POLYMER PROTECTIVE COATING

ESL 240-SB is a mineral filled, thermosetting modified silicone coating, and cures by crosslinking. 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 is designed for intricate solder dams, and other fine-line requirements. Both rheologies are available in standard blue, black, and colors.

240-SB is supplied primarily in a blue color and forms an opaque film. Other colors available are black, white, and red. They are commonly used as marking inks.

Infrared curing of these products can be done provided that adequate ventilation of the curing oven is provided.

The best results, easily tested by a solvent resistance check, are obtained by using a drying oven and assuring that the printed substrates are maintained at 200°C for one hour, or two hours at 150°C. At temperatures above 250°C all colors, except black, will darken. The most durable coatings are obtained with the highest temperature cures.

After printing, screen cleaning should be carried out using MEK, xylene, toluene, or other ketone, ester, or aromatic hydrocarbon solvents.
PASTE DATA

RHEOLOGY: Thixotropic, screen printable paste

VISCOSITY:
(Brookfield RVT, ABZ spindle, 10 rpm, 25.5°C±0.5°C)

240-SB, 240-SB Colors 150±25 Pa·s

240-SB FL (Blue and Black) 225±25 Pa·s

Note: FL designates Fine Line.

COLORS: Blue, Black, White, & Red

SHELF LIFE: (25°C) 6 months

PROCESSING

SCREEN MESH/EMULSION:

240-SB 150-200 mesh/25 μm

240-SB FL 325 mesh/20 μm

LEVELING TIME (25°C): 5-10 minutes

DRYING AT 125°C: 10-15 minutes

CURING SCHEDULES:
(Above 250°C colors, except black, will darken. Adequate ventilation to ensure removal of solvents is necessary when curing) 150°C/2 hours, or 200°C/1 hour

CALIBRATION: 150°C/2 hours in a well-ventilated box oven

IR CURING: (Adequate ventilation is necessary when curing by IR to ensure removal of solvents)

Suggested IR curing schedule: 260°C, belt speed - 8 inches/minute, total time - 20 minutes.

SUBSTRATE: 96% alumina

THINNER: ESL 402
TYPICAL PROPERTIES

SURFACE FINISH:  Semigloss

VOLUME RESISTIVITY:  
(50 µm ± 5 µm cured thickness on 96% alumina)  
> $10^{10}$ Ω-cm

PRINTING RESOLUTION:  
240-SB FL (Line / Space)  
150 µm x 150 µm

DIELECTRIC CONSTANT (K):  
(at 1 kHz)  
6-8

DISSIPATION FACTOR:  
(Depending upon conductor)  
(1 kHz at 25°C)  
$\leq$ 0.1%

INSULATION RESISTANCE:  
(at 1000 V DC)  
$\geq 10^{10}$

BREAKDOWN VOLTAGE:  
(at 25°C in air)  
$\geq$ 500 V/50 µm

SERVICE TEMPERATURE:  
-100°C to 150°C

SOLVENT RESISTANCE: When properly cured, 240-SB is resistant to most solvents. It may be softened by acetone or methylene chloride. When tested for solvent absorption after a two-minute immersion in isopropyl alcohol, 240-SB will increase in weight by less than 0.15%.

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.

DISCLAIMER: The product information and recommendations contained herein are based on data obtained by tests we believe to be accurate, but the accuracy and completeness thereof is not guaranteed. No warranty is expressed or implied regarding the accuracy of these data, the results obtained from the use hereof, or that any such use will not infringe any patent. Electro-Science assumes no liability for any injury, loss, or damage, direct or consequential arising out of its use by others. This information is furnished upon the condition that the person receiving it shall make their own tests to determine the suitability thereof for their particular use, before using it. User assumes all risk and liability whatsoever in connection with their intended use. Electro-Science's only obligation shall be to replace such quantity of the product proved defective.