MacDermid Alpha ELECTRONICS SOLUTIONS

TECHNICAL DATA SHEET

Electrolube® APL5050

Acrylic Protective Lacquer – Special Blend

DESCRIPTION

Electrolube® APL5050 is a modified version of APL which provides a flexible, fast drying transparent acrylic conformal coating for the protection of electronic circuitry. **APL5050** has been formulated to meet many of today's commercial applications.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

FEATURES AND BENEFITS

- Acrylic conformal coating; special blend of viscosity for horizontal automated dip coating applications
- Improved flow characteristics; allows coating of difficult or inaccessible areas
- Excellent adhesion to a wide variety of substrates; resistant to mold growth
- Fluoresces under UV light for ease of inspection; can be removed with Electrolube ULS or ACT5050

APPROVALS

Standard	Status
RoHS Compliant (2015/863/EU)	Yes
MIL Approval (MIL-1-46058C)	Meets Approval
IPC-CC-830	Meets Approval

PRODUCT INFORMATION

Please contact your customer service representative for information on available package sizes.

PHYSICAL PROPERTIES

Category	Results
Liquid Properties	
Appearance	Pale Colored Liquid
Density @ 20 °C (g/mL)	0.91
VOC Content	65 %
Flash Point (°C)	-7
Solid Content	31 %
Viscosity (mPa s @ 20 °C)	58
Touch Dry: @ 20 °C @ 80 °C	10 to 15 minutes 8 minutes
Cure Time 20 °C 60 °C 90 °C	 24 hours 4 hours 2 hours
Coverage @ 25µm	14 m^2/L
Dry Film Coating	
Color	Colorless
Operating Temperature Range (°C)	-55 to 125
Flammability: Self-extinguishing (ASTM Method D635)	Meets UL Approval
Thermal Cycling (MIL-1-46058C)	Meets Approval
Coefficient of Expansion (ppm)	130
Dielectric Strength (kV/mm)	45
Dielectric Constant	2.5
Surface Insulation Resistance (Ω)	1 x 10^{15}
Comparative Tracking Index (V)	> 300
Dissipation Factor @ 1MHz, 25 °C	0.01

Category	Results
Moisture Resistance (MIL-1-46058C)	Meets Approval

APPLICATION GUIDELINES

APL5050 can be sprayed, dipped or brushed although primarily developed for close work dipping process. The thickness of the coating depends on the method of application (typically 25 to 75 microns). Temperatures of less than 16 °C or relative humidity in excess of 75% are unsuitable for the application of APL5050. As is the case for all solvent based conformal coatings, adequate extraction should be used (refer to SDS for further information). Substrates should be thoroughly cleaned before coating. This is required to ensure that satisfactory adhesion to the substrate is achieved. Also, all flux residues must be removed as they may become corrosive if left on the PCB. We manufacture a range of cleaning products using both hydrocarbon solvent and aqueous technology. Cleaning products produce results within Military specification.

TYPICAL PRODUCT APPLICATION

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. ACT should be used to keep the APL5050 coating at a suitable viscosity for dipping (56 to 60 mPa s @ 22 °C). ACT is added periodically as the solvent evaporates. The viscosity should be checked using a Ford No. 4 ASTM flow cup.

The board assemblies should be immersed in the APL5050 dipping tank in either the horizontal or vertical position, or at an angle that achieves the best results that suit the assembly configuration. Connectors should not be immersed in the liquid unless they are very carefully masked. Our Peelable Coating Mask (PCM) is ideal for this application. The immersion rate is very important, and tests should be conducted to ensure the optimal procedure for the application. A pneumatic (air or oil) semi-automatic dip coating machine is best suited for this method. Leave submerged for approximately 5 to 10 seconds until the air bubbles have dispersed. The board or boards should then be withdrawn slowly (0.5 to 2 Seconds / mm) so that an even film covers the surface. After withdrawing, the boards should be left to drain over the tank or drip tray 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.

INSPECTION

APL5050 contains a UV trace, which allows inspection of the PCB after coating to ensure complete and even coverage; the stronger the reflected UV light, the thicker the coating layer is. UV light in the region of 375 nm should be used for inspection.

ADDITIONAL INFORMATION

Shelf Life: 72 Months

SAFETY & WARNING

It is recommended that the company/operator read and review the Safety Data Sheets for the appropriate health and safety warnings before use. **Safety Data Sheets are available.**

CONTACT INFORMATION

www.macdermidalpha.com

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