

Micromax™ 5029

Electronic Inks & Pastes

PRODUCT DESCRIPTION

Polymer Silver For Smartcard Application

Micromax™ 5029 is a silver composition designed for the printing of coils or antenna in smartcard and RFID tags.

Product benefits

- High conductivity
- High print thickness in a single print
- Higher solids, lowest resistivity after lamination

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

PRODUCT INFORMATION

General Properties	Value Unit
Application	Membrane switch conductor
Solvent or thinner	Micromax™ 3610
Solid content ¹	79.5 to 81.5 %

TECHNICAL DATA

Rheological Properties	Value Unit
Viscosity ²	35 to 50 Pa.s

Application Technique	Value Unit
Mask mesh ³	200
Mask emulsion ⁴	15 µm
Theoretical coverage ⁵	60 to 80 cm ² /g

Application Technique	Value	Unit
Recommended film thickness	20 to 30	µm
Electrical Properties	Value	Unit
Resistivity ⁶	≤15	mOhm per square
Storage and Stability	Value	Unit
Shelf life ⁷	6	months

¹750°C

²Brookfield 1/2RVT, UC&S;(SC4-14/6R), 10 rpm, 25°C ± 0.2°C

³Screen Types: Stainless steel

⁴Screen Types: Stainless steel

⁵200 mesh stainless steel / 15 µm emulsion

⁶After Drying. Sheet Resistivity : line thickness 25µm, substrate 160µm PVC. After Lamination 4 - 8 (mΩ/sq).

⁷in unopened containers, from date of shipment, stable environment at room temperature between 5°C - 30°C

PROCESSING GUIDELINES

Substrates

Polyester, PVC, Polycarbonate, ABS, Polyimide

Screen types

200 mesh stainless steel or 62T polyester screen

Printing

Reel to reel, semi-automatic or manual

The composition should be thoroughly mixed before use. This is best achieved by slow, gently, hand stirring with a clean burr-free spatula (flexible plastic or stainless steel) for 1-2 minutes. Care must be taken to avoid air entrapment.

The screen and emulsion thickness will strongly influence the thickness and definition of the printed circuit. Typically, polyester screens (62T-77T) with 20-25µm for Micromax™ 5029. Stainless steel screens may also be employed and will result in higher definition and thicker prints at a given mesh count. This will affect the achieved resistance. Normally only one print is needed to achieve the thickness. For very thick tracks, multiple prints may be utilized. In this case should be an intermediate drying stage.

For design with very fine lines at 150µm or less than the screen should be selected to give a thinner print as such line cannot be resolved consistently with thick prints.

The printer conditions should be set to maximize the print thickness. This means using a high print speed and setting a low squeegee pressure. Typically this paste can be printed at speeds from 30-60 cm/s. Printing should be performed in a clean and well ventilated area.

Note : Optimum printing characteristics are generally achieved in the room temperature range of 20°C - 23°C. It is therefore important that the material, in its container, is at this temperature prior to commencement of printing.

Typical circuit line thickness

200 mesh stainless steel / 15µm emulsion build up to achieve line thickness of 20-30µm

62T polyester screen / 20µm emulsion build up to achieve line thickness of 18-22µm

Thinning

This composition is optimized for screen printing, thinning is not normally required. Use the Micromax™ recommended thinner for slight adjustments to viscosity or to replace evaporation losses. The use of too much thinner or the use of a non recommended thinner may affect the rheological behavior of the material and its printing characteristics.

Clean-up solvent

Ethylene glycol diacetate

Drying (conveyor oven)

PVC substrates 15-30 minutes, at a peak temperature 50-60°C

Polyester substrates 2-5 minutes, at a peak temperature 120-130°C

Dry and cure in a well ventilated oven or conveyor dryer where the exhaust meets environmental regulations.

Lamination

This composition can be processed through standard card lamination processor. These processes significantly reduce the achieved resistance.

Properties

Information in this datasheet shows anticipated typical physical properties for Micromax™ 5029 based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.

General

Performance will depend to a large degree on care exercised in screen printing. Scrupulous care should be taken to keep the composition, printing screens and other tools free of metal contamination. Dust, lint and other particulate matter may also contribute to poor yields.

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

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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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