

# ALPHA<sup>®</sup> WS-609 Paste Flux

Water-Soluble, Halide-Free, ORH0 Paste Flux

## DESCRIPTION

**ALPHA WS-609** is a water soluble flux engineered to be used in the placement and reflow of lead-free solders for BGA attach processes. Before reflow, the flux provides sufficient tack to hold the BGA in place. After reflow, the residue is clear and colorless. This paste flux can also be used in the rework of components.

**ALPHA WS-609** is a halide-free, neutral pH, water-soluble paste flux specifically designed for surface mount processes and other demanding electronics assembly applications where post-reflow water cleaning is used.

**ALPHA WS-609's** activator system enables the flux to penetrate tarnished surfaces among the following metals:

|                 |                  |                |                  |        |
|-----------------|------------------|----------------|------------------|--------|
| Silver          | Copper           | Gold           | Lead             | Bronze |
| Solder (Creams) | Solder (Hot Dip) | Tin (Hot Dip)  | Beryllium Copper | Brass  |
| Cadmium (Plate) | Tin (Plate)      | Nickel (Plate) | Terne (Plate)    |        |

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

## PRODUCT INFORMATION

|                                  |   |
|----------------------------------|---|
| <u>Packaging Sizes:</u>          | 30cc syringe, 100 gram jar                                  |
| <u>Environmental Compliance:</u> | RoHS Directive EU/2015/863; amending Annex II of 2011/65/EU |

## APPLICATION GUIDELINES

ALPHA WS-609 paste flux may be applied by screen printing or pin transfer (substrate) or doctor blade / dip coating (package). It can also be dispensed. For optimum printing performance, it is best to control the temperature and RH at 22 to 25 °C (71 to 77 °C) and 40 to 50% respectively. Higher temperature and humidity can affect viscosity which may negatively impact print performance.

**TECHNICAL DATA**

| Category                                       | Results       | Procedures/Remarks                                      |
|--|---------------|---|
| <b>Chemical Properties</b>                     |               |   |
| Activity Level                                 | ORH0          | IPC J-STD-004   |
| Halide Content                                 | Halide - Free | By Titration  |
| <b>Electrical Properties</b>                   |               |   |
| SIR (IPC 7 days @ 85 °C /85% RH)               | <b>Pass</b>   | IPC J-STD-004 (Pass ≥ 1 x 10 <sup>8</sup> ohm), cleaned |
| <b>Physical Properties</b>                     |               |   |
| Color  |               | Smooth, Amber Paste                                     |
| Viscosity (5rpm at 25 °C by Malcom Viscometer) |               | 500 Poise Typical                                       |
| Fineness of Grind (um)                         |               | Typically, <10 μm                                       |

