Micromax™ BQ226

Electronic Inks and Pastes

Carbon Conductor Composition

The Biomedical Quality (BQ) Series is designed for use in a variety of different applications including, medical monitoring, diagnostics, drug delivery and electro-chemical and biological sensing. The series includes conductive Ag, Ag/C, and C for electrical signal processing, Ag/AgCl for multi-electrode (working/counter/reference) configurations, dielectric compositions for electrical isolation, and a range of novel materials including Pt, Au, Pt/C, and Zn based compositions designed for enhancing sensor performance.
Micromax™ BQ226 is a screen printable carbon composition designed for use in bio-sensors requiring a carbon composition with higher electrical conductivity.

Product characteristics

- High abrasion resistance
- High stability
- Low resistivity carbon
- Good activity in biomedical applications.

Product information

Solvent or thinner	Micromax™ 8260	
Solid content	32.5 - 36.5[1]	%

[1]: 150 °C

Rheological properties

Viscosity	25 - 40[2]	Pa.s

[2]: Brookfield RVT, UC&SP, SC4-14/6R, 10 rpm, 25 °C ± 0.2 °C

Application technique

Mask mesh	48 - 77[3]	
Drying time	10 - 15[4]	min
Drying temperature	130[4]	°C
Theoretical coverage	300[5]	cm^2/g
Recommended film thickness, dried	9 - 10[6]	µm

[3]: Screen Types: Polyester, 48Y-77Y

[4]: box oven

[5]: ≈300, dependent on screen mesh size and type

[6]: 48Y-77Y, polyester

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Electrical properties

Surface resistivity	≤30000[7]	mOhm per square

[7]: at 25µm thickness

Storage and stability

Shelf life	3[8]	months

[8]: in unopened containers, from date of shipment, at temperature between 5-30 °C

Additional information

How to use

Design & compatibility

- Compatibility
  - Whilst Micromax™ has tested this composition, it is impossible or impractical to cover every combination of materials, customer processing conditions and circuit layouts. It is therefore essential that customers thoroughly evaluate the material in their specific situations in order to completely satisfy themselves with the overall quality and suitability of the composition for its intended application(s).

Processing

- Screen types
  - Polyester or stainless steel
- Printing
  - Reel to reel, semi-automatic and manual
  - The composition should be thoroughly mixed before use. This is best achieved by slow, gentle hand stirring with a clean, preferably plastic spatula for several minutes. Care must be taken to avoid air entrapment. Printing should be performed in a 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 printing.
- Typical circuit line thickness
  - Printed with polyester mesh type 77-48Y
  - 9 - 10 µm
- Work life
  - Greater than 1 hour
- Thinning
  - Micromax™ BQ series compositions are optimized for their

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intended application and do not normally require thinning. Use the Micromax™ recommended thinner for slight adjustments to viscosity or to replace evaporation losses. The use of too much thinner or a non recommended thinner may affect the rheological behavior of the material and its printing characteristics.

- Clean-up solvent
  - Ethylene diacetate or Methyl propasol acetate
- Drying
  - Box oven : 130°C for 10-15 minutes
  - IR oven : 140°C for 1-1.5 minutes
  - Dry in a well ventilated box oven, belt or conveyor furnace. Air flows and extraction rates should be optimized to ensure the complete removal of solvent from the paste.

Properties

Exemplary Physical & Electrical Properties

Test	Properties
Resistivity after Flex (150sec after crease 180°C) (Ω/sq/25µm)	50
Abrasion Resistance, Pencil Hardness (ASTM D3363-74) [H]	3

Information in this datasheet shows anticipated typical physical properties for Micromax™ BQ226 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 may be stored in a clean, stable environment at room temperature (between 5°C – 30°C) with their lids tightly sealed. Storage in high temperature (>30°C) or in freezers (temperature <0°C) is NOT recommended as this could cause irreversible changes in the material. The shelf life of compositions in factory-sealed (unopened) containers between (5°C – 30°C) is 3 months from date of shipment.

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Safety and handling

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

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