PELCO® High Performance Nickel Paste, 50g

Product No. 16059, 16059-10

Description:

PELCO® High Performance Nickel Paste is a dispersion of 20 µm Nickel flakes in an inorganic silicate aqueous solution. It is specially formulated for applications demanding high continuous service temperature and/or low VOC's for ultra high vacuum applications but it also performs at cryogenic temperatures. It provides good electrical and thermal conductivity. Its sheet resistance is 2.00 ohms/sq/mil (25µm). Its thermal conductivity is 2.6 W/m°K. Surfaces to be coated should be clean and free of grease.

Advantages:

- One component system. - No mixing required.
- Inorganic system – No hydrocarbons No VOC's.
- High service temperature. – Up to 538 °C (1000 °F), strength improves with temperature.
- Low temperature capability. - Not effected by cryogenic temperatures but bond integrity will depend on joint design and differential thermal expansion between substrate, sample, and paste.
- Good electrical and thermal conductivity.
- Suitable for ultra high vacuum applications.
- Refrigeration not required.
- Thin paste (20,000 – 25,000 cP) – viscosity can be reduced by adding water.
- Water soluble after cure – solubility is reduced the higher the temperature it is exposed to.

Typical Properties (as supplied)

Filler: Nickel
Binder: Inorganic Silicate
Diluent: Water
Color: Light Grey

TED PELLA. INC.
Microscopy Products for Science and Industry
P.O. Box 492477, Redding, CA 96049-2477, U.S.A.
Telephone: 530-243-2200; 800-237-3526 (U.S.A. or Canada) • FAX: 530-243-3761
Email: sales@tedpella.com • Web Site: http://www.tedpella.com

Viscosity: 20,000 – 25,000 cP @ 25°C
Consistency: smooth, flowing paste – viscosity can be reduced by adding no more than 10% water by weight.
Recommended thickness: 2-8 mils (25-100µm.) applied as a glue line or coating.
Nickel content by weight: >70%
Density: 2.8 g/cc
Shelf life: 6 months minimum after receipt of paste – can be increased by adding not more than 10% water and/or removing skin that can form on the top layer.
Storage: Store at room temperature in tightly sealed container. Do not freeze.

Application

Mix thoroughly. Apply adhesive paste to each surface in a thin coat using a brush, spatula or dispenser. Prewet the surfaces to improve adhesion. Maintain a uniform bond line of 2-8 mils. Apply even pressure (clamp if possible), and wipe away excess material before drying. Good mechanical strength is achieved within a matter of minutes at room temperature. Successive coats may be applied after curing.

Cure Schedule (bond time/temperature)

Air set for 2 to 4 hours, then heat Cure for 2 hour cure at 93°C (200 °F) to achieve final electrical and mechanical properties. Blistering may occur if the glue line is too thick or heating too rapid.
Strength improves with temperature and it becomes almost insoluble if exposed to temperatures above 260°C (500 °F).
Adhesive must be cured before use at elevated or cryogenic temperatures.

Typical Properties (when cured)

Recommended thickness: 0.5-1.5 mils dried (12.5-37.5µm.)
Sheet resistance: 3.5 ohms/sq/mil (25µm) after air dry. 2.00 ohms/sq/mil (25µm) after heat cure.
Thermal Conductivity: 2.61 W/m°K.
Soluble in water: up to 260°C (500 °F) exposure. Will still soften in water but may require abrasion to remove.
Bond strength: Moderate but brittle.

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