

# CHASM Signis AC100

## Aqueous Transparent Conductive Ink for Spray Coating



### PRODUCT DESCRIPTION

AC100 is an aqueous carbon nanotube (CNT) ink engineered for spray coating on a wide range of plastic films. For optimum transparent conductor performance, rinsing with deionized water to remove surfactant and top-coating with a polymer such as Nafion® is recommended following AC100 deposition.

### PRODUCT STRUCTURE

VC210 has three main components:

1. Best-in-class CNTs produced at CHASM
2. UV curable Acrylic Binder
3. Proprietary V2V™ (viscous-to-vapor) Ink Vehicle

### PRODUCT BENEFITS

- VC101 is screen printable and adheres well to typical polymer film substrates.
- Transparent conductors are environmentally stable, with neutral color and low haze (<0.5%).
- Transparent conductors are flexible / stretchable, and can even be thermoformed to create 3D touch sensor designs.
- VC101 is perfect for capacitive touch buttons and sliders to replace membrane switches in automotive interiors, home appliances, and medical devices, among other applications.

### PROCESSING

- Screen Printing Equipment
- Semi-automatic flat-bed

### PROPERTIES

Description	Properties
Physical Color	Black
Ink Form	Aqueous Dispersion
CNT Type	CoMoCat SW-CNT
Surfactant	Sodium Dodecyl Sulfate (SDS)
CNT Concentration	0.2 g/l
Surfactant Loading	1 wt%
Density	1.0 g/l
Viscosity (mPa s) @ shear rate $10 \text{ s}^{-1}$	1.0
pH	8.2

### TYPICAL OPTOELECTRONIC PROPERTIES

Description	Properties
Sheet Resistance, ( $\Omega/\square$ )	>1 M
Visible Light Transmittance, (%)	98
Haze, (%)	0.35
Adhesion Tape Test (3M Scotch Tape 600 on CHASM-AgeNT substrates)	No Transfer

### CONTACT INFORMATION

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# CHASM *Signis*™ AC100

## Aqueous Transparent Conductive Ink for Spray Coating



- Automatic reel-to-reel flat-bed
- Manual

the need for respirator. If amine odor can be detected, increase ventilation.

### SUBSTRATES

- CHASM-AGENT-AW210
- CHASM-AGENT-AW310
- CHASM-AGENT-AW321
- CHASM-AGENT-AW121

### SCREENS

- Mesh Type: Polyester
- Mesh Count: 305 TPI (120 T/cm)
- Thread Diameter: 34 µm
- Mesh Opening: 45 µm
- Emulsion Type: Solvent Resistant
- Emulsion Over Mesh: 12 µm Typical
- Overall Thickness: 53 µm
- % Open Area: 27 µm
- Emulsion Thickness: 0.5 mil
- Mesh Bias: 22°
- Screen Tension: 20 N/cm (Stretch & Glue)

### PRINTING

- Squeegee Type: 70 durometers
- Squeegee Angle: 80°
- Squeegee Speed: 100 mm/s
- Floodbar Speed: 150 mm/s
- Snap-off: 5 mm
- Peel: 5 mm
- Suitable exhaust over the printer is required, as alcohol & amines are irritants (refer to SDS)
- Operate press in flood / print mode. Only flood screen just before printing.
- Avoid adding excessive VC210 ink to the screen. Add fresh ink every 20-30 print images.
- Ventilation at the printer and infeed to the dryer is required to keep operator exposure well below alcohol and amine exposure limits.
- 100 FPM face velocity for hood can eliminate

### DRYING AND CURING

3-Step Process\*:

1. Dry: 3 min @ 110°C
2. UV Cure (H Bulb)\*\*: 1.2 – 1.4 J/cm<sup>2</sup>
3. Thermal Cure: 3 min @ 110°C

\* Suitable exhaust for dryer & UV lamp is required (refer to SDS).

Avoid belt mesh drying patterns by using an insulating carrier film during drying

\*\* Use two (2) passes at 0.6 – 0.7 J/cm<sup>2</sup> per pass to achieve this total dose to avoid overheating.

### CLEANUP

- Immediately after printing last part, VC101 can be added back to ink container, to be used later.
- Solvent for cleanup: Isopropyl Alcohol.
- VC101 contaminated cloths & wipes, when dry, should be disposed of as solid industrial waste.

### STORAGE & SHELF LIFE

- Ink should be stored in the shipped container from CHASM, tightly sealed. It is safe to ship VC210 at 25°C, but for best performance and longest shelf-life, store at 0°C - 6°C (32° - 43°F).
- Prior to printing, refrigerated VC210 should acclimate to room temperature without external heating, to achieve consistent ink rheology.
- Shelf life of material in unopened containers is 12 months from the date of manufacture when refrigerated between 0°C - 6°C (32° - 43°F).

### SAFETY & HANDLING

For Safety and Handling information for this product, please refer to the Safety Data Sheet (SDS).

#### DISCLAIMER

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on CHASM's accumulated experience as of the date of publication. Product performance will vary based on application and operational environment, so CHASM Advanced Materials Inc. is not liable for the suitability of our product for the intended applications and results.

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