MacDermid Alpha ELECTRONICS SOLUTIONS

TECHNICAL DATA SHEET

Electrolube® AFA-F

Aromatic-Free Acrylic Coating (Film-Coat)

DESCRIPTION

Electrolube® AFA-F is an acrylic conformal coating formulated especially for use with selective coating machines using non-atomized film-coat applicators. The coating is formulated without the use of hazardous aromatic solvents. It has been designed for the protection of electronic circuitry and meets the requirements of many industry standards. AFA is UL recognized, achieving UL94 V-0.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

FEATURES AND BENEFITS

- Fast touch dry time; specially formulated for use in non-atomized film-coat applicators
- Transparent coating with excellent clarity and UV resistance; ideal for LED applications
- Outstanding salt-mist resistance and excellent adhesion to a variety of substrates
- Reduces operational hazards; free from aromatic solvents such as Toluene and Xylene

APPROVALS

Standard	Status
RoHS Compliant (2015/863/EU)	Yes
IPC-CC-830	Meets Requirements
UL Approval	UL746-QMJU2 (File: E138403)

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)	0.87
VOC Content	80 %
Flash Point (°C)	Approximately -7
Solid Content	19 ± 2 %
Viscosity (mPa.s @ 25 °C)	60 to 80
Touch Dry	5 to 10 minutes
Recommended Curing Time 25 °C 70 °C	 24 hours 30 minutes
Coverage @ 25µm	8 m^2/L
Dry Film Coating	
Color	Colorless
Operating Temperature Range (°C)	-65 to 125
Flammability	UL94 V-0
Thermal Cycling (IPC-CC-830B)	Meets Requirements
Coefficient of Expansion (ppm)	130
Dielectric Strength (kV/mm)	155
Dielectric Constant	2.5
Surface Insulation Resistance (Ω)	1 x 10^{15}
Comparative Tracking Index (Volts)	>300
Dissipation Factor @ 1MHz, 25 °C	0.01
Moisture Resistance (IPC-CC-830B)	Meets Requirements

APPLICATION GUIDELINES

AFA-F has been specifically designed for spray applications. The thickness of the coating depends on the application parameters (typically 25 to 75 microns). Temperatures of less than 16 °C or relative humidity in excess of 75% are unsuitable for its application. As is the case for all solvent based conformal coatings, adequate extraction should be used (refer to SDS for further information).

Although AFA-F displays outstanding adhesion to a variety of substrates, it is recommended that substrates should be thoroughly cleaned before coating. This is required to ensure that satisfactory adhesion to the substrate is achieved and to prevent flux residues causing corrosion on the PCB. In a 'no-clean' assembly process, the user should evaluate materials compatibility to ensure the combination of materials is fit for purpose and capable of withstanding the expected end-use environment. We manufacture a range of cleaning products using both hydrocarbon solvent and aqueous technology, which all produce results within Military specification.

APPLICATION GUIDELINES - BULK

Spraying - Bulk

AFA-F has been specifically formulated for use with selective coating machines using non-atomized or film-coating applicators. The material is supplied in a convenient, ready-to-use form, removing the need for on-site mixing and eliminating opportunities for error and variation in process. Optimum fluid pressures, valve settings, application speeds etc. will depend upon many factors and will vary from machine to machine and from circuit board to circuit board. Initial tests should be conducted to establish the correct parameters to achieve the desired coating application.

TYPICAL PRODUCT APPLICATION

Brushing

Ensure that the coating material has been agitated thoroughly and has been allowed to settle for at least 2 hours at ambient temperature. When the brushing operation is complete the boards should be placed in an air-circulating drying cabinet and left to dry. Brushing is only advised for touch-up or rework application.

INSPECTION

AFA-F 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 375nm should be used for inspection.

ADDITIONAL INFORMATION

Shelf Life

Description	Shelf Life
AFA-F Conformal Coating	24 Months
ULS Removal Solvent Bulk Aerosol	 72 Months 36 Months
AFA Gel	12 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

To confirm this document is the most recent version, please contact
TechnicalSupportTeam@hkw.co.uk
www.

North America	Europe	Asia
140 Centennial Avenue Piscataway, NJ 08854, USA 1.800.367.5460	Ashby Park Coalfield Way Ashby de la Zouch Leicestershire, LE65 1JR, UK 44.01530.41960	8/F., Two Sky Parc 51 Hung To Road Kwun Tong, Kowloon, Hong Kong, SAR China 852.2500.5365

Also read carefully warning and safety information on the Safety Data Sheet. This data sheet contains technical information required for safe and economical operation of this product. READ IT THOROUGHLY PRIOR TO PRODUCT USE . Emergency safety directory assistance: US 1 202 464 2554, Europe + 44 1235 239 670, Asia + 65 3158 1074, Brazil 0800 707 7022 and 0800 172 020, Mexico 01800 002 1400 and (55) 5559 1588

DISCLAIMER: All statements, technical information and recommendations contained herein are based on tests we believe to be reliable, but the accuracy or completeness thereof is not guaranteed. No statement or recommendation shall constitute a representation unless set forth in an agreement signed by officers of seller and manufacturer. NO WARRANTY OF MERCHANTABILITY, WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY IS MADE. The following warranty is made in lieu of such warranties and all other warranties, express, implied, or statutory. Products are warranted to be free from defects in material and workmanship at the time sold. The sole obligation of seller and manufacturer under this warranty shall be to replace any noncompliant product at the time sold. Under no circumstances shall manufacturer or seller be liable for any loss, damage or expense, direct, indirect, incidental or consequential, arising out of the inability to use the product. Notwithstanding the foregoing, if products are supplied in response to a customer request that specifies operating parameters beyond those stated above, or if products are used under conditions exceeding said parameters, the customer by acceptance or use thereof assumes all risk of product failure and of all direct, indirect, incidental and consequential damages that may result from use of the products under such conditions, and agrees to exonerate, indemnify, defend and hold harmless MacDermid, Incorporated and its affiliates therefrom. No suggestion for product use nor anything contained herein shall be construed as a recommendation to use any product in a manner that infringes any patent or other intellectual property rights, and seller and manufacturer assume no responsibility or liability for any such infringement.

© 2019 MacDermid, Inc. and its group of companies. All rights reserved. "(R)" and "TM" are registered trademarks or trademarks of MacDermid, Inc. and its group of companies in the United States and/or other countries.