

ALPHA[®] WS-698 PASTE FLUX

Water-Soluble High Activity Flux for Semiconductor Applications

DESCRIPTION

ALPHA WS-698 Paste Flux is engineered to be water-soluble and designed for soldering a variety of lead-free and tin-lead eutectic alloys onto area array packages. It offers excellent compatibility with Cu-OSP, electrolytic Ni-Au, and ENIG pad finishes.

ALPHA WS-698 Paste Flux halogen-free compliant and provides superior fluxing activity, resulting in improved wetting, spread, and reduced missing ball rate/yield. Given its high fluxing activity, it is advisable not to use it as a pre-cleaning flux for cleaning substrates and boards.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

FEATURES AND BENEFITS

- **Performance Characteristics:** Superior wetting enhances assembly yields, resulting in optimal ball attach and flip chip yield rates.
- **Excellent Stability:** Maintains tack and viscosity over multiple print cycles (up to 8 hours without replenishment).
- **Superior Cleanability:** Excellent cleanability, with residues easily removed with DI water.
- **Environmentally Friendly Formulation:** Halogen-free.

TECHNICAL SPECIFICATIONS

Properties	Typical Values	Procedures/Remarks
Activity Level (J-STD Classification)	ORH0	IPC-J-STD-004
Copper Corrosion Test (after washing)	Pass, no evidence of Corrosion	IPC-J-STD-004
pH (5% Solution)	3 to 6	IPC-TM-650 pH Meter
Appearance	Light Amber, Smooth	ASP-WI-QC-009FS
Tack Strength (Time-0)	> 140 gF	IRC-SOP-CSP 0011
Viscosity @ 10rpm	250 to 550 Poise	GLB-AMG-STM00541
SIR (IPC 7 days @ 85 °C/85% RH)	Pass, > 1.9 x 10 ¹⁰ Ω	IPC-TM-650 (2.6.3.3)
Packaging Size	150g cartridge, 30g syringe	-

For other packaging sizes and requirements, contact your local MacDermid Alpha Sales Office.

APPLICATION GUIDELINES

ALPHA WS-698 Paste Flux is commonly used in printing, ball dipping applications and is compatible with pin transfer. It is suitable for components like BGA/CSP and Flip Chip. Applications include but are not limited to processes of Ball Attach and Flip Chip Attach.

For other application requirements, contact your local MacDermid Alpha Sales Office.

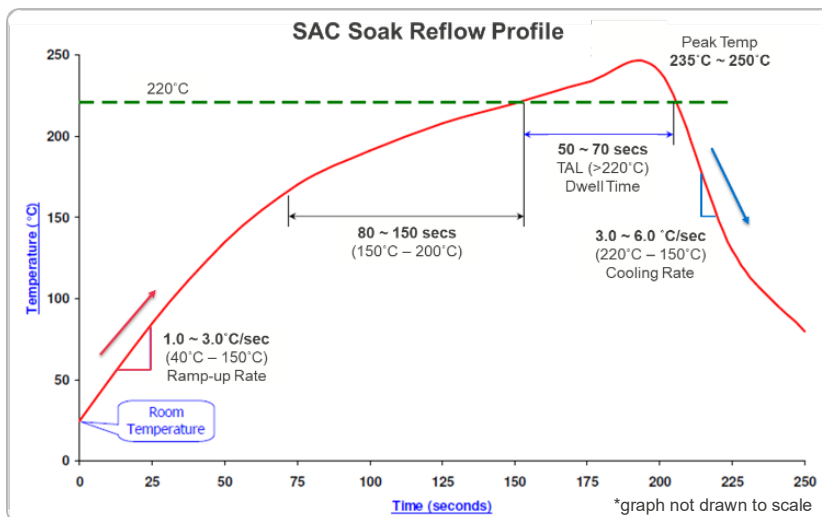
PROCESSING GUIDELINES

Storage Conditions:

- Stored in sealed containers at 15 to 25 °C and does not require refrigeration.
- Shelf life of unopened containers is nominally 6 months from manufacture date.

Recommended Reflow Profile:

- Reflow Atmosphere: Performed in a nitrogen-controlled atmosphere, with recommended oxygen level at ≤ 100 ppm.
- Initial Ramp Rate: Between 1.0 to 3.0 °C/sec to peak temperature.
- Soak: Between 150 to 200 °C for 80 to 150 seconds.
- Time Above Melting Point: It should not exceed 50 to 70 seconds.
- Cooling Rate: Between 3.0 to 6.0 °C/sec to room temperature.



Note: Reflow guidelines are recommendations and baseline parameters that may require customization based on component thermal profiles, device package design, flux characteristics, oven calibration, and environmental condition.

For other cleaning and reflow profiles, contact your local MacDermid Alpha Sales Office.

Post-Reflow Cleaning:

- Use DI water at temperatures of 55 to 60 °C with spray pressures of 35 to 60 psi (for Ball Attach) and 50 to 60 psi (for Flip Clip) to remove residues.
- Cleaning of the flux residues, if required, can be done using cleaning agents.
- For optimal results, follow cleaning instructions provided by commercially available cleaners.

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.**

WASTE TREATMENT

Prior to using any recommendations or suggestions for waste treatment, the user is required to know the appropriate local/state/federal regulations for on-site or off-site treatment which may require permits. If there is any conflict regarding our recommendations, local/state/federal regulations take precedent.

CONTACT INFORMATION

www.macdermidalpha.com

North America 140 Centennial Avenue Piscataway, NJ 08854 1.800.367.5460	Europe Unit 2, Genesis Business Park Albert Drive Woking, Surrey, GU21 5RW, UK 44.01483.758400	Asia 14 Joo Koon Crescent, Singapore 629014 65.6430.0700
---	---	--

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.