Conformal Coating

Technical Data Sheet

201 Polyurethane Conformal Coating

201 is a single part, fast drying oxidation cure, polyurethane conformal coating for printed circuit assemblies and electrical equipment. Usable in all areas of high-end electronics including aerospace, military, and automotive engineering this coating meets Mil-I-46058C and IPC-CC-830 Qualifications.

- Offers complete protection from harsh environment conditions such as high humidity, dust, corrosion, fungus, salt and thermal extremes.
- Provides high levels of chemical protection to circuit boards.
- Meets MIL-I-46058C and IPC-CC-830 Qualifications
- Reworked 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	Colour:	Water white amber sl
	Clarity:	Clear
	Odor:	Aromatic
	Viscosity @ 24°C (cps):	180-200
	Specific Gravity:	0.96 approx.
	VOC Content (%):	53%
	Flash Point:	7°C
	Solids Content (w/w%):	45±1
Electrical Properties	Dielectric strength (kV/mil):	1.5
	Dielectric Constant (1 GHz):	3.53
	Dissipation Factor (1 GHz):	0.0556
	Moisture Resistance (Mil-I-46058C):	Passes
Physical Performance	Temperature Range:	-65°C to 125°C
	Coverage @ 25um:	16m^2 Per litre
	Adhesion:	Excellent
	Thermal Cycling (Mil-I-46058C)	Passes
Work Schedule	Dry to Touch:	10-15 minutes
	Tack Free time:	30-60 minutes
	Recommended Dry time:	4 weeks @ room temperature 24 hours @ 80°C

APPLICATION

Cleaning

In general PCBs should be thoroughly cleaned before coating. This is required to ensure that satisfactory adhesion to the substrate is possible. Also all flux residues must be removed as they 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 at least 2 hours for all the air bubbles to disperse.

Thinner (Thinner S) should be used to keep the 201 coating at a suitable viscosity for dipping. Thinner S 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 201 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 and 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 good 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 201 needs to be thinned with thinners (Thinner S) before spraying. The optimum viscosity to give coating quality and thickness depends on the spray equipment and conditions but a starting point could be 1 part coating to 1-part thinners. If the bulk coating material has been agitated, allow to rest until air bubbles have dispersed.

201 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

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 for at least 2 hours. 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 by 2-5% using Thinner S can aid in the flow of the conformal coating during application.

Drying Times & Curing Conditions

201 will be touch dry after 30-60 minutes at room temperature depending on conditions and thickness applied. The cure mechanism is oxidation and the coating requires oxygen to reach its full cure potential. The full properties of 201 will be obtained after 3-4 weeks at room temp. This can be accelerated by the use of a heat cure of 24-48 hours at 80°C with oxygen replenished on a regular basis. Please ensure that the product is fully tested to be cured before use.

Coating Removal & Repair

201 can be easily removed using Stripper S201, which can be locally or completed stripped depending on requirements. Application can be achieved using a cotton bud, brush or complete immersion in a bath of S201. Compatibility of the S201 with the PCB should be assessed at all times.

Inspection

The PC201 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
201 Conformal Coating	400ml Aerosol 5 Litre Bulk	201Aerosol 201 5L	1 Year 2 Years
Thinner S	5 Litre	ThinnerS5L	2 years
Stripper S201	5 Litre	StripperS2015L	2 years

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