Micromax™ 5018A

Electronic Inks and Pastes

UV Curable Dielectric

Polymeric dielectric composition Micromax™ 5018A is a colorless UV curable, solvent less, screen printable composition used in encapsulant and crossover applications for both rigid and flexible circuit manufacture. It offers the advantages of rapid cure and excellent processing latitude while maintaining excellent electrical and physical properties after cure, including excellent crosshatch adhesion to print-treated and good adhesion to non-print-treated PET substrate and conductor. It is fully compatible with Micromax™ 5000 Series conductor compositions.

Product benefits

- Best insulating UV cure dielectric

Product information

Odour	Slight[1]	
Solvent or thinner	Not recommended	
Density	1.28	g/cm³
Solid content	100[2]	%
Maximum Service Temperature	70[3]	°C

[1]: Slight, pleasant

[2]: 150 °C

[3]: dependent on conductor

Rheological properties

Viscosity	15 - 30[4]	Pa.s

[4]: Brookfield 1/2RVT, #14 spindle, 10 rpm, 25 °C

Application technique

Mask mesh	200 - 280[5]	
Theoretical coverage	290[6]	cm²/g
Recommended film thickness	24.5 - 30.5[7]	µm

[5]: Screen Types: Stainless steel

[6]: dependent on print thickness, 25.4µm coating given by 280-mesh stainless steel

[7]: after UV cure

Typical mechanical properties

Adhesion, cross hatch	5B[8]	class

[8]: ASTM D3359-78

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Electrical properties

Dielectric Constant	4.4[9]	
Insulation Resistance, DC	≥1E10[10]	Ohm
Breakdown Voltage	≥500[11]	V

[9]: ASTM D150, at 1 KHz

[10]: sq at 25.4µm

[11]: ASTM D150, V/DC at 25.4µm

Storage and stability

Shelf life	6[12]	months

[12]: in unopened containers, from date of shipment, should be stored away from heat and light

Additional information

How to use

Processing

- Substrates
  - Polyester, polyimide, epoxy glass
- Screen types
  - Polyester, stainless steel
- Printing
  - Semiautomatic and manual
- Typical thickness (after cure)
  - 200 - 280 mesh stainless steel screen
  - 1 - 1.2 mil
  - Two prints of dielectric are strongly recommended to achieve maximum circuit reliability.
- Work life
  - > 2 hours
- Curing
  - 40 ft/min in air
    - RPC Industries “QC” Processor Model 1202 AN, with the 200 W/in medium-pressure mercury vapor lamps. Since cure conditions govern characteristics, customers should establish the cure rate required to produce optimum combination of flexibility and hardness.
  - 500 - 1500 mJ/cm
    - 0.500 - 1.500, joules using International Light IL. 390B Light Bug or UV Process Supply Con-Trol-Cure® Compact Radiometer, or 0.100-0.300 joules, using Electronic Instrumentation & Technology Inc. UR 365 CHI Radiometer.

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Properties

Typical Physical & Composition Properties

Test	Properties
Adhesion, cross hatch (Dielectric to Polyester Scotch Tape #600)	No material transfer
Adhesion, cross hatch (Conductor to Dielectric)	No material transfer
Abrasion Resistance, Pencil Hardness (ASTM D3363-74) [H]	≥ 1
Flexibility (180° crease over Micromax™ 5007)	No opens
Change in Physical Properties after Environmental Tests*	Insignificant
Change in Insulation Resistance after Environmental Tests*	May drop up to one order of magnitude
Coverage (cm^2/g) (Dependent on print thickness) 0.45 mil coating given by 280-mesh polyester	500
Coverage (cm^2/g) (Dependent on print thickness) 0.6 mil coating given by 230-mesh polyester	375
Coverage (cm^2/g) (Dependent on print thickness) 1.1 mil coating given by 200-mesh stainless steel	240

* Environmental Tests
- Thermal Shock (+85°C to -40°C, 30 min. each, 5 cycles)
- Dry Heat (+85°C, 10 days)
- Humidity (+40°C, 95%RH, 10 days) (MIL Std 202E, method 103, cond. A)
- Salt Spray (+35°C, 5% salt, 10 days) (ASTM B117)

Information in this datasheet shows anticipated typical physical properties for Micromax™ 5018A based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.

Storage and shelf life

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Containers should be stored, tightly sealed, in a clean, stable environment at room temperature (<25°C). Shelf life of material in unopened containers is six months from date of shipment. Some settling of solids may occur and compositions should be thoroughly mixed prior to use. UV curable compositions such as Micromax™ 5018A should be stored away from heat and light.

Safety and handling

For safety and handling information pertaining to this product, read Safety Data Sheet (SDS).

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