

ACC12 POLYURETHANE conformal coating (bulk / aerosol)

Introduction

ACC POLYURETHANE CONFORMAL COATING is a flexible transparent PU coating for the protection of electronic circuitry designed to meet the highest defence and military standards. The product is available in both aerosol and bulk form.

Key Features

- Meets requirements of MIL-I-46058C and IPC-CC-830
- Excellent adhesion
- Excellent resistance to humidity
- Contains no harmful solvents such as toluene
- Resistance to wide range of chemicals including mild acids and alkalis
- Fluorescent UV aid for Production QA checks
- Wide temperature range -50 - +130C
- Resistant to mould growth
- RoHS compliant

Use and Cure Information

APPLICATION

The bulk product may be sprayed, dipped or brushed onto the circuit. The thickness of the coating depends on the method of application. Single dipping gives a coating of ca 50 microns. The product contains an UV trace to allow inspection of the board after coating to ensure complete and even coverage.

Boards should be thoroughly cleaned before coating for best adhesion / performance. Coating over no clean fluxes is possible so long as other surface contaminants are not present.

CLEANING

The boards should be thoroughly cleaned before coating. This is required to ensure that satisfactory adhesion to the substrate is possible. Some flux residues must be removed, as they become corrosive if left on the PCB. ACC manufacture a range of 100% Ozone Friendly cleaning products - both solvent and water based. All clean to military standards (please contact ACC for further information.

DIP COATING

The product may be applied by automated dip coating equipment. Ensure the coating has been agitated thoroughly and allowed to stand for 2 hrs to allow bubbles to disperse.

ACC POLYURETHANE thinners may be used to keep the product at a suitable viscosity for dipping. The viscosity may be measured by Brookfield viscometer or "flow cups"

The board assembly should be immersed in the ACC POLYURETHANE coating vertically (or as close to vertical as possible). Connectors should not be immersed OR be carefully masked with ACC SYNTHETIC PEELABLE MASK.

The board should be left immersed for 1 minute until air bubbles have dispersed. The board(s) should be withdrawn very slowly so that an even film of coating covers the surface. The Boards should be left to drain over the tank. When the draining is complete the boards should be placed in an air circulating drying cabinet (or – for accelerated drying - flame proof oven at temperatures up to 60C).

SPRAYING

BULK ACC POLYURETHANE COATING needs to be thinned with thinners to ca 50 –100cps before spraying. For manual air guns (e.g. Devilbliss etc) use ACC POLYURETHANE COATING THINNERS - typically 5 parts coating to 1 parts thinners. The nozzle of the spray gun needs to be selected to give an even spray to suit the selected viscosity of the coating material. The normal spray gun pressure required is 27.6 – 34.5 x 10 exp 6-kN/m exp2 (40-50 psi).

For airless spraying equipment (Nordson, PVA etc) a viscosity of 50-100cps is preferred. This may be achieved with the standard thinners (1 parts) to, coating (9 parts) . These are guidelines. We will work with the customer to advise on an appropriate ratio for their existing equipment.

BRUSHING

Ensure the coating has been mixed thoroughly and stood for 2h to allow bubbles to separate. The coating should be used at room temperature (above 16C) using a good quality brush apply the product gently such as to achieve a good coating and not to disturb wiring. The board should be dried in an air circulating cabinet or flameproof oven.

DRYING TIMES/CURING CONDITIONS

For dipping and manual spraying the film will be touch dry after 30mins (depending on ambient temperature / airflow). minutes – depending on conditions.

The full properties of the coating will be obtained after 24 - 36h at room temperature – drying can be accelerated by using a thermal treatment of 2h @ 90C or 4h @ 60C.

DOUBLE COATING

Whilst this should not normally be required, a second coating may be applied after the first coating is dry to ensure the two coats bond together.

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Property Test Method Value

Uncured Product

| | | |
|---------------------|----------------|--------------------------------|
| Appearance | Visual | Pale yellow fluorescent liquid |
| QA aid | UV trace | Purple /blue fluorescence |
| Density (25C, g/ml) | ASTM D70 | 0.90 |
| Flash Point | ASTM D93 | 40°C |
| Pensky Martin (CC) | | |
| Solids | | 55% (bulk) ; 30% (aerosol) |
| Viscosity, (mPa.s) | Brookfield RVF | 200 (bulk) 45 (aerosol) |
| Tack time | | 30 minutes |
| Drying/Curing time | | Full cure 24 – 36h |
| Shelf life | | 3 years unopened |

Cured coating

| | | |
|------------------------------|-----------|---|
| Temperature range | | -55 to + 130C |
| Flammability | UL 94 | (V0)Self-Extinguishing |
| Electrical resistance (ohms) | | > 10 exp 15 (dry film 25 – 75 microns) |
| Volume resistance | ASTM D257 | > 10 exp 16 |

| | | |
|------------------------------|-----------|-------------|
| Dielectric constant (1MHz) | ASTM D150 | 3.6 @100kHz |
| Dissipation factor | ASTM D150 | 0.01 @ 1MHz |
| Dielectric Breakdown voltage | ASTM D149 | 2000V/MIL |

Other Test standards
MIL I46058C
IPC CC830B
DEFSTAN 59/47/issue 4
UL746C

Storage / Shelf life

3 years unopened at 10 – 30C

Health and Safety

Health and safety sheet available separately

Packaging

5L UN II containers ; 12 x 400ml aerosols

Disclaimer: -

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