

Micromax™ 4999

Electronic Inks & Pastes

PRODUCT DESCRIPTION

Solderable Silver/Palladium Termination

Micromax™ 4999 is a solderable cadmium-free* and lead-free* 4/1 silver/palladium termination for multilayer capacitors. This product has good solderability and high adhesion over a wide range of capacitor bodies. This termination may be employed on parts where platable terminations are not desired, but which will be subjected to soldering conditions.

Product benefits

- Cadmium, Lead, Nickel, and Phthalate free*
- Good adhesion and solderability
- Dip without a blot

*Cadmium, Lead, Nickel and Phthalate 'free' as used herein means that cadmium, lead, nickel, and phthalate are not intentional ingredients in and are 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	Termination
Solvent or thinner	Micromax™ 8218
Solid content	75 to 77 %

TECHNICAL DATA

Rheological Properties	Value Unit
Viscosity ¹	50 to 68 Pa.s

Storage and Stability	Value Unit
Shelf life ²	6 months

¹Brookfield RVT, 14/6R, 10 rpm, 25°C

²in unopened containers, from date of shipment, stable environment at room temperature between 5°C - 30°C

PROCESSING GUIDELINES

Applications

Carrier plate-type dipping.

Substrates

Ceramic capacitors bodies.

Dipping

Micromax™ 4999 termination 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 1-2 minutes, or by slow jar rolling for 24 hours. Dipping should be carried out in a clean, well-ventilated area.

Note: Optimum dipping characteristics of Micromax™ 4999 are generally achieved in the temperature range of 21°C - 25°C.

Thinning

Micromax™ 4999 is optimized for dipping and thinning is not normally required. Micromax™ 8218 may be used sparingly for slight adjustments to viscosity or to replace evaporation losses. However, the use of too much thinner or the use of a non-recommended thinner may affect the rheological behavior of the material and its dipping characteristics.

Drying

140 - 160°C peak, 15 - 20 minute cycle on belt dryer.

Firing

710°C - 750°C for 5-10 minutes peak, 40 minute cycle.

Care must be taken to ensure that any gases/vapors from other chemicals or materials (e.g. halogenated solvents) do not enter the furnace muffle. It is also essential that the air supply to the furnace is clean, dry and free of contaminants. Air flows and extraction rates should be optimized to ensure that oxidizing conditions exist within the muffle, and that no furnace exhaust gases enter the room. Micromax™ 4999 termination composition is fired on a 40 minute firing cycle to a peak of 710°C - 750°C, held for 5-10 minutes. Variations in the peak firing temperature and/or time at the peak temperature may result in variations in the final fired properties. Care must be taken to assess the appropriate firing conditions for a particular body type.

Properties

Information in this datasheet shows anticipated typical physical properties for Micromax™ 4999 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

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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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