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TECHNICAL BULLETIN

ALPHA® SM351F

No Clean Flux

DESCRIPTION

ALPHA SM351F is a very efficient halide-free and rosin/resin free, low solids, no-clean flux. After soldering, a very small amount of barely visible residue is left which is tack-free and non-corrosive.

ALPHA SM351F meets the IPC-SF-818 standard requirements for classification as Flux Type L3NC, for use with electronic circuits of the higher level of reliability. **ALPHA SM 351F** fully complies with Bellcore specification TR-NWT-000078.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

FEATURES & BENEFITS

- Very Low Solids
- Non-Corrosive Residues
- Fast Wetting
- Tack-Free Residues
- Eliminates the need for cleaning
- High SIR assemblies
- Defect Free Soldering
- Accurate Pin Testing

APPLICATION GUIDELINES

ALPHA SM351F flux is engineered for foam and wave applications. Topside preheat temperature of 80 to 105 °C are recommended.

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TECHNICAL DATA

Item	Typical Values	Item	Typical Values
Appearance	Clear, pale yellow liquid	IPC J-STD-004 Designation	ORL0
Solids Content, wt/wt	2.1%	Recommended Thinner	ALPHA SM-2010V
Specific Gravity @ 25 °C (77 °F)	0.812 ± 0.005		
Acid Number (mg KOH/g)	16.5 ± 1.0	Shelf Life (from Date of Mfg.)	540 days
Flash Point (T.C.C.)	11°C	Packaging Size	25 Liters

CORROSION & ELECTRICAL TESTING

Corrosion Test

Test	Requirement	Results
Silver Chromate Paper (IPC / Bellcore Method)	No detection of Halide	PASS
Copper Mirror Test (IPC / Bellcore Method)	No Complete Removal of Copper	PASS
Copper Corrosion Test (IPC-SF-818)	No Evidence of Corrosion	PASS
IPC Flux Classification	Type L3NC	PASS

Surface Insulation Resistance (All values in ohms)

Method	Condition	Requirement	Results
IPC-SF-818	85 °C / 85% RH	> 1.0×10^8	1.3×10^9
Class 3, Uncleaned	7 days		

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Bellcore Surface Insulation Resistance (All values in ohms)

Test	Condition	Requirement	Results
"Comb-Down" Un-cleaned	35°C/85% RH, 5 days (4 days with bias voltage)	> 1.0×10^{11}	2.6×10^{12}
"Comb-Up" Un-cleaned	35°C/85% RH, 5 days (4 days with bias voltage)	> 1.0×10^{11}	9.3×10^{11}
Control Boards	35°C/85% RH, 5 days (4 days with bias voltage)	> 2.0×10^{11}	3.2×10^{12}
Test Condition: Bellcore-TR0NWT-000078, Issue 3			

BELLCORE ELECTROCHEMICAL MIGRATION RESISTANCE (All values in ohms)

Test	Condition	SIR (Initial)*	SIR (Final)*	Visual Result
"Comb-Up"	85 °C/85% RH, 500 hrs with 10V bias	10.2×10^{9}	6.7×10^{9}	No dendrites or corrosion
"Comb-Down"	85 °C/85% RH, 500 hrs with 10V bias	3.0×10^{9}	5.2×10^{9}	No dendrites or corrosion
*For passing SIR (Initial)/SIR (Final) <10		Test Condition: Bellcore TR-NWT-000078, Issue 3		

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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 at MacdermidAlpha.com/assembly-solutions/knowledge-base**

CONTACT INFORMATION

To confirm this document is the most recent version, please contact Assembly@MacDermidAlpha.com

www.macdermidalpha.com

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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

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