

## FSC Flexible Silicone Coating

FSC is a solvent based conformal coating designed to protect printed circuit boards, particularly those exposed to high humidity environments. FSC is widely used in the rail industry and is approved to IEC-61086.

- Approved for use in the rail industry, with IEC-61086 approval
- High surface insulation resistance; good resistance to humid environments
- Flexible coating; good resistance to a wide and varying temperature range
- Ideal for applications requiring rework; cured coating can be removed with Electrolube ULS

<b>Approvals</b>	<b>RoHS-2 Compliant (2011/65/EU):</b> <b>UL746E-QMJU2:</b> <b>IEC 61086-2:</b> <b>IPC-CC-830:</b> <b>MIL-I-46058-C</b>	<b>Yes</b> <b>Approved File Number: E138403</b> <b>Approved</b> <b>Meets Requirements</b> <b>Meets Requirements</b>
<b>Liquid Properties</b>	Appearance: Density @ 20°C (g/ml): VOC Content: Flash Point: Solids content: Viscosity @ 20°C (mPa s): Touch Dry Time @ 20°C: Recommended Drying Time:	Clear translucent liquid 0.96 50% Approx. 27°C 50% 550 10-15 minutes 24 Hours @ 20°C 4 Hours @ 60°C 2 Hours @ 90°C
	Coverage @ 25µm:	18m <sup>2</sup> per litre (Bulk)
<b>Dry Film Coating</b>	Colour: Operating Temperature Range: Flammability: Thermal Cycling (IEC 60068-2-14): Coefficient of Expansion: Dielectric Strength: Dielectric Constant: Insulation Resistance: Dissipation Factor @ 100Hz, 25°C: Moisture Resistance (IEC 60068-2-78): Salt Spray (IEC 60068-2-11):	Colourless -50°C to +125°C Meets UL94 V-1 Pass 150ppm 80 kV/mm 2.7 1 x 10 <sup>20</sup> Ohms/cm 0.001 Pass Pass

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All information is given in good faith but without warranty. Properties are given as a guide only and should not be taken as a specification.

Electrolube cannot be held responsible for the performance of its products within any application determined by the customer, who must satisfy themselves as to the suitability of the product.

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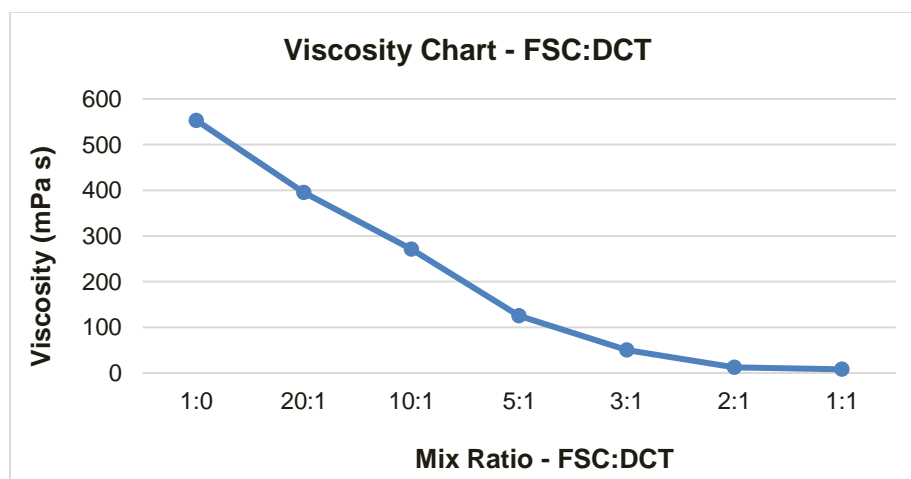
BS EN ISO 9001:2008  
Certificate No. FM 32082

