Micromax™ 9903B

Electronic Inks and Pastes

99XXB Lead-Free Series-Heated Glass Compositions

Micromax™ 99XXB Series is provided for use in production of electrically heated backlinghts by the "direct" (unplated) method. The pastes can be blended with each other to obtain a wide range of eledtrical resistance.

Product benefits

- Dark fired color
- High green strength
- Lead, Cadmium, Nickel and Phthalate free*
- Low sensitivity to firing temoerature
- Supplied ready to print

* Lead, Cadmium, Nickel and Phthalate 'free' as used herein means that lead, cadmium, nickel and phthalate are not intentional ingredients in and are not intentionally added to the referenced product. Trace amount however may be present.

Product information

Solvent or thinner	Micromax™ 9450	
Density	3.8	g/cm^3
Solid content	82.2 - 84.2	%
Silver content	77.8 - 79.6	%
Blend member or series	99XXBsrs	

Rheological properties

Viscosity	40 - 50[1]	Pa.s

[1]: Brookfield 0.5 x RVT #7 @20rpm

Application technique

Mask mesh	150 - 250	
Mask emulsion	15 - 25	µm
Drying temperature	125	°C
Recommended film thickness, fired	10 - 14	µm

Electrical properties

Surface resistivity	2.5 - 3.5[2]	mOhm per square

[2]: Rel. Range (±%) 15

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Storage and stability

Shelf life	6[3] months

[3]: in unopened containers, from date of shipment, at room temperature (<25°C)

Additional information

How to use

Processing

- Blendability
  - In order to obtain a specific resistance value, the pastes can be blended with each other. The Micromax™ 99XXB Series data can be used to determine blend recipes for specific heated window designs.
- Substrates
  - 2"x4" soda lime silicate glass, 4 mm thick.
- Printing
  - 156 mesh polyester screen, 20µm emulsion
  - Screen mesh size : 150-250 per inch
  - Emulsion thickness : 15-25 µm
  - Emulsion type : terpene resistant
  - Enamel compatibility : Air Dried and some UV
- Drying
  - Allow printed paste to dry to desired green strength at 125°C.
- Firing
  - 12 minute cycle, 5 zone belt furnace, peak temp of 640°C.
  - Average glass surface temp : 600-670°C over enamel
  - Average glass surface temp : 600-700°C over glass
  - Furnace atmosphere : Solvent and sulphite free
- Soldering
  - Burnish : Steel Wool or Fiberglass
  - Flux : Type R - rosin
  - Connector : Cu Clip or Braid pref. pretinned
- Adhesion test
  - Soldered copper clip, 70Pb/27Sn/3Ag, reflow with flame.

Properties

Composition and Typical Fired Properties

Test	Properties
Line Width (µm)	350 - 800
Air side Color	Light-brown
Tin side Color	Dark-brown

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Solder metallurgy 320-350°C/5 sec	60Pb/27Sn/3Ag/10Bi
Solder metallurgy 320-400°C/5 sec	70Pb/27Sn/3Ag

Information in this datasheet shows anticipated typical physical properties for Micromax™ 99XXB series 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 shlef life

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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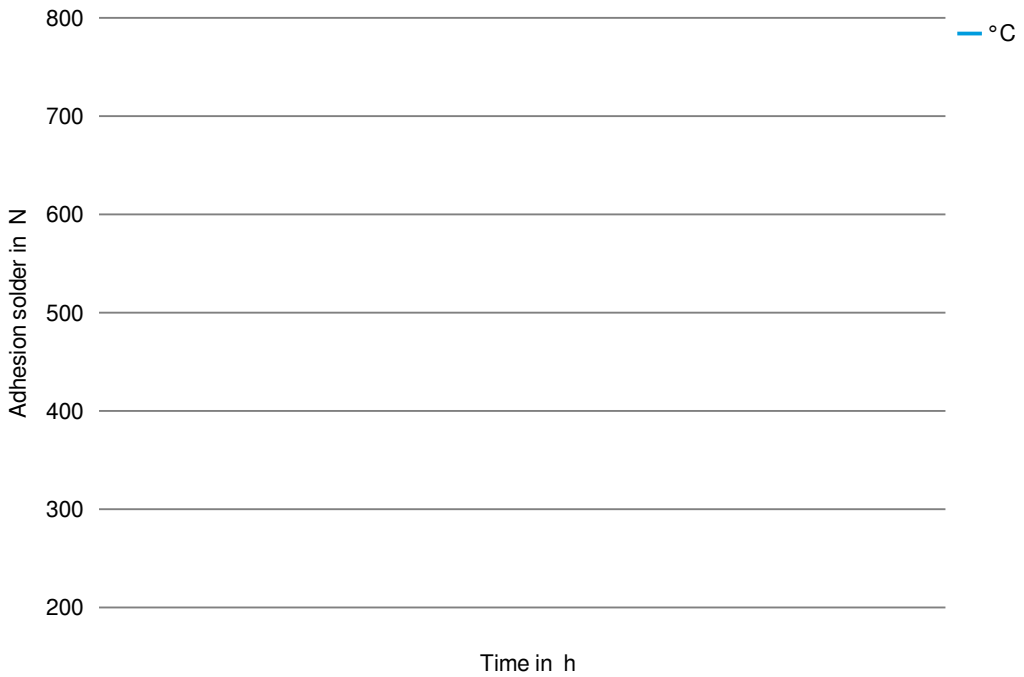
Adhesion solder after heat ageing



Revised: 2023-08-21 Source: Celanese Materials Database