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TECHNICAL BULLETIN

ALPHA® PV-50

No-Clean Tabbing And Stringing Flux

DESCRIPTION

ALPHA PV-50 Tabbing and Stringing flux is our lowest solids, alcohol based, zero-halogen, halide and rosin free formulation designed to provide the attributes of excellent solderability in module assembly processes where low temperature or no pre-heating is followed by a soldering step using standard heating methods. Delivers high reliability in both Pb-free and SnPb applications. Additionally, it provides outstanding solder joint cosmetics with a uniform, tack free residue and low equipment maintenance.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

FEATURES & BENEFITS

- Very low solids produces high electrical reliability, low, tack-free, residues and minimal assembly equipment maintenance and cleaning
- Fast wetting
- Defect-free soldering
- Accurate in circuit testing
- Can be applied by spray or other application method

APPLICATION GUIDELINES

ALPHA PV-50 flux is engineered for most standard solar module assembly applications. Perfect for processes using no pre-heat or low temperature pre-heating along with standard temperature reflow, no special cooling or pre-bake required. Care should be taken to ensure flux is applied only to those areas being soldered and to avoid overspray or other excessive loading. Like all no-clean fluxes, no post process cleaning is needed.

ALPHA PV-50 flux can be maintained by titration. Assistance in controlling the flux by this method can be obtained through our technical department.

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TECHNICAL DATA

Physical Properties	Typical Values	Parameters/Test Method	Typical Values
Appearance	Colorless to light yellow liquid	pH, 5% v/v aqueous solution	2.8 to 4.2
Solids Content, wt/wt	1.36%	Recommended Thinner	ALPHA 425
Specific Gravity @ 25 °C (77 °C)	0.798 to 0.804	Shelf Life	12 months
Acid Number (mg KOH/g)	10.7 ± 1.1	IPC J-STD-004 Designation	ORL0
Flash Point (T.C.C.)	13 °C		

CORROSION & ELECTRICAL TESTING

Corrosion Testing

Test	Requirement for ORL0	Results
Silver Chromate Paper IPC-TM 650 Test Method 2.3.33	No detection of halide	Pass
Copper Mirror Tests IPC-TM 650 Test Method 2.6.15	No complete removal of copper	Pass
Copper Corrosion Test IPC-TM 650 Test Method 2..3.32	No evidence of corrosion	Pass

J-STD-004B TM 2.6.3.7 Surface Insulation Resistance

Test	Requirements	Lowest Recorded Reading[1]	Day 7 Results[2]
"Comb-Down" Un-cleaned	$1.0 \times 10^8\ \Omega$ minimum	$2.5 \times 10^8\ \Omega$	$2.2 \times 10^9\ \Omega$
"Comb-Up" Un-cleaned	$1.0 \times 10^8\ \Omega$ minimum	$1.9 \times 10^9\ \Omega$	$5.0 \times 10^{10}\ \Omega$
Control Boards	$2.0 \times 10^8\ \Omega$ minimum	$7.9 \times 10^8\ \Omega$	$1.0 \times 10^{11}\ \Omega$

IPC Test Condition (per J-STD-004B / IPC-TM-650 Test Method 2.6.3.7): 40 °C/90% RH, 12.5V bias, measurements taken every 20 minutes for 7 days, IPC B-24 board (0.4 mm lines, 0.5 mm spacing).

[1] – This is the lowest reading observed out of 4545 total readings recorded

[2] – This is the geometric mean of the 9 final readings recorded for the 3 coupons tested.

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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

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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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