



## Metalon® Conductive Inks for Printed Electronics

[www.novacentrix.com](http://www.novacentrix.com)

### Metalon® HPS-U11 / U11-LV High Conductivity Silver Screen Ink

- Particle:** 80 nm silver particles
- Substrates:** Paper, plastics, glass, metals
- Features:**
- Very high conductivity for low temperature curing
  - Excellent water and alcohol resistance
  - Fine line printing
  - Flexible and good adhesion to a variety of substrates
  - Printing equipment cleans with isopropanol
  - Lower Ag concentrations available for lower viscosity applications

#### Thermal cure data:

| Substrate             | Cure Temperature <sup>1</sup><br>(°C) | Volume Resistivity <sup>2</sup><br>(Ω-cm) | Sheet Resistivity <sup>2</sup><br>(Ω/sq/mil) |
|-----------------------|---------------------------------------|-------------------------------------------|----------------------------------------------|
| PET - Melinex ST505   | 100                                   | 4.5E-05                                   | 0.0177                                       |
|                       | 120                                   | 1.1E-05                                   | 0.0041                                       |
|                       | 140                                   | 6.9E-06                                   | 0.0027                                       |
| Polyimide – Kapton HN | 175                                   | 4.7E-06                                   | 0.0018                                       |
|                       | 200                                   | 4.7E-06                                   | 0.0018                                       |
|                       | 225                                   | 4.4E-06                                   | 0.0017                                       |
|                       | 250                                   | 4.4E-06                                   | 0.0017                                       |
|                       | 275                                   | 4.0E-06                                   | 0.0016                                       |

<sup>1</sup>Pre-cure drying at 140C for 10 minutes for cure ≥ 175C, <sup>2</sup>Typical value based on #10 drawdown and 25% porosity, typical dried coating 0.003g/cm<sup>2</sup>

|                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Physical Properties</b>    | <b>General Description</b> ..... Ag nanoparticle ink in butyl carbitol acetate<br><b>Viscosity (typical values)</b> ..... 240,000 cP at 10sec <sup>-1</sup> , 40,000 cP at 100 sec <sup>-1</sup> (U11)<br>130,000 cP at 10sec <sup>-1</sup> , 22,000 cP at 100 sec <sup>-1</sup> (U11-LV)<br><b>Specific Gravity</b> ..... 3.5<br><b>Flash Point</b> ..... Non-flammable<br><b>Particle Size</b> ..... D50: 80 nm<br><b>Ag Content</b> ..... 80% w/w (U11); 76.5% w/w (U11-LV) |
| <b>Storage and Printing</b>   | <b>Storage</b> ..... Room temperature<br><b>Shelf life</b> ..... >6 months<br><b>Cleaning solvent</b> ..... Isopropanol<br><b>Screen mesh material</b> ..... Stainless steel or polyester<br><b>Screen mesh count</b> ..... 400 to 80 wires per inch                                                                                                                                                                                                                           |
| <b>Shipping and Packaging</b> | Standard sample order is 100g or multiples of 100g. Inquire directly for packaging of larger quantities.                                                                                                                                                                                                                                                                                                                                                                       |