

# INKTRONIC AG IME XP S44817

Provisionary Technical Data Sheet

## Thermoformable, in-mold, Electrically Conductive Ink

### DESCRIPTION

INKTRONIC AG IME XP S44817 is part of the products developed by Encres DUBUIT for In Mold Electronic applications.

It is a silver-based electrically conductive ink capable of withstanding the thermoforming and injection molding / overmolding processes.

This product can be used for emi/rfi shielding, polymer thick film circuitry, bus bars for backlight switches, and capacitive or resistive switch applications, RFID antennas, enabling fully integrated 3-dimensional functional electronic devices.

### PRODUCT BENEFITS

- High conductivity silver paste for In Mold Electronics
- Excellent adhesion directly on polycarbonate, treated polyester, TPU, Polyamide and graphic inks
- Excellent performance after thermoforming and injection moulding.

### RECOMMENDED PROCESSING CONDITIONS

Substrates	Polycarbonate and surface treated polyester
Screen Printing Equipment	Reel-to-reel, Semi-automatic or Manual
Ink Residence Time on Screen	> 1 Hour
Screen Types	Polyester, Stainless steel
Typical Drying Conditions	Box oven/ 120 °C for 20 minutes
	Reel-to-reel 120 °C for 4 minutes
Typical Circuit Line Thickness	8-12 microns, Printed with SD 56/36 (280 mesh) stainless steel or 77-48 PET Screen
Clean-Up Solvent	Solvent ECO N and other suitable solvents

### TYPICAL PROPERTIES OF UNCURED MATERIAL

Solid content @ 150 °C	59.4%
Viscosity, Brookfield-RVT, 25 °C, Spindle 6, speed 50 rpm	20-50 Pa.s
Thinners	Eco Moyen, Eco Retarder

### TYPICAL ELECTRICAL & PHYSICAL PROPERTIES

Sheet Resistivity on PC	<= 50 mOhm/sq/mil
Resistivity after Thermoforming	<= 200 mOhm/sq/mil*
Coverage	350-400 cm <sup>2</sup> /g Using screen mesh 120 thread/cm (305 th/inch) polyester
Abrasion Resistance (Pencil hardness)	>= H
Adhesion	5 (no material removal)

\* Results can vary depending upon the degree of elongation after thermoforming

### DRYING

Drying is an important processing step in order to reach optimum performance. Dry in a well-ventilated box oven or belt/conveyor furnace. Air flow and extraction rates should be optimized to ensure complete removal of solvent from the paste. A strong air flow may help to reduce the drying temperature combination. It will also help to decrease the final resistivity.

### THERMOFORMING

Thermoforming performance will depend on the build structure, processing conditions, thermoforming technique, and equipment used. Parameters need to be optimized. If more precision is needed (printed symbols and structures), high pressure forming (HPF) has shown to give high accuracy. Forming temperatures around 160 °C can be used. Stretchability > 50% can be achieved.

### STORAGE AND SHELF LIFE

Containers should be stored, tightly sealed, in a clean, stable environment at room temperature < 25°C.

Shelf life of material in unopened container is six months from date of shipment.

Some settling of solids may occur and products should be thoroughly mixed prior to use.

### SAFETY AND HANDLING

For safe handling information on this product, consult the MSDS.

Encres DUBUIT guarantees the quality of our products. However, we cannot guarantee the final result, because we exercise no control over individual operating procedures. Our responsibility is limited solely to the exchange of ink or varnish. The quality of a substrate to be printed can vary, as well as an overprinted ink; therefore, the above information is given in good faith based on the state of our art and prior experience. This statement also applies to our technical assistance. When using our inks and varnishes on a new substrate or when changing operating procedures, we strongly recommend testing first a full-scale production to ensure compatibility. Please refer to our General Conditions of Sales.



Functional ink

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