



TRINITY SHIELDS



Protective Coating 101-18 UL Technical Data Sheet

Protective Coating 101-18 UL is a single part, fast drying, superior, acrylic conformal coating for printed circuit assemblies and electrical equipment. Used in all areas of high-end electronics including aerospace, military, and automotive engineering and meets Mil-I-46058C, IPC-CC-830 Qualifications and is a UL Qualified Component under file E491286.

- Offers complete protection from harsh environment conditions such as high humidity, dust, corrosion, fungus, salt and thermal extremes
- Suitable for LED applications due to high clarity and transparency performance
- Meets MIL-I-46058C, IPC-CC-830 Qualifications and is a UL Recognized Component under file E491286
- Easily reworked using solvents using Trinity Shields thinners and strippers
- High speed drying allows efficient electronic production processing
- RoHS-2 compliant (2011/65/EU)
- Coating does not contain > 0.10% of any candidate substances of very high concern (SVHC) per Article 59(10) or REACH Regulations
- All materials and substances in this product have been pre-registered or are exempt from REACH Registration

Physical Properties	Color:	Water White Amber SI
	Clarity:	Clear
	Odor:	Solvent
	Viscosity @ 24°C (Ford B-4 / Zahn #2)	18 ±1 seconds
	Specific Gravity:	0.889
	Weight (kg /L):	0.8863
	VOC Content (%):	71
	Flash Point:	6°C
	Solids Content (w/w%):	29
Electrical Properties	Dielectric strength (kV/mil):	1.645
	Dielectric Constant (1 GHz):	3.51
	Dissipation Factor (1 GHz):	0.0549
	Moisture Resistance (Mil-I-46058C):	Passes
	Volume Resistivity:	8.1×10^{13}
Physical Performance	Temperature Range:	-55°C to 125°C
	Coverage @ 25um:	16 m ² per liter (bulk)
	Adhesion:	Excellent
	Thermal Cycling (Mil-I-46058C)	Passes
Work Schedule	Dry to Touch:	15-20 minutes
	Tack Free time:	30-45 minutes
	Recommended Dry time:	24 hours @ room temperature 2 hours @ 90°C



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APPLICATION

Cleaning

PCBs may need to be thoroughly cleaned before coating. This may be required to ensure that satisfactory adhesion to the substrate is possible. Also all flux residues may need to be removed as they may become corrosive if left on the PCB.

Dip Coating

Ensure that the coating material in the container has been agitated thoroughly and has been allowed to stand for all the air bubbles to disperse.

Dip Thinner (Thinner D) may be used to keep the Protective Coating 101-18 at a suitable viscosity for dipping. Thinner D is added periodically as the solvent evaporates. The viscosity should be checked using a viscosity meter or "flow cup" on a regular basis.

The board assemblies should be immersed in the Protective Coating 101-18 dipping tank in the vertical position, or at an angle as close to the vertical as possible. It is possible to dip a PCB horizontally; Trinity and its agents would be happy to help with this process. Connectors should not be immersed in the liquid unless they are very carefully masked.

For optimal penetration it may be necessary to leave the circuit board submerged for a short time until the air bubbles have dispersed. The board or boards should then be withdrawn VERY SLOWLY so that an even film covers the surface. Typical withdrawal rates are 10-20 cm/min (4-8"/min). After withdrawing, the boards should be left to drain over the tank 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.

Bulk Spraying

Bulk Protective Coating 101-18 is normally ready to spray but may need to be thinned with Trinity Spray Thinner (Thinner S) before spraying. The optimum viscosity to give coating quality and thickness depends on the spray equipment and conditions. If the bulk coating material has been agitated, allow to rest until air bubbles have dispersed.

Protective Coating 101-18 is suitable both for use in manual spray guns and selective spray equipment.

A good technique is to hold the gun at 45 degrees angle and a distance of approximately 20-25cm while spraying. Spray a thin and continuous film onto the circuit with an even motion. Turn the circuit 90 degrees and repeat the process. Rotate a full 360 degrees to cover all sides of the circuit.

This process helps to ensure penetration of the coating beneath the components and in confined spaces. Allow the coating to dry for a few minutes. Apply a second coat as required to meet any coating thickness requirements specified. After spraying, the boards should be placed in an air-circulating drying cabinet and left to dry for handling.

Aerosol Spraying



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Avoid shaking the can before use. This may add excessive bubbles and give a poorer finish.

A good technique is to hold the aerosol can at 45 degrees angle and a distance of approximately 20-25cm while spraying. Spray a thin and continuous film onto the circuit with an even motion. Turn the circuit 90 degrees and repeat the process. Rotate a full 360 degrees to cover all sides of the circuit.

Brushing

Ensure that the coating material has been agitated thoroughly and has been allowed to settle to avoid bubbles. The coating should be kept at ambient temperature. Gently apply the coating with a good quality brush so as not to leave brush marks and so that the components and wiring are not disturbed. Dilution using Thinner D or S can aid in the flow of the conformal coating during application.

Drying Times & Curing Conditions

Protective Coating 101-18 will be touch dry after 15-20 minutes at room temperature and does not require a thermal cure. The full properties of Protective Coating 101-18 will be obtained after 24 hours at room temperature. This can be accelerated by the use of a thermal cure of 2 hours at 90°C or 4 hours at 60°C.

Coating Removal & Repair

Protective Coating 101-18 can be easily removed using Stripper S101, which can be locally or completely stripped depending on requirements. Application can be achieved using a cotton bud, brush or complete immersion in a bath of S101. Compatibility of the S101 with the PCB should be assessed at all times.

Inspection

The Protective Coating 101-18 conformal coating has a UV trace within the coating itself, which fluoresces under UV light. This aids inspection of the material after drying and during coating application. Suitable lighting includes UVA.

	Packaging	Order Code	Shelf Life
Protective Coating 101-18	400ml Aerosol	PC101-18 UL Aerosol	2 Years
	1 Liter Bulk	PC101-18 UL 1L	2 Years
	5 Liter Bulk	PC101-18 UL 5L	2 Years
Thinner D	5 Liter	ThinnerD5L	2 years
Thinner S	5 Liter	ThinnerS5L	2 years
Stripper S101	5 Liter	StripperS1015L	2 years

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