CERMET PLATINUM CONDUCTOR 5545

For Heating Elements and Sensors

ESL 5545 is a screen printable, dense, fritted platinum coating designed for use with partially stabilized zirconia for oxygen sensors. It can also be used on alumina for semiconducting tin oxide sensors for the detection of gases like CO or hydrocarbons. As a sensor, its change in resistance is linear over the temperature range of −50 to 500°C. ESL 5545 is suitable for use as a heating element and is stable at 600°C in H₂-containing atmospheres without significant degradation of adhesion (when fired at 1300°C). Excellent performance, on prefired ceramics, is obtained when fired at temperatures of 850°C to 1300°C.

PASTE DATA

RHEOLOGY: Thixotropic, screen printable paste

VISCOSITY: (Brookfield RVT, ABZ, spindle, 10 rpm, 25.5°C±0.5°C) 200-250 Pa·s

PLATINUM CONTENT: 64-67% by weight

SOLIDS CONTENT: 77-79% by weight

BONDING MECHANISM: Fritted

SHELF LIFE: 6 months

PROCESSING

SCREEN MESH / EMULSION: 325/25 μm

LEVELING TIME: 5-10 minutes

DRYING AT 125°C: 10-15 minutes

FIRING RANGE: 850°C-1300°C

OPTIMUM: 980°C

TIME AT PEAK: 15 minutes

RATE OF ASCENT / DESCENT: 60°C-100°C/minute

SUBSTRATE OF CALIBRATION: 96% alumina

5545 0305-C
TYPICAL PROPERTIES

RESISTIVITY: (8-14 µm) 45-110 mΩ/sq.
APPROXIMATE COVERAGE: 80-100 cm²/g
SOLDERED ADHESION:
(2.5 mm x 2.5 mm pads, 62 Sn/36 Pb/2 Ag solder, on zirconia) > 50 N