

# ALPHA<sup>®</sup> HF-1 FLUX GEL

Rosin-Based Paste Flux

Americas Only

## DESCRIPTION

**ALPHA HF-1 Flux Gel** is a rosin-based paste flux designed for rework of surface mount and other demanding electronic assembly applications. Because of its unique activator package and other special additives, **ALPHA HF-1 Flux Gel** is suitable to remain on the circuit board without cleaning. **ALPHA HF-1 Flux Gel**'s activator system also enables the flux to penetrate even moderately tarnished surfaces.

\* Process settings may need to be adjusted in special instances.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

## FEATURES AND BENEFITS

- **Wide Reflow Profile Window:** allows best quality solderability of complicated, high-density PWB assemblies in both air and nitrogen reflow, using straight ramp or soak profiles up to 300 °C.
- **Excellent Solder Joint and Flux Residue Cosmetics:** after reflow soldering even using long/high thermal soaking without charring or burning.
- **Broad Range of Rework Capabilities:** Can be used for all touch up & hand soldering operations as well as BGA repair/re-balling and QFN/LGA repair.

## PRODUCT INFORMATION

Packaging Sizes: 30cc syringe, 100 gram jar

Environmental Compliance: Complies with RoHS Directive 2011/65/E

**APPLICATION GUIDELINES**

ALPHA HF-1 Flux Gel Paste Flux may be applied by screen printing or pin transfer (substrate) or doctor blade / dip coating (package). It can also be dispensed.

ALPHA HF-1 Flux Gel can be safely left on the circuit board after reflow without cleaning. If cleaning is desired, most commercially available electronic assembly cleaning solvents are effective, including ALPHA 565. Flux residues are also removable by saponification with ALPHA 2110 in water.

**TECHNICAL DATA**

Category	Results	Procedure/Remarks
<b>Chemical Properties</b>		
Activity Level	ROLO	IPC J-STD-004
Cu Mirror Corrosion Test	<b>Pass</b>	IPC J-STD-004
Halide Content	<b>Halide - Free</b>	Based on Formulation
<b>Electrical Properties</b>		
SIR (Bellcore 96 hours @ 35 °C /85%RH)	<b>Pass</b> , $2.5 \times 10^{11}$ ohms	Bellcore GR78-CORE (Pass $\geq 1 \times 10^{11}$ ohm)
Electromigration (Bellcore 500 hrs @ 65 °C /85%RH 10V)	<b>Pass</b> , $2.2 \times 10^{10}$ ohms	Bellcore GR78-CORE (Pass=final > initial/10)
IPC SIR (7 days @ 85 °C/85% RH)	<b>Pass</b> , $1.1 \times 10^9$ ohms	IPC J-STD-004A (Pass > $10^8$ )
HP Electrochemical Migration (28 days @ 50 °C/90%RH 10V)	<b>Pass</b>	HP ECM
<b>Physical Properties</b>		
Color	Smooth, Amber Paste	
Viscosity 5rpm at 25 °C by Malcom Viscometer	400 to 1000 Poise	
Fineness of Grind (um)	<10 $\mu\text{m}$	

