

Conformal Coating

Technical Data Sheet

A101E Low VOC Acrylic Conformal Coating

A101E is a Toluene and Xylene free, single part, fast drying, superior, acrylic conformal coating for printed circuit assemblies and electrical equipment. This Low VOC coating is used in all areas of high-end electronics including aerospace, military, and automotive engineering and 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
- Low VOC Coating allowing use where solvent emissions are critical.
- Meets MIL-I-46058C and IPC-CC-830 Qualifications
- 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 | Colour: | Water white amber sl |
| | Clarity: | Clear |
| | Odor: | Sweet Solvent |
| | Viscosity @ 24°C (cps): | 190-210 |
| | Specific Gravity: | 0.9538 |
| | VOC Content (%): | 49% |
| | Flash Point: | 16°C |
| | Solids Content (w/w%): | 41 |
| Electrical Properties | Dielectric strength (kV/mil): | 1.538 |
| | Dielectric Constant (1 GHz): | 3.53 |
| | Dissipation Factor (1 GHz): | 0.0556 |
| | Moisture Resistance (Mil-I-46058C): | Passes |
| | Volume Resistivity: | 1.5x10 ¹³ |
| Physical Performance | Temperature Range: | -62°C to 127°C |
| | Coverage @ 25um: | 14m ² Per litre (bulk) |
| | Adhesion: | Excellent |
| | Thermal Cycling (Mil-I-46058C) | Passes |
| Work Schedule | Dry to Touch: | 8-12 minutes |
| | Tack Free time: | 20-30 minutes |
| | Recommended Dry time: | 24 hours @ room temperature |
| | | 2 hours @ 90°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.

Trinity Thinner DE should be used to keep the A101E coating at a suitable viscosity for dipping. Thinner DE 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 A101E 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 A101E needs to be thinned with Trinity Thinner SE before spraying. The optimum viscosity to give coating quality and thickness depends on the spray equipment and conditions but a starting point could be 2 parts coating to 1 part thinners. If the bulk coating material has been agitated, allow to rest until air bubbles have dispersed.

A101E 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 5-10% using Thinners DE or SE can aid in the flow of the conformal coating during application.

Drying Times & Curing Conditions

101E will be touch dry after 8-12 minutes at room temperature and does not require a thermal cure. The full properties of 101E will be obtained after a 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

A101E can be easily removed using Stripper S101E, 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 S101E. Compatibility of the S101E with the PCB should be assessed at all times.

Inspection

The A101E 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 |
|-------------------------|------------------|-------------------|-------------------|
| A101E Conformal Coating | 400ml Aerosol | A101EAerosol | 2 Years |
| | 1 Litre Bulk | A101E 1L | 2 Years |
| | 5 Litre Bulk | A101E 5L | 2 Years |
| Thinner SE | 5 Litre | ThinnerSE5L | 2 years |
| Thinner DE | 5 Litre | ThinnerDE5L | 2 years |
| Stripper S101E | 5 Litre | StripperS101E5L | 2 years |

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