



DuPont *i*Technologies

Printed Circuit Materials

Conformal Coatings Compatible with DuPont VACREL[®] Solder Mask

VACREL[®] Photopolymer Film Solder Mask

Technical Bulletin TB-0063

BACKGROUND

DuPont aqueous processable solder mask has been tested with various conformal coatings in both DuPont and external evaluations. Most of the testing was designed to confirm the ability of the solder mask/conformal coating combination to withstand military and automotive end use performance requirements.

RECOMMENDATIONS

Before using any conformal coating, the surface should be cleaned to remove residues, then baked dry to ensure there is no moisture or solvent left in the solder mask. A bake at 93° to 121°C (200° to 250°F) for 30 minutes should suffice.

Conformal coatings that have been used successfully with DuPont solder masks can be separated into four groups: polyurethane based, epoxy based, acrylic based, and silicone based. (Tests that have been done with parylene type coatings have had mixed results, therefore we would not recommend using our masks with parylene without first verifying that the combination meets the specific requirements.)

The following coatings worked well in tests by DuPont and others when applied using the manufacturers recommendations; other coatings may work equally well.

Polyurethane:

- CONATHANE CE-1155 by Conap, Inc.
- PC-1M by Dexter Hysol (now part of Cookson)
- HUMISEAL 1A20 by Humiseal Div. of Colombia Chase Corp.

Epoxy:

- PC-17M by Dexter Hysol (now part of Cookson)

Acrylic:

- HUMISEAL 1B31 by Humiseal Div. of Colombia Chase Corp.

Silicone:

- SHADOWCURE 5290 by Loctite Corp.

Note: End users utilize a wide variety of performance criteria, depending on the product application. Therefore, all coatings should be tested to confirm their suitability for the specific application. Our internal tests included tape adhesion, military thermal shock and Bellcore SIR.



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