

Micromax™ 5018

Electronic Inks and Pastes

UV Curable Dielectric

Micromax™ 5018 is a 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's Series conductor compositions.

Product benefits

- Fast UV cure
- Zero VOC when properly cured

Product information

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

[1]: Slight, pleasant

[2]: 150 °C

[3]: on Polyester Film

Rheological properties

Viscosity	15 - 30 ^[4] Pa.s
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[4]: Brookfield 0.5RVT, 10 rpm #14 spindle, 25 °C

Application technique

Mask mesh	200 - 280
Theoretical coverage	290 ^[5] cm ² /g
Recommended film thickness	25.4 - 30.5 ^[6] µm

[5]: at 25.4µm, coating given by 280-mesh stainless steel

[6]: after UV cure

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Typical mechanical properties

Adhesion, cross hatch

5B^[7] class

[7]: The same result, Dielectric to Polyester Scotch Tape #600 and Conductor to Dielectric, ASTM D3359-78.

Electrical properties

Dielectric Constant

4.4^[8]

Insulation Resistance, DC

$\geq 1E10^{[9]}$ Ohm

Breakdown Voltage

$\geq 500^{[10]}$ V

[8]: ASTM D150, at 1 KHz

[9]: sq at 25.4μm

[10]: ATSM D150, V/25.4μm DC

Storage and stability

Shelf life

6^[11] months

[11]: in unopened containers, from date of shipment, at temperature <25°C

Additional information

How to use

Processing

- **Substrates**
 - Polyester, polyimide, epoxy glass
- **Screen types**
 - Polyester, stainless steel
- **Printing**
 - Semiautomatic and manual
- **Typical thickness (after cure)**
 - Printed with 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

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Electronic Instrumentation & Technology Inc. UR 365 CHI Radiometer.

Properties

Typical Physical & Electrical Properties on Polyester Film & Composition Properties

Test	Properties
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 Electrical Properties 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™ 5018 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.

Safety and handling

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

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