

## ALPHA<sup>®</sup> PV-88

### No-Clean Tabbing and Stringing Flux

#### DESCRIPTION

**ALPHA PV-88** Tabbing and Stringing Flux is an alcohol based, low solids, low pollution formulation designed to provide excellent solder ability in standard module assembly processes using widely used and common (preheat and soldering) methods both on spray on cell and spray on ribbon applications. **ALPHA PV-88** delivers high reliability in both Pb-free and SnPb applications. Additionally, it provides excellent solder joint cosmetics with uniform tack free residues and very low equipment maintenance.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

#### FEATURES & BENEFITS

- Low solids
- Minimal equipment maintenance and cleaning
- Fast wetting
- High reliability
- Defect-free soldering
- Can be applied by spray or other methods

#### APPLICATION

ALPHA PV-88 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-88 flux can be maintained by titration. Assistance in controlling the flux by this method can be obtained through our technical department. Acid number should be controlled between 11.4 to 12.6.

**TECHNICAL DATA**

Parameter	Typical Value	Parameter	Typical Values
Appearance	Clear, colorless to pale yellow liquid	pH, 5% v/v aqueous solution	2.6
Solids Content, wt/wt	1.70%	Flash Point (T.C.C)	17 °C
Specific Gravity @ 25 °C (77 °F)	0.802 +/- 0.002	Shelf Life	360 Days
Acid Number (mg KOH/g)	12.0 +/- 0.6	IPC J-STD-004B Designation	ORL0

**CORROSION & ELECTRICAL TESTING**
**Corrosion Testing**

Test	Requirement	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-004A Surface Insulation Resistance**

Test	Conditions	Requirements	Results
"Comb-Down" - Uncleaned	85 °C/85% RH, 7 days	> 1.0 x 10 <sup>8</sup> Ω	6.5 x 10 <sup>8</sup> Ω
"Comb-Up" - Uncleaned	85 °C/85% RH, 7 days	> 1.0 x 10 <sup>8</sup> Ω	4.4 x 10 <sup>9</sup> Ω
IPC J-STD-004 - Control Boards	85 °C/85% RH, 7 days	> 1.0 x 10 <sup>9</sup> Ω	3.3 x 10 <sup>9</sup> Ω
IPC Test Condition (per J-STD-004): 85 °C/85%RH/7days/-50V, measurement @ 100V/IPC B-24 board (0.4mm lines, 0.5mm spacing). All values in ohms.			

**Bellcore Electromigration**

Test	SIR (Intial)	SIR (Final)	Requirement	Result	Visual Result
"Comb-Up" Uncleaned	$6.2 \times 10^{10} \Omega$	$3.8 \times 10^{11} \Omega$	$SIR(Intial) / SIR(Final) < 10$	Pass	Pass
"Comb-Down" Uncleaned	$1.4 \times 10^9 \Omega$	$1.2 \times 10^{11} \Omega$	$SIR(Intial) / SIR(Final) < 10$	Pass	Pass
Bellcore Test Condition (per GR 78-CORE, Issue1): 65 °C/85% RH/500 Hours/10V, measurement @ 100V/IPC B-25B Pattern (12.5 mil lines, 12.5 mil spacing). All values in ohms.					

**RECYCLING SERVICES**

We provide safe and efficient recycling services to help companies meet their environmental and legislative requirements and at the same time, maximize the value of their waste streams.

Our service collects solder dross, solder scrap, and various forms of solder paste waste. Please contact your local sales representative for recycling capabilities in your area or [link here](#).



**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](http://MacdermidAlpha.com/assembly-solutions/knowledge-base).**

**STORAGE**

Flux is stable up to 360 days when stored in original unopened container at (6 to 43 °C).

**CONTACT INFORMATION**

**To confirm this document is the most recent version, please contact [Assembly@MacDermidAlpha.com](mailto:Assembly@MacDermidAlpha.com)**

[www.macdermidalpha.com](http://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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