# Micromax™ 5018

## Electronic Inks & Pastes

## PRODUCT DESCRIPTION

### 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

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

## PRODUCT INFORMATION

| General Properties | Value | Unit |
|---|---|---|
| Application | Membrane switch dielectric | |
| Color | Blue | |
| Odor description[1] | Slight | |
| Solvent or thinner | Not recommended | |
| Density | 1.28 | g/cm³ |
| 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 | 200 to 280 | |
| Theoretical coverage[5] | 290 | cm²/g |
| Recommended film thickness[6] | 25.4 to 30.48 | µm |

| Mechanical Properties | Value | Unit |
|---|---|---|
| Adhesion[7] | 5B | class |

| Electrical Properties | Value | Unit |
|---|---|---|
| Dielectric Constant[8] | 4.4 | |
| Insulation Resistance[9] | ≥1E10 | Ohm |
| Breakdown Voltage[10] | ≥500 | V |

| Storage and Stability | Value | Unit |
|---|---|---|
| Shelf life[11] | 6 | months |

[1]Slight, pleasant
[2]150°C
[3]on Polyester Film
[4]Brookfield 0.5RVT, 10 rpm #14 spindle, 25°C
[5]at 25.4µm, coating given by 280-mesh stainless steel
[6]after UV cure
[7]The same result, Dielectric to Polyester Scotch Tape #600 and Conductor to Dielectric, ASTM D3359-78.
[8]ASTM D150, at 1 KHz
[9]sq at 25.4µm
[10]ASTM D150, V/25.4µm DC
[11]in unopened containers, from date of shipment, stable environment at room temperature between 5°C - 30°C

## PROCESSING GUIDELINES

### 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 Electronic Instrumentation & Technology Inc. UR 365 CHI Radiometer.

**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)<br>0.45 mil coating given by 280-mesh polyester | 500 |
| Coverage ($cm^2/g$) (Dependent on print thickness)<br>0.6 mil coating given by 230-mesh polyester | 375 |
| Coverage ($cm^2/g$) (Dependent on print thickness)<br>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

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.

### 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

**www.macdermidalpha.com**

| North America | Europe | Asia |
|---|---|---|
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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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