

ALPHA[®] 27F

No-Clean Flux

DESCRIPTION

ALPHA 27F is a no-clean flux developed to meet the industry's need for high-speed automation and high reliability, while reducing cost and environmental impact. The unique non-rosin, halide free formulation of **ALPHA 27F** flux promotes excellent wetting and solder joint formation of leaded and SMT components to bare copper and solder coated surfaces. Thermal / kinetic forces of the soldering process transform **ALPHA 27F** flux to vapors and a near invisible, non-conductive, non-corrosive coating. Good pin testing and high SIR are achieved without cleaning.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

FEATURES & BENEFITS

- Very Low Residues; Accurate Pin Testing
- Meets Bellcore SIR and EM Requirements; High Reliability Assemblies

APPLICATION GUIDELINES

Preparation: Start with clean boards and components. Maintain uniform flux coating, Separate boards to prevent flux carry-over.

Flux Application: ALPHA 27F flux is formulation to be applied with foam, wave, spray and mist fluxers. Flux deposition, density and uniformity are critical to successful use of low solids no-clean flux. Applying ALPHA 27F to a dry flux coating density of 100 to 300 µg/cm² 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 90 to 115°C and a bottom-side temperature of 120 to 165°C is typical.

The foam applicators should be supplied with compressed air, free of oil and water. Maintain flux fluid level sufficiently above the aerator to produce adequate foam height. Adjust air pressure to produce optimum height with foam consisting of uniform bubbles. The addition of flux thinners will be required to replace evaporative losses and maintain the balance in the flux composition. Due to the very low solids content of ALPHA 27F, specific gravity is not an accurate measure for assessment. Monitoring and controlling the acid number is recommended for maintaining the flux composition. The acid number should be controlled between 17 and 20. Flux solids can be monitored using Alpha's Flux Solids Control Kit #3. Request an Alpha Technical Bulletin for details on the kit and titration procedure.

In time, debris and contaminants will accumulate in recirculating type flux applicators. For consistent soldering performance, dispose of spent flux in accordance with local by-laws, rules and regulations periodically. After emptying used 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.

Residue Removal: Although ALPHA 27F is designed to be left on the boards, if desired, post soldering residues can be removed with ALPHA 2110 saponifier or alternatively with a semi-aqueous process using ALPHA Autoclean 40.

TECHNICAL DATA

Item	Typical Values	Item	Typical Values
Appearance	Clear Liquid	Flash Point (T.C.C.)	12°C
Solids Content, %wt/wt	1.8	Recommended Thinner	ALPHA 27F Additive
Specific Gravity @ 25 °C (77 °F)	0.793 ± 0.005	Shelf Life (from Date of Mfg.)	360 Days
Acid Number, mg KOH/g	15.5 ± 1.0	IPC SF-818 Classification	L3NC
Halide Content	None		Passes as ORL0
Water Extract Resistivity, Ω-cm	32,000	Packaging Size	20 Liters

CORROSION & ELECTRICAL TESTING

Corrosion Test

Test	Requirement	Results
Copper Mirror Test	No complete removal of copper	Passes as type ORL0

IPC SF-818 SURFACE INSULATION RESISTANCE (All values in ohms.)

Test	Conditions	Requirement	Results
Cleaned	85 °C/85% RH, 7 days	1.0 X 10 ⁸ min	1.52 X 10 ¹⁰ min
Uncleaned	85 °C/85% RH, 7 days	1.0 X 10 ⁸ min	5.0 X 10 ⁹ min

Test	Conditions	Requirement	Results
IPC SF-8181 Classification L3NC			

Bellcore TR-NWT-000078 SURFACE INSULATION RESISTANCE (All values in ohms.)

Test	Requirements	Requirement	Results
"Comb-Up" Un-cleaned	35 °C/85% RH, 5 days	2.0 X 10 ¹⁰ min	2.0 X 10 ¹¹ min
"Comb-Down" Un-cleaned	35 °C/85% RH, 5 days	2.0 X 10 ¹⁰ min	8.2 X 10 ¹¹ min
"Comb-Down" Cleaned	35 °C/85% RH, 5 days	2.0 X 10 ¹⁰ min	8.6 X 10 ¹¹ min

Bellcore TR-NWT-000078 ELECTROMIGRATION (All values in ohms.)

Test	Conditions	Requirement	Results
Cleaned	85 °C/85% RH, 500 hours	1.7 X 10 ⁹ min	2.1 X 10 ¹⁰ min
Uncleaned	85 °C/85% RH, 500 hours	5.4 X 10 ⁸ min	6.9 X 10 ⁹ min

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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