<u>Description</u>	<u>Packaging</u>	<u>Order Code</u>	<u>Shelf Life</u>
<u>FSC Conformal Coating</u>	400ml Aerosol	EFSC400	36 Months
	5 Litre Bulk	EFSC05L	36 Months
	15ml (Small bottle with brush)	EFSC15ML	48 Months
<u>Conformal Coating Thinners</u>	1 Litre	EDCT01L	36 Months
	5 Litre	EDCT05L	36 Months
<u>Removal Solvent</u>	200ml Aerosol	EULS200D	36 Months
	400ml Aerosol	EULS400D	36 Months
	1 Litre Bulk	EULS01L	72 Months
	5 Litre Bulk	EULS05L	72 Months
	25 Litre Bulk	EULS25L	72 Months

### Directions for Use

FSC can be sprayed, dipped or brushed. The thickness of the coating depends on the method of application (typically 25-75 microns). Temperatures of less than 16°C or relative humidity in excess of 75% are unsuitable for the application of FSC. As is the case for all solvent based conformal coatings, adequate extraction should be used (refer to MSDS for further information).

Substrates should be thoroughly cleaned before coating. This is required to ensure that satisfactory adhesion to the substrate is achieved. Also, all flux residues must be removed as they may become corrosive if left on the PCB. Electrolube manufacture a range of cleaning products using both hydrocarbon solvent and aqueous technology. Electrolube cleaning products produce results within Military specification.



### **Spraying – Bulk**

FSC needs to be diluted with the appropriate thinners (DCT) before spraying. The optimum viscosity to give coating quality and thickness depends on the spray equipment and conditions, but normally a suitable spray viscosity is typically 50-80mPa s. If bulk coating material has been agitated, allow to stand until air bubbles have dispersed. FSC is suitable both for use in manual spray guns and selective coating equipment. The selected nozzle should enable a suitable even spray to be applied in addition to suiting the prevailing viscosity. The normal spray gun pressure required is 274 to 413 kPa (40 - 60 lbs/sq.inch). After spraying, the boards should be placed in an air-circulating drying cabinet and left to dry.

### **Spraying - Aerosol**

When applying FSC in aerosol form care must be taken to ensure the can is not shaken before use. Shaking the can will introduce excessive air bubbles and will give a poor coating finish. The can should be held at 45° and 200mm from the substrate to be coated. The valve should then be depressed when the can is pointing slightly off target and moved at about 100mm/s across the target. To ensure the best coating results are achieved try to use a smooth sweeping motion with small overlap for successive rows. To ensure penetration of the coating beneath the components and in confined spaces, spray the assembly from all directions to give an even coating. After spraying, the boards should be placed in an air-circulating drying cabinet and left to dry.

### **Dip Coating**

Ensure that the coating material in the container has been agitated thoroughly and has been allowed to stand for at least 2 hours for all the air bubbles to disperse. Conformal coating thinners (DCT) should be used to keep the FSC coating at a suitable viscosity for dipping. DCT is added periodically as the solvent evaporates. The viscosity should be checked using a viscosity meter or "flow cup". The board assemblies should be immersed in the FSC dipping tank in the vertical position, or at an angle as close to the vertical as possible. Connectors should not be immersed in the liquid unless they are very carefully masked. Electrolube Peelable Coating Masks (PCM/PCS) are ideal for this application. Leave submerged for approximately 10 seconds until the air bubbles have dispersed. The board or boards should then be withdrawn slowly (1 to 2s/mm) so that an even film covers the surface. After withdrawing, the boards should be left to drain over the tank or drip tray until the majority of residual coating has left the surface. After the draining operation is complete, the boards should be placed in an air-circulating drying cabinet and left to dry.

### **Brushing**

Ensure that the coating material has been agitated thoroughly and has been allowed to settle for at least 2 hours. The coating should be kept at ambient temperature. When the brushing operation is complete the boards should be placed in an air-circulating drying cabinet and left to dry.

### **Inspection**

FSC contains a UV trace, which allows inspection of the PCB after coating to ensure complete and even coverage. The stronger the reflected UV light, the thicker the coating layer is. UV light in the region of 375nm should be used for inspection.

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