AFA
Aromatic-Free Acrylic Coating

AFA is an acrylic conformal coating formulated without the use of hazardous aromatic solvents. It has been designed for the protection of electronic circuitry and meets the requirements of many industry standards. AFA is also UL approved, achieving flame retardancy to UL94 V-0.

- Transparent coating with excellent clarity and UV resistance; ideal for LED applications
- Reduces operational hazardous; free from aromatic solvents such as Toluene and Xylene
- Fast touch dry time at room temperature for efficient coating application
- Ideal for applications requiring rework; can be removed using Electrolube ULS

Approvals	**RoHS-2 Compliant (2011/65/EU):**	**Yes**
	IPC-CC-830:	**Meets Requirements**
	UL746-QMJU2:	**Approved File Number: E138403**
Liquid Properties	Appearance:	Pale Coloured Liquid
	Density @ 25°C (g/ml):	0.91 (Bulk), 0.78 (Aerosol)
	VOC Content:	67 ± 3% (Bulk), 85% (Aerosol)
	Flash Point:	Approx. -7°C (Bulk)
	Solids content:	33 ± 3% (Bulk), 15% (Aerosol)
	Viscosity (mPa s @ 25°C):	175 ± 25
	Touch Dry:	5 - 10 minutes
	Recommended Drying Time:	24 Hours @ 20°C 30 minutes @ 70°C
	Coverage @ 25µm:	14m^2 per litre, 2.4m^2 (200ml Aerosol)
Dry Film Coating	Colour:	Colourless
	Operating Temperature Range:	-65°C to +125°C
	Flammability:	UL94 V-0 Approved
	Thermal Cycling (MIL-1-46058C):	Meets requirements
	Coefficient of Expansion:	130ppm
	Dielectric Strength:	45kV/mm
	Dielectric Constant:	2.5
	Surface Insulation Resistance:	1 x 10^{15} Ω
	Comparative Tracking Index:	>300 Volts
	Dissipation Factor @ 1MHz, 25°C:	0.01
	Moisture Resistance (MIL-1-46058C):	Meets requirements
	BONO Test (Corrosion Factor):	Pass (2.3%)

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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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Description	Packaging	Order Code	Shelf Life
AFA Conformal Coating	200 ml Aerosol	AFA200	24 Months
	5 Litre	AFA05L	24 Months
Fast Dry Thinners	5 Litre	FTH05L	24 Months
Removal Solvent	200 ml Aerosol	ULS200D	36 Months
	400 ml Aerosol	ULS400D	36 Months
	1 Litre Bulk	ULS01L	72 Months
	5 Litre Bulk	ULS05L	72 Months
	25 Litre Bulk	ULS25L	72 Months

Directions for Use

AFA 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 its application. 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 and to prevent flux residues causing corrosion on the PCB. Electrolube manufacture a range of cleaning products using both hydrocarbon solvent and aqueous technology, which all produce results within Military specification.

Spraying – Bulk

AFA needs to be diluted with the appropriate thinner (FTH) before spraying. The optimum viscosity to give coating quality and thickness depends on the spray equipment and conditions, but normally a dilution ratio of 1.5:1 or 2:1 (AFA:FTH) is required. Suitable spray viscosity is typically 40-70 cPs. If bulk coating material has been agitated, allow to stand until air bubbles have dispersed before use.

AFA 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 275 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.

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Spraying - Aerosol

When applying AFA 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 100 mm/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

AFA has been formulated to a suitable viscosity for dip coating (175 ± 25 mPa s @ 25°C). The coating material should be checked periodically using a viscometer or "flow cup" and FTH added as required to replace the solvent lost by evaporation and maintain the viscosity.

The board assemblies should be immersed in the 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 2mm/s) 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 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

AFA 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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