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TECHNICAL BULLETIN

ALPHA® 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

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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
Chemical Properties		
Activity Level	ROL0	IPC J-STD-004
Cu Mirror Corrosion Test	**Pass**	IPC J-STD-004
Halide Content	**Halide - Free**	Based on Formulation
Electrical Properties		
SIR (Bellcore 96 hours @ 35 °C /85%RH)	**Pass**, 2.5 x 10^{11} ohms	Bellcore GR78-CORE (Pass ≥ 1 x 10^{11} ohm)
Electromigration (Bellcore 500 hrs @ 65 °C /85%RH 10V)	**Pass,** 2.2 x 10^{10} ohms	Bellcore GR78-CORE (Pass=final > initial/10)
IPC SIR (7 days @ 85 °C/85% RH)	**Pass,** 1.1 x 10^{9} ohms	IPC J-STD-004A (Pass > 10^{8})
HP Electrochemical Migration (28 days @ 50 °C/90%RH 10V)	**Pass**	HP ECM
Physical Properties		
Color	Smooth, Amber Paste	
Viscosity 5rpm at 25 ºC by Malcom Viscometer	400 to 1000 Poise	
Fineness of Grind (um)	<10 μm	

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REFLOW PROFILES

Figure 1: Typical Lead-Free Reflow Profile

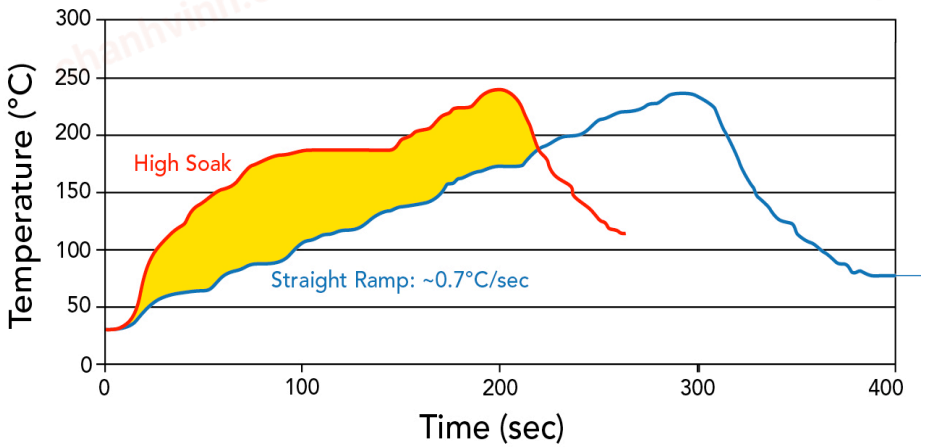
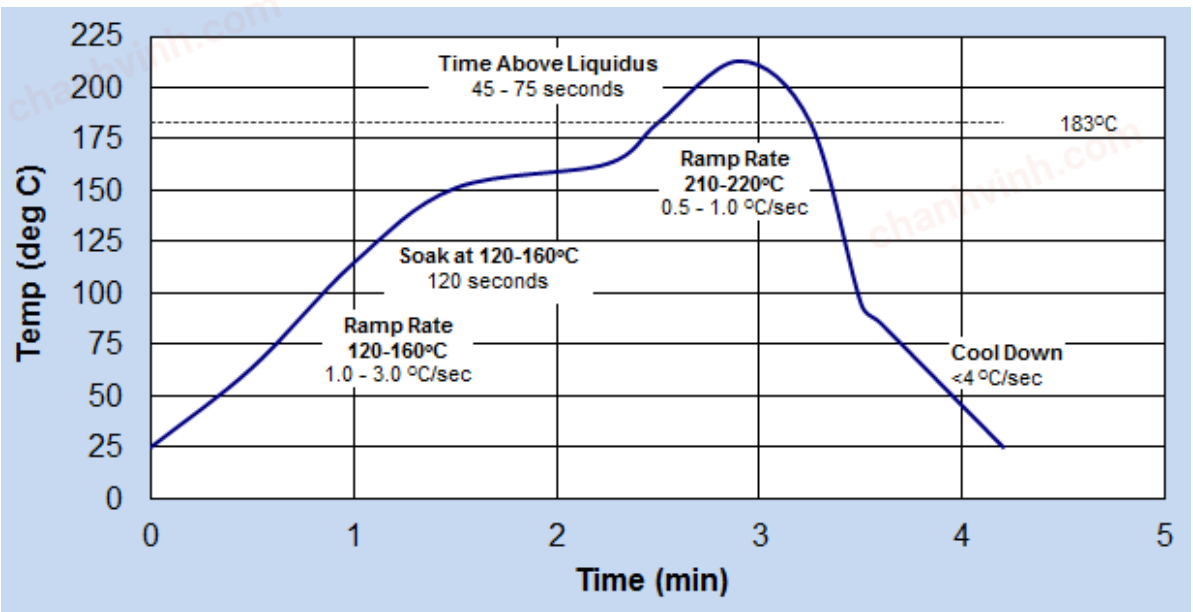


Figure 2: Typical 63Sn37Pb Reflow Profile



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.

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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

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

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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