

FK1953: AgPd CONDUCTOR PASTE FOR AIN

The fired films of FK1953, a conductor paste with an AgPd ratio of a 3:1, provide excellent leaching resistance and solderability. The paste is the RoHS II and REACH compliant successor of FK1220 and is a suitable conductor paste for the FK9600 and FK9900M resistor paste systems.

PROCESS CONDITIONS

Substrate

The paste is designed for use on AIN 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 15 minutes at 150 °C in a drying oven with an exhaust air system or in a continuous flow dryer.

Firing

The printed films should be fired under air atmosphere in a conveyor belt furnace at a peak temperature of 850 °C and with a dwell time of 10 minutes. Fraunhofer IKTS recommends a total cycle time of 60 minutes.

Storage

The pastes can be stored at any temperature between 4 and 10 °C. The lower the temperature, the better long-term stability. The can must remain tightly sealed during storage. In order to prevent air humidity from condensing on the paste, the can 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 observe the notices in the safety data sheet accompanying each delivery.

Fraunhofer Institute for Ceramic Technologies and Systems IKTS

Winterbergstrasse 28
01277 Dresden

Contact

Richard Schmidt
Phone +49 351 2553-7916
richard.schmidt@ikts.fraunhofer.de

www.ikts.fraunhofer.de

REACH
compliant



Management System
ISO 9001:2015
ISO 14001:2015

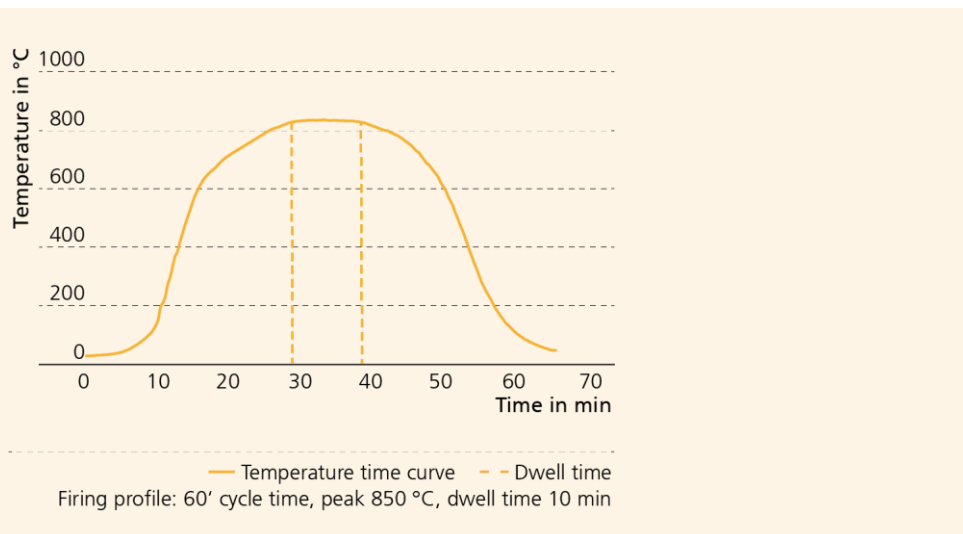
www.tuv.com
ID 110005194

Quality requirements

An analysis certificate comes 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).

Instead of an expiration date, it states a date for retesting, which is six months after the date of delivery. During this period, IKTS warrants the values stated in the analysis certificate 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	150...350
Sheet resistance ^{2, 6}	mOhm/Sq	≤ 25
Solderability ^{3, 6}	%	≥ 90
Leaching resistance ^{4, 6}	Dips/result	≥ 3
Adhesion ⁵ (number of firings)		
- Initial ⁶ (1x)		≥ 30
- Aged ⁶ (1x)		≥ 22
- Initial ⁶ (3x)		≥ 30
- Aged ⁶ (3x)	N/4 mm ²	≥ 21
- Initial ⁷ (1x)		≥ 30
- Aged ⁷ (1x)		≥ 21
Fired film thickness	µm	15±1
Coverage ⁸	cm ² /g	63±5

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 15±1 µm.

³ Solder Sn/Pb/Ag 63/35.5/1.5; flux: Alpha 611, soldering time: 5 s, soldering temperature: 220±2 °C.

⁴ Solder Sn/Pb/Ag 63/35.5/1.5; flux: Alpha 611, soldering time: 5 s, soldering temperature: 230±2 °C.

⁵ 90° wire peel test in accordance with DIN 41850-2, 2x2 mm² pad size, solder: Sn/Pb/Ag 63/35.5/1.5, artificial aging time 100 h at 150 °C.

⁶ Firing profile: total cycle time 60 min, 10 min at 850 °C.

⁷ Firing profile: total cycle time 30 min, 10 min at 850 °C.

⁸ Calculated area that can be printed with one gram paste in the recommended thickness.