

Product Description:

Water Based Acrylic Coating

Product Code:

EPcryl150

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(2 pages)

PRODUCT DESCRIPTION

EPcryl150 is a flexible, transparent water-based acrylic conformal coating. It is designed to meet the highest international standards, including MIL-I-46058, IPC-CC-830B, IEC-61086 and UL746E.

EPcryl150 is designed to be resistant to common solvents and can only be removed with a specific rework solvent, Acrylic Rework/Stripping Solution **EP801**. It may be soldered through, directly to allow rework.

It is suitable for dip coating, spraying and brushing, as well as selective coating applications. This product is extremely safe and non toxic to use, and contains a very low amount of Volatile Organic Compounds (VOC).

PRODUCT USE

EPcryl150 is for use in the protection of electronic circuitry to meet the highest defence and aerospace industry requirements such as telecommunications, industrial controls, automotive and associated applications.

FEATURES

- Water-based, safe, non-flammable, non-toxic
- Excellent adhesion
- Resistant to most common solvents, lubricants and cooling fluids.
- Excellent resistance to mould growth and ultra violet light, and to prolonged exposure to tropical life and salt spray.
- Wide temperature range -55°C to 150°C.
- High gloss finish and high surface resistivity.
- Good dielectric properties at all frequencies coating thickness typically being 25 to 50 micron.
- Fluorescent under ultra violet light as an aid to subsequent inspection.

TYPICAL PROPERTIES

Uncured Material

Colour	Milky White
Solids (%w/w, 1Hour @ 125°C)	43 ± 3%
Viscosity (cPs 25°C)	200 ± 50
Specific gravity (25°C)	1.04 ± 0.04
Flash point (Closed Cup)	> 75°C
Drying time	10 to 30 minutes (touch dry, depending on thickness)
Recommended Curing at 90°C / 60°C	2 hours / 4 hours
Recommended Curing at Room Temperature	7 days (optimum properties) 24 Hours (very good properties)
Shelf Life at room temperature	12 Months
Storage Temperature	+5 to 40°C
Recommended Thinner for Spraying	} EPcryl150 is formulated to be suitable for all application techniques without dilution, although DI water may be used.
Recommended Thinner for Dipping	

Cured Material

Adhesion	Excellent
Appearance	Clear, high gloss.
Fungus Resistance, per IPC-TM-650 2.6.1.1	Pass
Flexibility per IPC-TM-650 2.4.5.1	Pass
Flammability, per UL 94 HB	Pass, Self-extinguishing
Dielectric Withstanding Voltage, per IPC-TM-650 2.5.7.1	Pass
Moisture Insulation Resistance, per IPC-TM-650 2.6.3.4	35.3 x 10 ⁹ Ω
Thermal Shock, per IPC-TM-650 2.6.7.1	Pass
Temperature and Humidity Ageing per IPC-TM-650 2.6.11.1	Pass
Glass Transition Temperature, (TMA)	28°C
Continuous Operating Temperature Range	-55°C to +150°C
Dielectric Constant at 100Mhz	2.35
Dissipation Factor at 100Mhz	0.008
Conformal Coating Type	Acrylic (AR)
Resistance to Solvents	Good

APPLICATION

EPcryl150 can be sprayed, dipped or brushed. The thickness of the coating depends on the method of application, but a dip coater normally deposits a film thickness of about 25 microns (single coat). Workshop temperatures of less than 16°C or relative humidity in excess of 65% are unsuitable for the application of **EPcryl150**. In addition **EPcryl150** contains a UV trace which allows inspection of the PCB after coating to ensure complete and even coverage. The stronger the reflected light, the thicker the coating layer is.

Cleaning

It is recommended but not essential that boards be cleaned before coating. This is required to ensure that satisfactory adhesion to the substrate is possible. Also, flux residues may be removed as they could become corrosive if left on the PCB.

Dip Coating

Ensure that the coating material in the dip tank has been agitated thoroughly and has been allowed to stand for at least 30 minutes, in order that all the air bubbles disperse before commencing dip coating.

EP750 water based thinners should be used to keep the **EPcryl150** coating at a suitable viscosity for dipping. **EP750** is added periodically as water evaporates. The viscosity should be checked using a viscometer or "flow cup".

The board assemblies should be immersed in the **EPcryl150** 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.

Leave submerged for about 30 seconds until any air bubbles have dispersed. The board or boards should then be withdrawn, so that an even film covers the surface. 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.

Spraying

EPcryl150 is supplied at a suitable viscosity for spray application. **EPcryl150** is suitable both for use in manual spray guns and computer controlled airless spray equipment that only coat the required areas of the PCB, eliminating the need for masking. A small amount (5-10%) of universal water-based thinners **EP750** can be added to aid spraying if required.

SCH Services can supply suitable equipment to enable the successful manual spray application of **EPcryl150**. It is recommended that the spray nozzle be kept wet when not in use to prevent the material from curing in the spray cap.

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.

Brushing

The coating should be kept at ambient temperature. Gently apply the coating with a good quality sable brush so as not to leave brush marks and so that the components and wiring are not disturbed.

When the brushing operation is complete the boards should be placed in an air-circulating drying cabinet and left to dry.

Drying Times & Curing Conditions

EPcryl150 will be touch-dry after 10 – 30 minutes at room temperature, depending on the thickness of the applied film. Thicker films will require longer drying times. The material will benefit from a thermal cure once dry. The full properties of **EPcryl150** will be obtained after 7 days at room temperature. This can be accelerated when the coating is touch-dry, by the use of a thermal cure of 2 hours at 90°C or 4 hours at 60°C.

Coating Removal & Repair

EPcryl150 can be easily removed using **EP801** which can be used to locally or completely strip, depending on requirements. Application can be achieved using a cotton bud, brush or by complete immersion in a bath of **EP801**. Compatibility of **EP801** with the PCB should be assessed at all times.

All technical data in this bulletin is based on test results and is believed to be correct. However, since the end use of ELEMENTAL Protection materials (and the manner of storing and handling them) is beyond our control, we make no warranty, expressed or implied, as to the fitness of use, results to be obtained from or effects of use with respect to these materials. Their use shall be solely by the judgment of and at the risk of the user notwithstanding any statement in this bulletin.