

Technical Data Sheet

Protective Polymer Coating 240-SB, 240-SB Fine Line, 240-SB Colours and 240-SB Dipping Grade

Application

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 enameled steel and printed circuit boards. Only one layer (~25 µm) 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.

240-SB Colours are also available in white, red 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.

Coatings 240-SB, 240-SB Fine Line, 240-SB Colours and 240-SB Dipping Grade are formulated and processed to be RoHS compliant.

Typical Formulation Properties

Rheology: Thixotropic, screen printable paste

Viscosity: at 25.5 ± 0.5 °C when measured using a Brookfield RVT, 10 rpm.

240-SB, 240-SB Colours: 150 ± 25 Pa.s (ABZ Spindle)

240-SB Fine Line: 225 ± 25 Pa.s (ABZ Spindle)

240-SB Dipping Grade: 13 ± 1 Pa.s (No. 4 Spindle)

Storage and Shelf Life: This product should be stored in tightly sealed containers at 10 to 25 °C, in a dry place away from direct sunlight. The shelf life of a factory sealed container is a minimum 6 months from date of shipment when properly stored.

Typical Process Parameters

Thinning: This paste is formulated at the appropriate viscosity for the intended application. Thinner 402 may be used to replace solvent loss.

Printing: A 200 mesh stainless steel screen with ~25 µm thick emulsion is recommended for 240-SB and for 240-SB Fine Line a 325 mesh stainless steel screen.

Levelling Time (20°C): 5 – 10 min

Drying Time:

240-SB, Fine Line, Colours at 125 °C: 10 – 15 min

240-SB Dipping Grade at 70 – 90 °C: 8 – 16 h

Curing Schedule:

240-SB, Fine Line, Colours: 150 °C/2 h or 200 °C/1 h

240-SB Dipping Grade: 150 °C/1 h

Optimum:

240-SB, Fine Line, Colours: 200 °C/1 h

Substrate for Calibration: 96% alumina

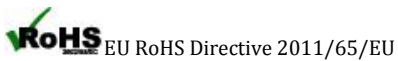
Typical Properties:

Cured Thickness:
(measured on 96% alumina)
(50 µm for the following data) 20 - 50 µm

Approximate Coverage: 120 cm²/g



Volume Resistivity:	> 10 ¹⁰ Ω.cm	Dissipation Factor at 1 kHz: (at 25 °C, depending upon conductor)	< 0.1%
Printing Resolution: (line/space) 240-SB Fine Line	0.150 mm/ 0.150 mm	Insulation Resistance: (at 100V DC)	> 10 ¹⁰ Ω
Service Temperature:	-100 to +150 °C	Breakdown Voltage: (at 25 °C in air)	> 500 V/ 50µm
Dielectric Constant (K) at 1 kHz: (at 25 °C)	6 – 8	Solvent Resistance: Good resistance to Acetone when fully cured.	



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