; or 12 months at -10 $^{\circ}$ C.

**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.

*\*With recommended cure schedule*

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

**REVISION DATE: 08/24/22 REVISION: B**

## Guidelines for Handling of Syringes

### **STORAGE:**

- Upon receipt of shipment, syringes should be unpacked immediately and stored in freezer at -10° C -20°C, -40°C, or -80C per recommendations on TDS. If TDS does not have a recommendation, please contact [info@creativematerials.com](mailto:info@creativematerials.com) for specific recommendations.
- 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 syringes 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](mailto:info@creativematerials.com).

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