

Micromax™ 5744R

Electronic Inks & Pastes

PRODUCT DESCRIPTION

Gold Conductor Composition

Micromax™ 5744R is a cadmium free* gold conductor. It has been specifically developed for automatic wire bonding with both Al and Au wires. Micromax™ 5744R is used for bonding pads on alumina and on Micromax™ 5704 dielectric, and as such, can be employed in single layer and crossover Pd/Ag circuits as well as in simple multilayer circuits using silver bearing conductors.

Product benefits

- Cadmium free* gold conductor and Phthalate free*
- Wide bonding window
- Suitable for manual and automatic gold and aluminum wire bonding
- High wire pull strengths after storage at 150°C for 1,000 hours using Au and Al wires

*Cadmium and Phthalate 'free' as used herein means that cadmium is not an intentional ingredient in and is not intentionally added to the referenced product. Trace amounts however may be present

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

PRODUCT INFORMATION

General Properties	Value Unit
Application	High reliability Au conductor
Solvent or thinner	Micromax™ 9450

TECHNICAL DATA

Rheological Properties	Value Unit
Viscosity ¹	280 to 350 Pa.s

Application Technique	Value Unit
Mask mesh ²	325

Application Technique	Value	Unit
Mask emulsion	12	µm
Drying time	10 to 15	min
Drying temperature	150	°C
Theoretical coverage	60 to 65	cm ² /g
Recommended film thickness	7 to 9	µm
Print resolution	≤175	µm
Print resolution	≥175	µm
Leveling time	5 to 10	min
Electrical Properties	Value	Unit
Resistivity ³	≤6.5	mOhm per square
Storage and Stability	Value	Unit
Shelf life ⁴	6	months

¹Brookfield HBT, 20rpm, SC4-14/6R utility cup and spindle, 25°C ± 0.2°C

²Screen Types: Stainless steel

³@ 8µm fired thickness

⁴in unopened containers, from date of shipment, stable environment at room temperature between 5°C - 30°C

PROCESSING GUIDELINES

Design & compatibility

Design notes

Properties are based on tests on 96% alumina substrates. In crossover and simple multilayer circuits using silver bearing conductors, Micromax™ 5744R is compatible with many materials, however, when mixing conductor of different metallurgy (including Pd-Ag and Ag with Au), caution should be exercised. Consult with your Micromax™ representative for recommendations on design and processing.

Compatibility

Whilst Micromax™ has tested this composition with the materials specified above and the recommended processing conditions, 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).

Substrates

Substrates of different compositions and from various manufacturers may result in variations in performance properties.

Screen types

325 stainless steel screen with a 12µm emulsion build up

Printing

The composition should be thoroughly mixed before use. This is best achieved by slow, gentle hand stirring with a clean burr-free spatula (flexible plastic or stainless steel) for about 1- 2 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 the temperature prior to commencement of printing. Class 10,000 printing area is recommended for building complex hybrids and multilayer circuits, otherwise severe yield losses could occur.

Thinning

Micromax™ 5744R composition is optimized for screen printing and 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.

Drying

Allow prints to level at room temperature and then dried.

Firing

850°C peak held for 10 minutes on 30-60 minute cycle in an air atmosphere.

Fire in well-ventilated belt, conveyor furnace or static furnace. Air flows and extraction rates should be optimized to ensure that oxidizing conditions exist within the muffle and that no exhaust gases enter the room.

Properties

Typical fired properties are based on laboratory data using recommended processing procedures.

All values reported here are results of experiments in our laboratories intended to illustrate product performance potential with a given experimental design. They are not intended to represent the product's specifications, details of which are available upon demand.

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.

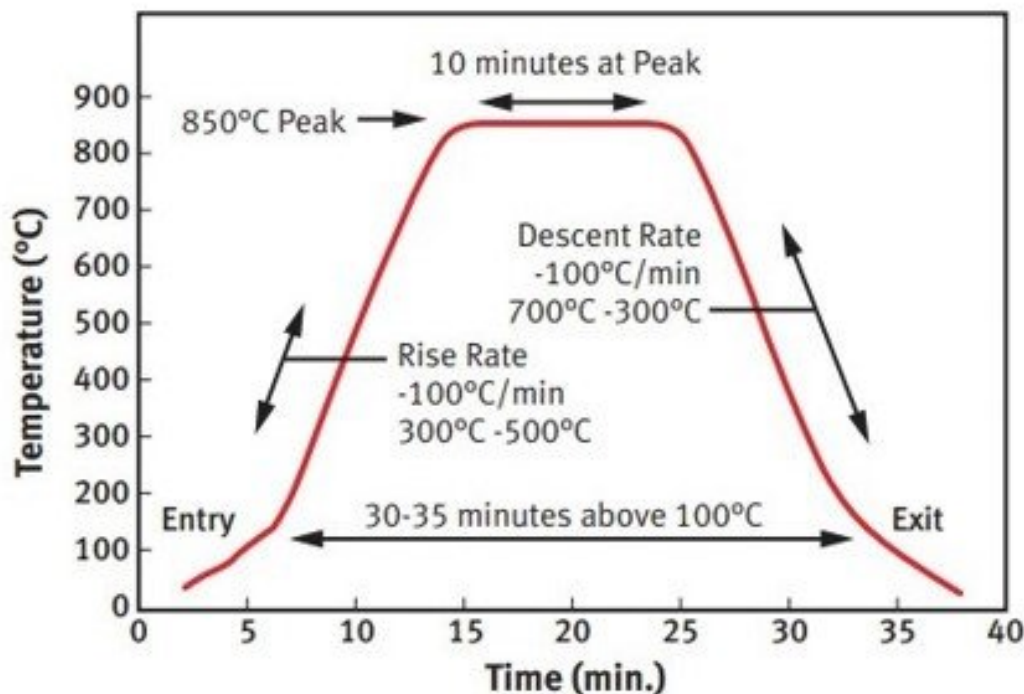
Storage conditions on the product data sheets are intended to represent long-term material storage recommendations and not a shipping or temperature-at-receipt requirement.

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).

Typical 850°C 30 Minute Firing Profile



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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