

ALPHA[®] FLS0017H

Low Solids No-Clean Flux

DESCRIPTION

ALPHA FLS0017H Flux is a low solid, alcohol-based, halide-free, no clean flux. With a unique activator system, good wetting and less bridging defect are achieved on both bare copper and solder-coated surface. The residue left on board after soldering is barely visible, non-corrosive, non-conductive, which is safe without removal and does not produce any interference with electrical testing.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

FEATURES AND BENEFITS

- Solderable to copper surface
- Excellent wetting
- Barely visible residue left, even with foam application, to provide cosmetic advantage and without interference in pin testing
- Reduces the surface tension between solder mask and solder to significantly reduce amount of solder ball

APPLICATION GUIDELINES

Operating Parameter	Typical Level
Amount of Flux Applied	Foam: 1,000 to 2,000 $\mu\text{g}/\text{in}^2$ of solids Spray: 750 to 1,500 $\mu\text{g}/\text{in}^2$ of solids
When foam fluxing Foam Stone Pore Size	20 to 50 μm
Distance that top of stone is submerged below flux	1 to 1½ inches (25 to 40 mm)
Foam Fluxer Chimney Opening	3/8 to 1/2 inch (10 to 13 mm)
When foam fluxing, use an Air Knife Air Knife Hole Diameter	1 to 1.5 mm
Distance Between Holes	4 to 5 mm

Distance from Fluxer to Air Knife	4 to 6 inches (10 to 15 cm)
Air Knife Angle Back toward Fluxer from Perpendicular	3 to 5°
Topside Preheat Temperature	85 to 110 °C
Bottomside Preheat Temperature	110 to 130 °C
Maximum Ramp Rate of Topside Temperature (to avoid component damage)	2 °C/second (3.5 °F/second) maximum
Conveyor Angle	5 to 8° (6° most common)
Conveyor Speed	1.0 to 1.8 meters/min (Typical 1.4 m/min)
Contact Time in the Solder (includes Chip Wave and Primary Wave)	1.5 to 3.5 seconds (2 to 2½ seconds most common)
Solder Pot Temperature	460 to 500 °F (235 to 260 °C)
<p>These are general guidelines which have proven to yield excellent results; however, depending upon your equipment, components, and circuit boards, your optimal settings may be different. To optimize your process, it is recommended to perform a designed experiment, optimizing the most important variables (amount of flux applied, conveyor speed, topside preheat temperature, and solder pot temperature).</p>	

Flux Solids Control: Flux applicators require the addition of flux thinner to replace evaporative losses and maintain the balance in flux composition. Due to the low solids content of this flux, specific gravity is not very accurate measure for assessing the solids content. Monitoring and controlling the acid number is recommended for maintaining the flux composition. The acid number should be controlled between 15.1 to 17.1. Titration can be done by Alpha titration kit #3.

TECHNICAL DATA

Item	Typical Values	Item	Typical Values
Appearance	Clear, Pale Yellow Liquid	Flash Point (T.C.C.)	17 °C
Solids Content, %wt/wt	4	Recommended Thinner	ALPHA 425
Specific Gravity @ 25 °C (77 °F)	0.810 ± 0.003	Shelf Life (from Date of Mfg.)	540 Days
Acid Number (mg KOH/g)	16.1 ± 1.0	IPC J-STD-004 Designation	ROL0
		Container Size Availability	1, 5 or 55 Gallons

CORROSION & ELECTRICAL TESTING
CORROSION TEST

Test	Requirements	Results
Silver Chromate Paper Test	No Detection of Halide	Passes
Copper Mirror Test	No Complete Removal of Copper	Passes
IPC Copper Corrosion Test	No Evidence of Corrosion	No Corrosion (Type L)

IPC J-STD-004 SURFACE INSULATION RESISTANCE (All values in ohms)

Test	Requirements	Results
IPC J-STD-004 Comb-Down Uncleaned	1.0 x 10 ⁸ minimum	3.9 x 10 ⁹
IPC J-STD-004 Comb-Up Uncleaned	1.0 x 10 ⁸ minimum	4.2 x 10 ⁹
IPC J-STD-004 Control Board	1.0 x 10 ⁹ minimum	5.1 x 10 ⁹
IPC Test Condition (per J-STD-004): 85 °C/85%RH/168 Hours/-50V, measurement @ 100V/IPC B-24 board (0.4 mm lines, 0.5 mm spacing).		

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.**

CONTACT INFORMATION

To confirm this document is the most recent version, please contact
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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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