

Micromax™ 5018A

Electronic Inks & Pastes

PRODUCT DESCRIPTION

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

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

PRODUCT INFORMATION

General Properties	Value Unit
Application	Membrane switch dielectric
Odor description ¹	Slight
Solvent or thinner	Not recommended
Density	1.28 g/cm ³
Solid content ²	100 %
Maximum Service Temperature ³	70 °C

TECHNICAL DATA

Rheological Properties	Value Unit
Viscosity ⁴	15 to 30 Pa.s

Application Technique	Value	Unit
Mask mesh ⁵	200 to 280	
Theoretical coverage ⁶	290	cm ² /g
Recommended film thickness ⁷	24.5 to 30.48	µm
Mechanical Properties	Value	Unit
Adhesion ⁸	5B	class
Electrical Properties	Value	Unit
Dielectric Constant ⁹	4.4	
Insulation Resistance ¹⁰	≥1E10	Ohm
Breakdown Voltage ¹¹	≥500	V
Storage and Stability	Value	Unit
Shelf life ¹²	6	months

¹Slight, pleasant

²150°C

³dependent on conductor

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

⁵Screen Types: Stainless steel

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

⁷after UV cure

⁸ASTM D3359-78

⁹ASTM D150, at 1 KHz

¹⁰sq at 25.4µm

¹¹ASTM D150, V/DC at 25.4µm

¹²in unopened containers, from date of shipment, stable environment at room temperature between 5°C - 30°C, should be stored away from heat and light

PROCESSING GUIDELINES

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.

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

Containers should be stored, tightly sealed, in a clean, stable environment at room temperature between 5°C - 30°C. Shelf life of material in unopened containers is 6 months from date of shipment. Some settling of solids may occur and compositions should be thoroughly mixed prior to use.

Storage conditions on the product data sheets are intended to represent long-term material storage recommendations and not a shipping or temperature-at-receipt requirement.

Transportation: Under normal shipping conditions, without temperature control, Micromax™ products are not expected to exhibit a change in quality or fitness for use. Should extraordinary events result in extended transportation periods, Micromax™ recommends customers confirm products remain suitable for the intended application.

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).

SAFETY & WARNING

It is recommended that the company/operator read and review the Safety Data Sheets for the appropriate health and safety warnings before use.

Safety Data Sheets are available.

WASTE TREATMENT

Prior to using any recommendations or suggestions for waste treatment, the user is required to know the appropriate local/state/federal regulations for on-site or off-site treatment which may require permits. If there is any conflict regarding our recommendations, local/state/federal regulations take precedence.

CONTACT INFORMATION
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Also read carefully warning and safety information on the Safety Data Sheet. This data sheet contains technical information required for safe and economical operation of this product. READ IT THOROUGHLY PRIOR TO PRODUCT USE. Emergency safety directory assistance: US 1 202 464 2554, Europe + 44 1235 239 670, Asia + 65 3158 1074, Brazil 0800 707 7022 and 0800 172 020, Mexico 01800 002 1400 and (55) 5559 1588

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