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PLATINUM METALLO-ORGANIC CONDUCTOR

5051

METALLO-ORGANIC PLATINUM DESIGNED FOR SCREENING APPLICATIONS REQUIRING GLAZED SUBSTRATES

ESL 5051 is a new sulfur-free metallo-organic platinum, designed for screen printing applications on glazed substrates. ESL 5051 produces no noxious odor during firing and is Cd and Pb free. The fired films of platinum of 5051 are suitable for resistance thermometers, heaters and terminations for chemical sensors. It is uniquely qualified in applications where the presence of sulfur containing platinum products would act as a poison for chemical gas sensors. A single layer will produce a continuous bright film with a thickness of 0.15 to 0.25 micrometers.

ESL 5051 is an alternative for expensive vacuum deposited platinum thin films.

PASTE DATA

RHEOLOGY:	screen printable paste
VISCOSITY: (Brookfield RVT, #4 spindle, 10 rpm, 25.5°C±0.5°C)	25±5 Pa-s
SHELF LIFE: (25°C)	6 months

PROCESSING

SCREEN MESH/EMULSION:	325-400/0.0 µm
LEVELING TIME: (25°C)	5-10 minutes
DRYING AT 125°C:	5-20 minutes
FIRING:	
OPTIMUM:	850°C
TIME AT PEAK:	10-12 minutes

5051 9910-C

ESL Affiliates

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See Caution and Disclaimer on other side.

RATE OF ASCENT/DESCENT: 60°C-100°C/minute
SUBSTRATE OF CALIBRATION: glazed ceramic¹
THINNER: ESL 413

TYPICAL PROPERTIES

DRIED THICKNESS: 5-8 µm
FIRED THICKNESS: 0.15-0.25 µm
APPROXIMATE COVERAGE: 680 cm²/gram
RESISTIVITY: 3-4 Ω/sq.

TYPICAL PROPERTIES ON GLAZED CERAMIC²

FIRED FILM			HOT TCR	COLD TCR
	RESISTIVITY	THICKNESS	(+25°C to +125°C)	(-55°C to +25°C)
1 Layer	3.20 Ω/sq.	0.20 µm	+3277 ppm/°C	+3287 ppm/°C
2 Layers	1.06 Ω/sq.	0.35 µm	+3331 ppm/°C	+3322 ppm/°C
3 Layers	0.64 Ω/sq.	0.60 µm	+3352 ppm/°C	+3353 ppm/°C
4 Layers	0.47 Ω/sq.	0.75 µm	+3358 ppm/°C	+3321 ppm/°C
5 Layers	0.38 Ω/sq.	0.88 µm	+3418 ppm/°C	+3414 ppm/°C
6 layers	0.31 Ω/sq.	1.08 µm	+3407 ppm/°C	+3408 ppm/°C

1. recommended underglaze is ESL 129-C
2. recommended underglaze is ESL 129-C

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CAUTION: Proper industrial safety precautions should be exercised in using these products. Use with adequate ventilation. Avoid prolonged contact with skin or inhalation of any vapors emitted during use or heating of these compositions. The use of safety eye goggles, gloves or hand protection creams is recommended. Wash hands or skin thoroughly with soap and water after using these products. Do not eat or smoke in areas where these materials are used. Refer to appropriate MSDS sheet.

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