

FS0117

Semi-Sintered Silver Conductor

Product Description

ACI Alchemy Conductive Ink FS0117 is a semi-sintering silver-based conductor for printed circuitry and flexible hybrid electronics on flexible or rigid substrates. ACI Alchemy Conductive Inks offer the ease of use and processing of polymer thick film silvers, and the superior conductivity of nanoparticle sintering inks. After curing, reflow soldering can be used for component attachment using low temperature solder pastes and/or by using specific substrates available from ACI. FS0117 is compatible with most insulator inks and solder mask materials.

Product Benefits

- Cost savings from low resistivity for reduced silver usage
- Enables SMD attachment using low temperature solder pastes and substrates (PET)
- Enables higher power and current density applications
- Superior mechanical performance (flex and crease)
- High resolution printing
- Higher speed curing than nanoinks
- Cures/sinters at low temperature

Typical Performance

Sheet resistivity	<0.003 Ω /square/mil
Volume resistivity 150°C for 15 min in box oven	<7.5 x 10 ⁻⁶ Ω ·cm
Adhesion ¹	5B

¹ Method based on ASTM D3359 Method B tested on 0.005" Melinex® ST506 PET

Typical Properties as Supplied

Color	Silver
Viscosity ²	15 Pa·s
Density	3.39 g/mL
Percent Solids ³	79%
Shelf Life at 20°C	12 Months

Typical Processing Parameters

Deposition methods	Screen printing		
Ideal Curing Time and Temperatures	5-15 min in box oven at 150°C ≤5 min in industrial conveyor oven at 150°C, ≤3 min with IR		
Recommended Screen Meshes Mesh counts are in threads per inch (TPI)	380/34 μ m, 460/27 μ m, high TPI PET meshes for silver cost reduction 420/20 μ m V-Screen Next for better resolution		
Emulsion Over Mesh (EOM) Thickness	6 μ m or minimum recommended for mesh		
Typical Dry Film Thickness (w and w/o EOM) ⁴	380/34 μ m PET	~4 μ m	~2 μ m
	460/27 μ m PET	~5 μ m	~3 μ m
	420/20 μ m VSN	~6 μ m	~4 μ m
Coverage for Recommended meshes w and w/o EOM ⁴	380/34 μ m PET	~25 m ² /kg	~49 m ² /kg
	460/27 μ m PET	~23 m ² /kg	~42 m ² /kg
	420/20 μ m VSN	~16 m ² /kg	~24 m ² /kg
Mixing	Slow thorough mix, avoid inducing bubbles, fixed spatula in rotating jar ideal ⁵		
Thinner/Diluent	DBE-5		
Storage	In sealed container in cool dry location		
Clean Up Solvents	Acetone, MEK, and similar solvents		

² Measured on Anton Paar MCR302 at 10⁻¹ sec shear rate at 25°C after preshearing at 100⁻¹ sec for 5 min

³ 150°C for 120 minutes in box oven

⁴ Estimates relevant for finer and coarser feature printing respectively

⁵ AT-LM4 Stirring Type Mixer (E211) recommended



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Caution

Proper industrial safety precautions should be exercised in using these products. Use with adequate ventilation. Avoid prolonged contact with skin or inhalation of any vapors emitted during use or heating of these compositions. The use of safety eye goggles, gloves or hand protection creams is recommended. Wash hands or skin thoroughly with soap and water after using these products. Do not eat or smoke in areas where these materials are used. Refer to appropriate MSDS sheet.

Disclaimer

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