ESL ELECTROSCIENCE
CERAMIC TAPES & THICK-FILM MATERIALS
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PROTECTIVE POLYMER COATING

240-SB
240-SB Fine Line
240-SB Colours
240-SB Dipping Grade

RoHS Compliant*

ESL 240-SB is a mineral-filled, thermosetting modified silicone coating. It has been specifically formulated as a screen-printable protective coating for thick film conductors, resistors and capacitors on ceramic, porcelain enamelled steel and printed circuit boards. Only one layer (~25µm) is required when used as a protective coating. The fine-line version of the product is designed for intricate solder dams as well as a marking ink. Both rheologies are available in standard blue or black.

ESL 240-SB Colours are also available in white, grey, red, yellow and green and these are commonly used as marking inks, often on a standard 240-SB Blue background. Separate drying followed by co-curing of the two polymer inks is essential for reliable adhesion.

The 240-SB Dipping Grade version of the polymer coating is low viscosity which is used as an encapsulant for hybrid circuits. Long drying schedules on thick coatings are recommended for this product.

Infrared curing can be used provided that there is adequate ventilation in the oven. However this is not recommended for thick coatings. The best results, easily tested by a solvent resistance check, are obtained by using a box oven and ensuring that the printed substrates are maintained at 200°C for one hour. At temperatures above 250°C all colours will darken. The hardest coatings are obtained with the highest temperature cures.

PASTE DATA

Rheology:		Thixotropic, screen-printable paste
Viscosity:		
(Brookfield RVT,	240-SB, 240-SB Colours	150 ± 25 Pa.s (ABZ Spindle)
10 rpm, 25.5 ± 0.5 °C)	240-SB Fine Line	225 ± 25 Pa.s (ABZ Spindle)
	240-SB Grey	95 ± 10 Pa.s (No. 7 Spindle)
	240-SB Dipping Grade	13 ± 1 Pa.s (No. 4 Spindle)
Shelf Life (20 - 25 °C):		6 months

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See Caution and Disclaimer on other side.

PROCESSING

Screen Mesh, Emulsion:	240-SB	200 S/S, 25 µm
	240-SB Fine Line	325 S/S, 25 µm
Levelling Time (20°C):		5 - 10 min
Drying Time (at 125°C):	240-SB, Fine Line, Colours	10 - 15 min
(at 70 - 90 °C):	240-SB Dipping Grade	8 - 16 hours
Curing Schedules:	240-SB, Fine Line, Colours	150°C / 2hrs or 200°C / 1hr
	240-SB Dipping Grade	150°C / 1hr
Optimum:	240-SB, Fine Line, Colours	200°C / 1hr
Substrate for Calibration:		96% alumina
Thinner:		ESL 402

TYPICAL PROPERTIES

Cured Thickness: (measured on 96% alumina) (50 µm for the following data)		20 - 50 µm
Approximate Coverage:		120 cm^2 / g
Volume Resistivity:		$>10^{10}$ Ω.cm
Printing Resolution: (line/space)	240-SB Fine Line	0.150 mm / 0.150 mm
Service Temperature:		-100 to +150°C
Dielectric Constant (K) at 1 kHz: (at 25°C)		6 - 8
Dissipation Factor at 1 kHz: (at 25°C, depending upon conductor)		<0.1%
Insulation Resistance: (at 100V DC)		$>10^{10}$ Ω
Breakdown Voltage: (at 25°C in air)		> 500 V / 50µm
Solvent Resistance:		Good resistance to acetone when fully cured

***None of the six substances referred to in the RoHS Directive (2002/95/EC) are used in the formulation of this product**