ALPHA® RF-800T

No-Clean Rosin Flux

DESCRIPTION

ALPHA RF-800T is a medium solid, no-clean flux formulated with a small percentage of rosin and non-halide activators. This unique rosin-activation system promotes excellent solder wetting to protect copper and solder coated surfaces. ALPHA RF-800T was classified as ROL0 per IPC J-STD-004A.

Post soldering residue of **ALPHA RF-800T** is minimal, slightly glossy and can be pin tested without removal.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

APPLICATION GUIDELINES

ALPHA RF-800T is formulated to be applied with foam, wave, spray, and mist fluxers. Flux deposition density and uniformity are critical to successful use of no-clean flux. Applying ALPHA RF-800T to a dry flux coating density of 500 to 1500 micrograms per square inch is recommended. Preheating the circuit assembly will partially dry the flux, enhance oxide removal and promote optimum wicking as well as superior solder joint formation. Degree of preheat is dependent on many variables; such as conveyor speed, type of components and substrates. Entering the solder wave with a top-side temperature of 88 to 115 °C (190 to 240 °F) and a bottom-side temperature of 121 to 163 °C (250 to 325 °F) is typical.

Control: The foam applicators should be supplied with compressed air, free of oil and water. Maintain flux level sufficiently above the aerator stone to produce adequate foam height. Adjust air pressure to produce optimum height with foam consisting of uniform bubbles.

In foam, wave, or rotary drum spray fluxing, the flux solids will need to be controlled by thinner addition to replace the evaporation loss of the flux solvent. As with any flux with less than 5% solids content, specific gravity is not an effective measurement for assessing and controlling the solids content. Monitoring the acid number is recommended for maintaining the solids content. The acid number should be controlled to between 24 and 30 mgKOH/gm. See Alpha's Reference Bulletin for details on the kit and titration procedure. When operating the foam fluxer continuously, the acid number should be checked every two to four hours.

In time, debris and contaminants will accumulate in recirculating type flux applicators. For consistent soldering performance, dispose of spent flux periodically. After emptying use flux, the

reservoir and applicator should be thoroughly cleaned with flux thinner. Refill reservoir with fresh flux and allow a few minutes to stabilize before resuming soldering operation.

Although ALPHA RF-800T is designed to be left on the board, if desired, post soldering residues can be removed with ALPHA 2110 saponifier.

TECHNICAL DATA

Item	Typical Values	Item	Typical Values
Appearance	Clear amber liquid	Viscosity	12 cps
Solids Content, wt/wt	5%	Flash Point (T.C.C.)	17 °C
Specific Gravity @ 25 °C (77 °F)	0.798 ± 0.005	Recommended Thinner	RF800 Additive or ALPHA 425
Acid Number (mg KOH/g)	27	Shelf Life (from Date of Mfg.)	360 days
Chloride Content	None	Packaging Size	1, 5 and 55 gallons

PROCESSING GUIDELINES

Operating Parameter	Recommendation for SAC305	Recommendation for 63Sn/37Pb
Amount of Flux Applied	Spray: 1200 to 1600µg/in^2 of solids/in^2 for dual wave and 1000 to 1200 µg/in^2 of solids/in^2 for single wave soldering	Spray: 1000 to 1200µg/in^2 of solids/in^2 for dual wave and 600 to 900 µg/in^2 of solids/in^2 for single wave soldering
Top-Side Preheat Temperature	90 to 120 °C	75 to 95 °C
Bottom side Preheat Temperature	100 to 145 °C	85 to 120 °C
Recommended Preheat Profile	Straight ramp to desired top-side temperature	Straight ramp to desired top-side temperature
Maximum Ramp Rate of Topside Temperature (to avoid component damage)	2 °C/second (3.5 °F/second) maximum	2 °C/second (3.5 °F/second) maximum

Operating Parameter	Recommendation for SAC305	Recommendation for 63Sn/37Pb
Conveyor Angle	5 to 8° (6° most common recommended by equipment manufacturers)	5 to 8° (6° most common recommended by equipment manufacturers)
Conveyor Speed	0.8 to 2.0 meter/minute	0.8 to 2.0 meter/minute
Contact Time in the Solder (includes Chip Wave and Primary Wave)	1.5 to 5.0 seconds (2½ to 3 seconds most common)	1.5 to 5.0 seconds (2½ to 3 seconds most common)
Solder Pot Temperature	255 to 265 °C	240 to 250 °C
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. In order to optimize your process, it is recommended to perform a design experiment, optimizing the most important variables (amount of flux applied, conveyor speed, topside preheat temperature, solder pot temperature and board orientation).		

CORROSION & ELECTRICAL TESTING

According to IPC J-STD-004A

Test	Test Result
Halide Content Test per IPC-TM-650 Method 2.3.35	Passed L grade
Copper Mirror Test per IPC-TM-650 Method 2.3.32	Passed L grade
Copper Corrosion Test per IPC-TM-650 Method 2.6.15	Passed L grade
Surface Insulation Resistance per IPC-TM-650 Method 2.6.3.3 (85 °C, 85%R.H., 7 days)	10^9 ohms (Requirement: ≥10^8 ohms)
IPC Classification	ROL0

According to JIS-Z3197

Test	Test Method
Copper Plate Corrosion	Passed
Copper Mirror Test	Passed
Dryness Test	Passed
Water solution Resistance	50000 ohms cm
Surface Insulation Resistance	Initial: $>10^{12}$ ohms; After 96 hours: $>10^{12}$
Moisture Resistance	10^{10} ohms
Spreading Test	89%

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 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