

## ALPHA<sup>®</sup> SF828-MBB

**Low Solids, High Activity, Low Residue Liquid Flux for Advanced Multi-Busbar Photovoltaic Interconnections**

### DESCRIPTION

**ALPHA SF828-MBB** is a low solids content, alcohol based, zero-rosin, no-clean liquid flux for most standard and multi-busbar photovoltaic (PV) interconnections. ALPHA SF828-MBB contains a unique blend of ingredients that overcome the smaller surface area of wire  $\leq 0.4\text{mm}$  used in ever evolving multi-busbar technology to achieve excellent interconnection. It exhibits properties that enable a wide process window and minimal heating requirement before fluxing. It delivers excellent peel force that results in long term reliability of the solder joints. Cells are dry and cosmetically clean as they exit the tabber and stringer equipment. **ALPHA SF828-MBB** is classified as ORL0 under J-STD-004.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

### FEATURES & BENEFITS

- Fast wetting with minimal or no heating prior to wire ribbon dipping for higher process efficiency.
- High peel strength – Good soldering yields satisfactory ribbon-cell interconnection.
- Reduced placement slipping for improved production yields.
- Less residue to support higher power transfer efficiencies and less equipment maintenance.
- Superb adhesion and no yellowing and bubbling across different EVA laminations.
- Compatible with conduction, IR and convection soldering.
- Suitable for dipping, soaking and spraying application methods.
- Passes accelerated environmental testing e.g., Damp Heat Test and Thermal Cycling.
- Halogen-Free

**APPLICATION GUIDELINES**

ALPHA SF828-MBB flux is engineered for most standard and advanced multi-busbar solar module assembly applications. Depending on the PV module design, process parameters may vary for optimized solder connection. Recommended preheating temperature is ~ 100 to 140 °C and soldering time ~ 2000 to 2800 milliseconds on SnPb finishes. Flux heating in wire dip tank equipment is generally not required. However, if flux heating is still preferred, the recommended heating temperature is ~ 25 to 35 °C.

Standard reflow temperatures should be used with no special cooling or pre-bake required. Care should be taken to ensure flux is applied only to those areas being soldered. Like all no-clean fluxes, no post process cleaning is needed.

**HALOGEN STATUS**

Halogen Standards			
Standard	Requirement	Test Method	Status
IEC 61249	Flux contains <900ppm each or total of <1500ppm Br or Cl from flame retardant source	BS EN 14582	PASS
JEDEC A Guideline for Defining "Low Halogen" Electronic Products	Flux contains <1000ppm Br or Cl from flame retardant source		PASS

**TECHNICAL DATA**

Item	Typical Values	Item	Typical Values
Appearance	Clear, Colorless to Pale Yellow Liquid	Flash Point (T.C.C.)	12 °C
Solids Content, %wt/wt	2.0	Recommended Thinner	ALPHA 425
Specific Gravity@ 25 °C	0.793 ± 0.005	Shelf Life (from Date of Mfg.)	360 Days
Acid Number (mg KOH/g)	15.8 ± 1.0	IPC J-STD-004 Designation	ORL0

**CORROSION & ELECTRICAL TESTING**

Test	Requirement	Results
Silver Chromate Paper IPC-TM-650 Test Method 2.3.33	No detection of halide	PASS
Copper Mirror Test IPC-TM-650 Test Method 2.3.32	No evidence of mirror breakthrough for L Classification	PASS
Copper Corrosion Test IPC-TM-650 Test Method 2.6.15	No evidence of corrosion for L classification	PASS

**IPC J-STD-004 Surface Insulation Resistance (All values in ohms)**

Test	Condition	Requirement	Results
IPC-TM-650 Test method 2.6.3.3	85 °C / 85% RH / 7 days	1.0 x 10 <sup>8</sup> minimum	Pass

**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 wire and ribbon scrap. Please contact your local sales representative for recycling capabilities in your area.



**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.**

**STORAGE**

ALPHA SF828-MBB is flammable. Store away from sources of ignition. Store the flux properly at 10 to 43 °C(50 to 110 °F).

**CONTACT INFORMATION**

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

<p><b>North America</b> 140 Centennial Avenue Piscataway, NJ 08854 1.800.367.5460</p>	<p><b>Europe</b> Unit 2, Genesis Business Park Albert Drive Woking, Surrey, GU21 5RW, UK 44.01483.758400</p>	<p><b>Asia</b> 8/F., Two Sky Parc 51 Hung To Road Kwun Tong, Kowloon, Hong Kong, SAR China 852.2500.5365</p>
---------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------

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.