

ALPHA[®] NR-215

No Clean Flux

DESCRIPTION

ALPHA NR-215 is an active low-solids, no clean flux. It is formulated with a proprietary mixture of organic activators. Several proprietary additives are formulated into **ALPHA NR-215** which act to reduce the surface tension between the solder mask and the solder; thereby, dramatically reducing the tendency of solder ball generation.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

FEATURES AND BENEFITS

- Thermally stable activators provide the lowest solder bridging in a low-solids, no clean flux.
- Reduces the surface tension between solder mask and solder to provide the lowest solder ball frequency of any low solids, no-clean flux.
- Very low level of non-tacky residue to reduce interference with pin testing and exhibit no visible residue.
- Cleaning is not required which reduces operating costs.
- Bellcore compliant for long term electrical reliability.

APPLICATION GUIDELINES

Preparation: In order to maintain consistent soldering performance and electrical reliability, it is important to begin the process with circuit boards and components that meet established requirements for solderability and ionic cleanliness. It is suggested that assemblers establish specifications on these items with their suppliers and that suppliers provide Certificates of Analysis with shipments and/or assemblers perform incoming inspection. A common specification for the ionic cleanliness of incoming boards and components is 5µg/in² maximum, as measured by an ionic contamination tester.

Care should be taken in handling the circuit boards throughout the process. Boards should always be held at the edges. The use of clean, lint-free gloves is also recommended. When switching from one flux to another, the use of a new foam stone is recommended (for foam fluxing), or a thorough purging of the spray fluxing lines and nozzle when fluxing is used.

Conveyors, fingers and pallets should be cleaned. ALPHA SM-110 Solvent Cleaner has been found to be very useful for these cleaning applications. When foam fluxing, do not use hot fixtures or pallets. Hot fixtures/pallets will deteriorate the foam head.

Flux Application: ALPHA NR-215 is formulated to be applied by foam, wave or spray methods. When foam fluxing, the foam fluxer should be supplied with compressed air which is free of oil and water. Always keep the flux tank full. The flux level should be maintained 1 inch to 1 to ½ inches above the top of the stone. Adjust the air pressure to produce the optimum foam height with a fine, uniform foam head.

A uniform coating of flux is essential to successful soldering. When using the foam or wave method of application, an air knife is recommended after the fluxing operation. An air knife will help ensure that the flux is uniformly distributed across the board and will remove the excess flux.

When spray fluxing, the uniformity of the coating can be visually checked by running a piece of cardboard over the spray fluxer or by processing a board-sized piece of tempered glass through the spray and then through the preheat section.

TECHNICAL DATA

| Item | Typical Values | Item | Typical Values |
|-------------------------------------|----------------------------|--|----------------|
| Appearance | Clear, Colorless Liquid | Flash Point (T.C.C.) | 60 °F (16 °C) |
| Solids Content, %wt/wt | 2.1% | Recommended Thinner | ALPHA 425 |
| Specific Gravity @ 25 °C (77 °F) | 0.799 ± 0.003 | Shelf Life (from Date of Mfg.) | 360 Days |
| Acid Number (mg KOH/g) | 17.0 ± 1.0 | IPC J-STD-004 Designation | ORL0 |
| pH, 5% aqueous solution | 3.2 | Packaging Size | 20 & 25 Liters |
| Pounds Per Gallon | 6.8 | Bellcore TR-NWT-000078, Issue 3 Compliant | Yes |

CORROSION & ELECTRICAL TESTING
Corrosion Test

| Test | | Requirement | Results |
|------|-----------------------|-------------------------------|---------|
| IPC | Silver Chromate Paper | No Detection of Halide | PASS |
| | Copper Mirror Test | No Complete Removal of Copper | PASS |
| | Copper Corrosion Test | No evidence of corrosion | PASS |

IPC J-STD-004 Surface Insulation Resistance (All values in ohms)

| Test | Requirements | Results |
|--|---------------------------|----------------------|
| "Comb-Down" Un-cleaned | 1.0×10^8 minimum | 1.3×10^{10} |
| "Comb-Up" Un-cleaned | 1.0×10^8 minimum | 1.2×10^{10} |
| Control Boards | 1.0×10^9 minimum | 2.8×10^{10} |
| IPC Test Condition (per J-STD-004): 85 °C/85%RH/168 Hours/-50V, measurement @ 100V/IPC B-24 board (0.4mm lines, 0.5mm spacing) | | |

Bellcore Surface Insulation Resistance (All values in ohms)

| Test | Requirements | Results |
|--|------------------------------|----------------------|
| "Comb-Down" Un-cleaned | 1.0×10^{11} minimum | 1.2×10^{12} |
| "Comb-Up" Un-cleaned | 1.0×10^{11} minimum | 2.5×10^{11} |
| Control Boards | 2.0×10^{11} minimum | 8.9×10^{11} |
| Bellcore Test Condition (GR-78 CORE, Issue 1): 35 °C/85%RH/120 Hours/-48 volts, measurement @ 100V/25 mil lines/50 mil spacing | | |

Bellcore Electrochemical Migration Resistance (All values in ohms)

| Test | SIR (Initial) | SIR (Final) | Requirement | Result | Visual Result |
|--|------------------------|------------------------|----------------------------------|--------|---------------|
| "Comb-Up" Un-cleaned | 1.5 x 10 ¹⁰ | 2.0 x 10 ¹⁰ | SIR (Initial) / SIR (Final) < 10 | PASS | PASS |
| "Comb-Down" Un-cleaned | 2.2 x 10 ¹⁰ | 2.0 x 10 ¹⁰ | SIR (Initial) / SIR (Final) < 10 | PASS | PASS |
| Bellcore Test Condition (per-NWT-000078, Issue 3): 85 °C/85%RH/500 Hours/10V, measurement @ 100V/IPC B-25 B Pattern (12.5 mil lines, 12.5 mil 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
Assembly@MacDermidAlpha.com
www.macdermidalpha.com

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| <p>North America 109 Corporate Blvd. South Plainfield, NJ 07080, USA 1.800.367.5460</p> | <p>Europe Unit 2, Genesis Business Park Albert Drive Woking, Surrey, GU21 5RW, UK 44.01483.758400</p> | <p>Asia 8/F., Paul Y. Centre 51 Hung To Road Kwun Tong, Kowloon, Hong Kong 852.3190.3100</p> |
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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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