REFLOW PROFILES

Figure 1: Typical Lead-Free Reflow Profile

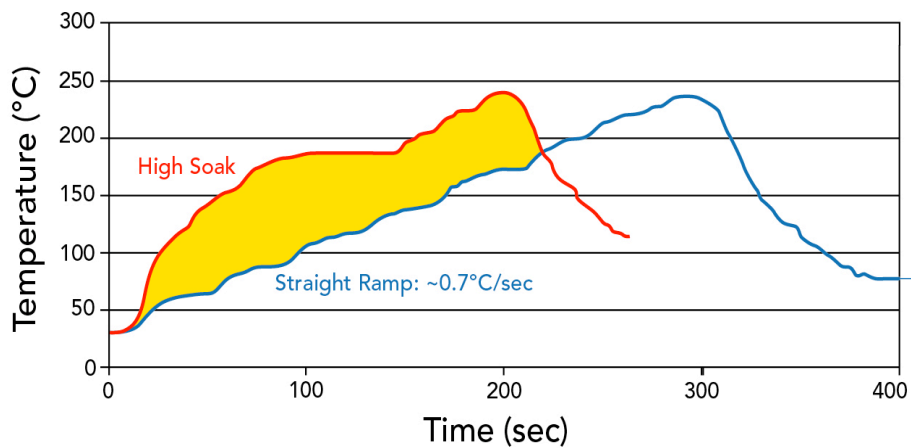
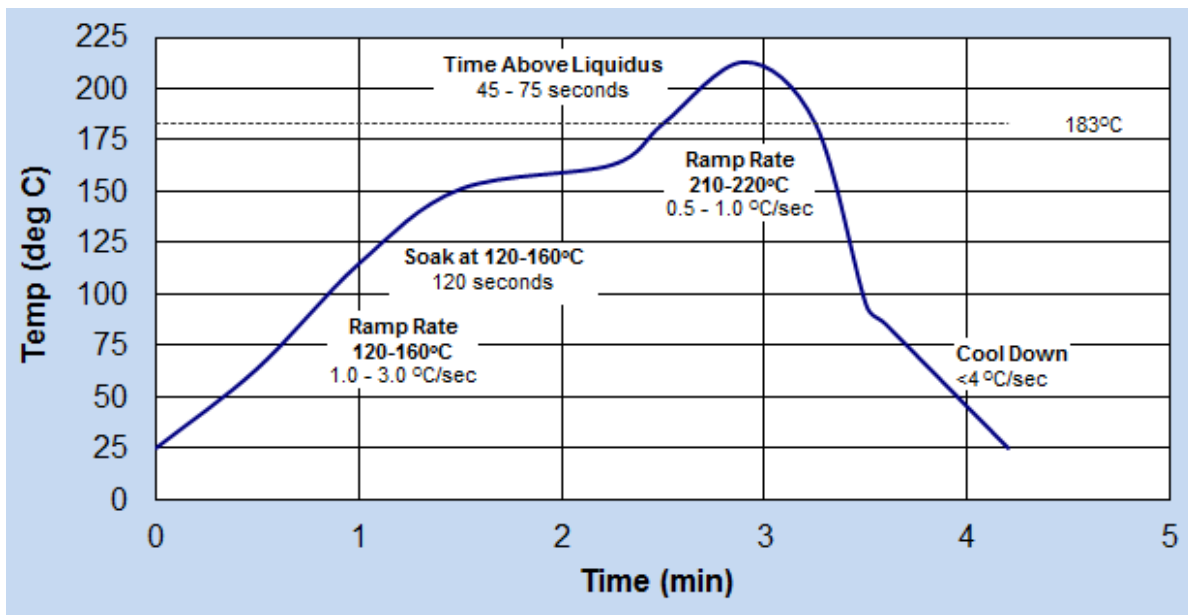


Figure 2: Typical 63Sn37Pb Reflow Profile



Note: This profile was tested in the lab with acceptable reflow and coalescence performance, optimization to each board application should still be carried out by users to ensure best results.

**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**

The flux should be stored in sealed containers and can be stored at room temperature up to 25 °C (77 °F) for up to 12 months. If the material has been refrigerated (stored @ 0 to 10 °C or 32 to 50 °F) then the container should be allowed to reach room temperature before opening in order to prevent moisture condensation from ambient air on the flux.

**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)

<p><b>North America</b> 109 Corporate Blvd. South Plainfield, NJ 07080, USA 800.367.5460</p>	<p><b>Europe</b> Unit 2, Genesis Business Park Albert Drive Woking, Surrey, GU21 5RW, UK 01483.758400</p>	<p><b>Asia</b> 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.