

FK3201: Cu CONDUCTOR PASTE FOR AlN

The copper paste FK3201 is suitable for application on non-pre-oxidized AlN substrates. It is fired in a conveyor furnace in a nitrogen atmosphere, to form thick film conductors

PROCESS CONDITIONS

Substrate

The paste is designed for use on AlN substrates (with lapped surfaces) from CoorsTek/ANCeram. Substrates with other surface qualities or from other manufacturers may lead to variations in the results.

Screen printing

Use a stainless steel screen with 200 mesh and a wire diameter of 40 µm, as well as 25 µm emulsion thickness (10 to 12 µm EOM) to achieve the stated film thickness.

Leveling

The printed films should be leveled for 10±2 minutes at room temperature (22 to 25 °C).

Drying

The printed films should be dried for 20 to 30 minutes at 120 °C in a drying oven with an exhaust air system or in a continuous flow dryer.

Firing

The printed films should be fired under a nitrogen atmosphere (residual oxygen content < 10 ppm) at a peak temperature of 955 °C and with a dwell time of 15 minutes. Fraunhofer IKTS recommends a total cycle time of 100 minutes.

Storage

The pastes can be stored at any temperature between 4 and 10 °C. The lower the temperature, the better is the long-term stability. The jar must remain tightly sealed during storage. In order to prevent humidity from condensing on the paste, the jar may be opened only after the content has reached room temperature. The paste needs to be sufficiently homogenized before use, e.g. with a spatula.

Safety notice.

For safe handling of the pastes, please follow the instructions in the safety data sheet.

Quality requirements

A certificate of analysis is included with each delivery. The paste meets current legal requirements according to RoHS II (Directive 2011/65/EC) and REACH (Regulation (EC) No 1907/2006).

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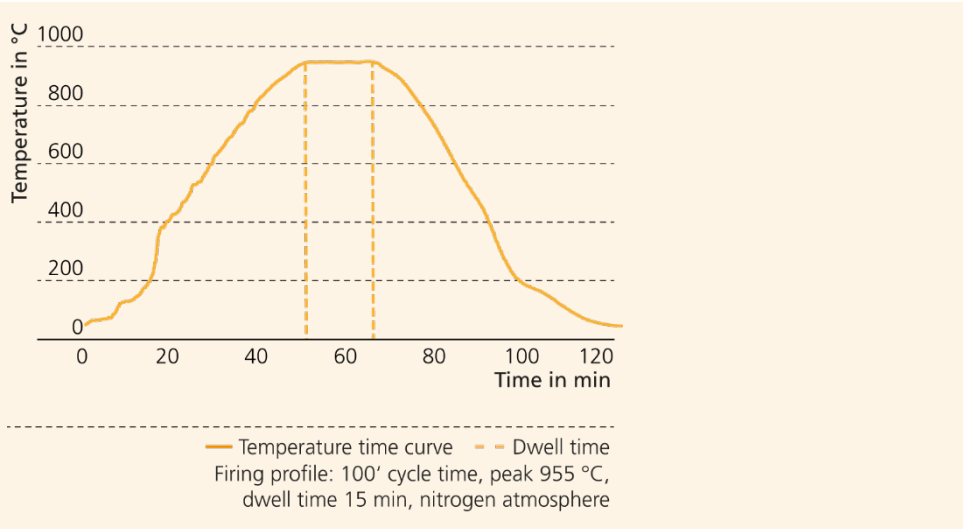
REACH
compliant



Management
System
ISO 9001:2015
ISO 14001:2015
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Instead of an expiration date, a date for retesting is stated, which is six months after the date of delivery. During this period, IKTS warrants the values stated in the CoA for unopened pastes. After the date for retesting has passed, it is the client's responsibility to test the paste quality under the conditions stated in the data sheet.

FIRING PROFILE



TECHNICAL SPECIFICATIONS

Characteristics	Unit	Value
Viscosity ¹	Pa·s	≤ 200
Sheet resistance ^{2, 5}	mOhm/Sq	< 2
Solderability ^{3, 5}	%	≥ 90
Adhesion ⁴ (number of firings)		
- Initial ⁵ (1x)	N/4 mm ²	≥ 25
- Aged ⁵ (1x)		≥ 20
Fired film thickness	µm	20–30
Coverage ⁶	cm ² /g	47

¹ Brookfield viscometer HB with spindle/cup combination SC4-14I-6RP(Y) at n=10 rpm and 25±0.2 °C.

² Sheet resistance, calculated for a fired thickness of 25±1 µm.

³ Solder Sn/Ag/Cu 96.5/3.0/0.5; flux: Alpha 611, soldering time: 5 s, soldering temperature: 245±2 °C.

⁴ 90° wire peel test in accordance with DIN 41850-2, 2x2 mm² pad size, solder: Sn/Ag/Cu 96.5/3.5/0.5.

⁵ Firing profile: total cycle time 100 min, 15 min at 955 °C, nitrogen atmosphere.

⁶ Calculated area that can be printed with one gram paste in the recommended thickness.