

ALPHA[®] PV-38I

No-Clean Tabbing and Stringing Flux

DESCRIPTION

ALPHA PV-38i is a zero rosin, no-clean flux specifically designed to meet the demanding requirements of the photovoltaic industry. This tabbing and stringing flux has the lowest solids formula (1.10%) available in the industry. **ALPHA PV-38i** also employs a unique proprietary activator system that limits pollution inside tabbing and stringing equipment and spray nozzles, with practically zero residue after soldering. This formula also allows an extended shelf life versus many other competitive fluxes in the industry. The unique chemistry of **ALPHA PV-38i** provides excellent soldering with fast wetting in standard module assembly processes; using widely used (preheat and soldering) methods for both spray on cell or dip applications.

ALPHA PV-38i is an alcohol based, low pollution formulation delivering reliability in both Pb-free and SnPb applications. Additionally, it provides excellent solder joint cosmetics with uniform tack free residues providing low equipment maintenance. Cells are cosmetically clean and dry after soldering.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

FEATURES & BENEFITS

- Lowest solids level tabbing & stringing flux in the market
- Minimal equipment maintenance and cleaning
- Fast wetting
- High reliability
- Defect-free soldering
- High throughput processing
- Can be applied by common spray or dip methods
- Compatible with a wide range of EVA materials
- 720 day shelf life
- RoHS & REACH compliant

APPLICATION GUIDELINES

ALPHA PV-38i flux is engineered for use in most standard solar module assembly applications, non- contact and high speed systems. Perfect for processes using no pre-heat or low temperature pre-heating along with standard temperature reflow, no special cooling or pre-bake is 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-38i flux can be maintained by titration. Assistance in controlling the flux by this method can be obtained through our Customer Technical Service department. Acid number should be controlled between 4.92 to 7.39.

TECHNICAL DATA

Item	Typical Values	Item	Typical Values
Appearance	Clear, Colorless Liquid	pH, (5% aqueous)	~3.5
Solids Content, wt/wt	1.10 ± 0.2%	Flash Point (T.C.C.)	11.7 °C
Specific Gravity @ 25 °C (77 °C)	0.798 to 0.812	Shelf Life (from Date of Mfg)	720 Days
Acid Number (mg KOH/g)	5.5 Note: Acid# is based on the "as manufactured" flux. PV-38i contains a liquid ingredient which activates during soldering, greatly improving wetting.	IPC J-STD-004A Designation	ORL0

CORROSION AND ELECTRICAL TESTING
Corrosion Test

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	$> 1.0 \times 10^8 \Omega$	$8.65 \times 10^{11} \Omega$
"Comb-Up" - Uncleaned	85 °C/85% RH, 7 days	$> 1.0 \times 10^8 \Omega$	$6.47 \times 10^{12} \Omega$
IPC J-STD-004 - Control Boards	85 °C/85% RH, 7 days	$> 1.0 \times 10^9 \Omega$	$4.18 \times 10^{12} \Omega$
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.			

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**

STORAGE

Flux is stable up to 720 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
www.macdermidalpha.com**

<p>North America 109 Corporate Blvd. South Plainfield, NJ 07080, USA 800.367.5460</p>	<p>Europe Unit 2, Genesis Business Park Albert Drive Woking, Surrey, GU21 5RW, UK 01483.758400</p>	<p>Asia 8/F., Paul Y. Centre 51 Hung To Road Kwun Tong, Kowloon, Hong Kong 852.3190.3100</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.