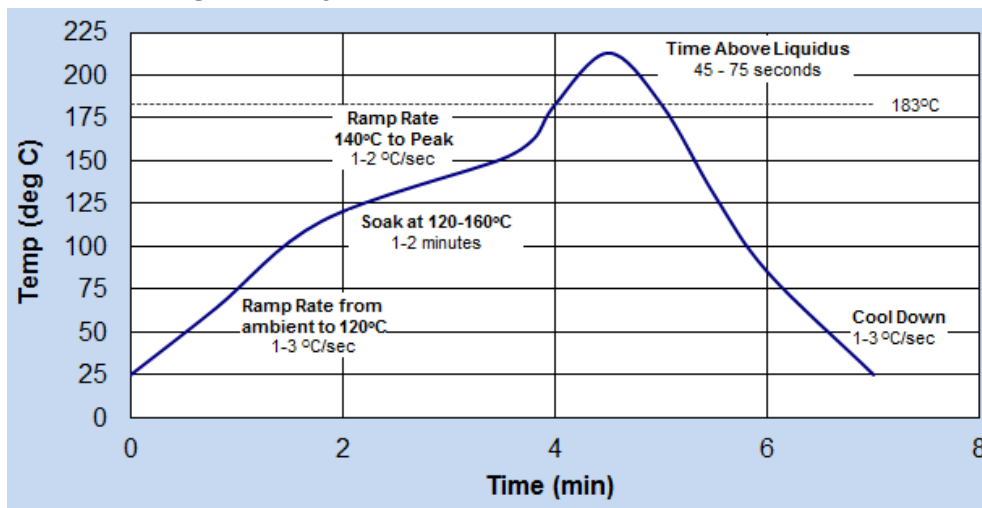
**PROCESSING GUIDELINES**
**Cleaning**

ALPHA WS-609 is a halide-free flux system designed for complete water cleanability of flux residues after reflow. Water at 60 °F (140 °F) without saponifier is suitable to achieve excellent cleaning results. Spray pressure of 35 to 65 psi are sufficient to remove all residues. Ionic contamination readings as low as 2.0 μg/in are possible with this very cleanable flux. Residues should be thoroughly cleaned within 48 hours after reflow to avoid the risk of corrosion and assembly degradation.

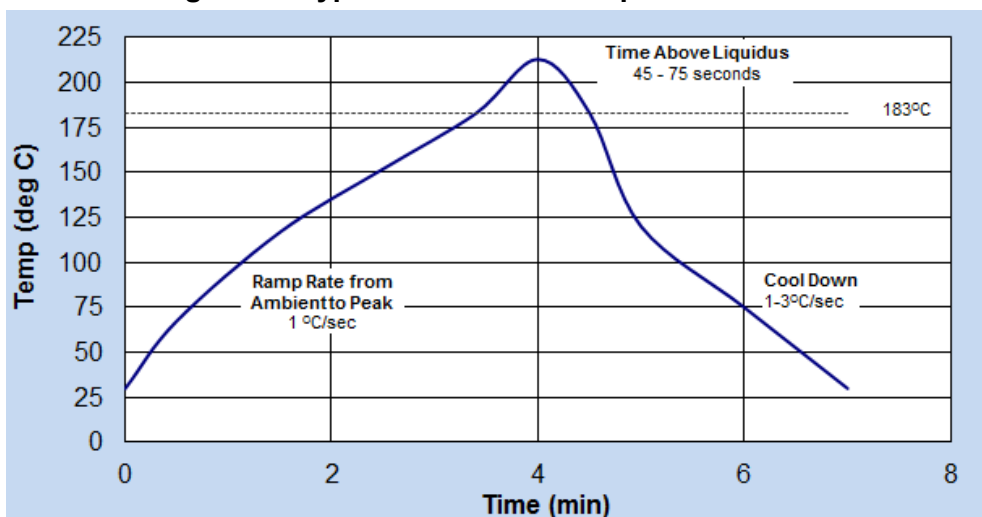
**REFLOW PROFILES**

ALPHA WS-609 can be successfully reflowed in IR, convection, hot stage, hot bar, hot belt or vapor phase systems.

**Figure 1: Typical 63Sn37Pb Soak Reflow Profile**



**Figure 1: Typical 63Sn37Pb Ramp Reflow Profile**



Note: These are profiles that were 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.

## 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 solder dross, solder scrap, and various forms of solder paste waste. Please contact your local sales representative for recycling capabilities in your area or [link here](#).



## 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](https://MacdermidAlpha.com/assembly-solutions/knowledge-base).**

## STORAGE

The flux should be stored in sealed containers and need not be refrigerated. Shelf life of unopened containers at room temperature (19 to 25 °C / 66 to 77 °F) is 6 months from the manufacturing date. If the material has been chilled, the container should be allowed to reach room temperature before opening to prevent moisture condensation from ambient air onto the flux. High ambient temperature should be avoided when handling the product. The production environment should be 21 to 26 °C / 70 to 80 °F and 30% to 60% RH. Clean up of the materials in the work area is achieved with hot water or with isopropyl alcohol. Local environmental and disposal regulations should be observed.

**CONTACT INFORMATION**

To confirm this document is the most recent version, please contact  
**Assembly@MacDermidAlpha.com**  
[www.macdermidalpha.com](http://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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