

ALPHA[®] NR-310M

VOC-Free, No-Clean Flux

DESCRIPTION

ALPHA NR-310M is a VOC-free, halide free, rosin/resin free, low solids, no-clean flux. It is formulated with a proprietary mixture of organic activators which deliver excellent wetting and top-side hole fill. Several proprietary additives are also formulated into **ALPHA NR-310M** which act to reduce the surface tension between the solder mask and the solder; thereby, dramatically reducing the tendency of solderball generation. The formulation of **ALPHA NR-310M** is also designed to be more thermally stable; thereby, reducing the occurrence of solder bridging.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

FEATURES & BENEFITS

- VOC-free, non flammable.
- Excellent wetting for exceptional hole-fill even with organically coated bare copper boards
- 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 low solderball frequency
- Very low level of non-tacky residue to impart good cosmetic appearance and reduced interference with pin testing

APPLICATION GUIDELINES

ALPHA NR-310M is formulated to be applied by spray or by wave methods. 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.)	N/A
Solids Content, %wt/wt	4.0	Recommended Thinner	DI Water
Specific Gravity @ 25 °C (77 °F)	1.012 ± 0.003	Shelf Life (from Date of Mfg.)	540 Days
Acid Number (mg KOH/g)	35.5 ± 2.0	IPC J-STD-004 Designation	ORL0
pH	2.45 ± 0.20	Packaging Size	20 & 200 Liters

CORROSION & ELECTRICAL TESTING
Corrosion Test

Test		Requirement	Results
IPC	Silver Chromate Paper (IPC-TM 650 Test Method 2.3.33)	No detection of halide	PASS
	Copper Mirror Test ¹ (Modified IPC/Bellcore Method)	Breakthrough in <50% of test area	PASS; Breakthrough in <5% of test area
	Copper Corrosion Test (IPC-TM650 Test Method 2.6.15)	Minor Corrosion Acceptable	PASS; Minor discoloration present without any pitting of the copper panel
¹ Passes the copper mirror test when the same flux formulation is prepared using isopropyl alcohol instead of water. Also passes the copper mirror test when the same flux formulation is reconstituted with isopropyl alcohol after evaporation of its water vehicle at 85 °C.			

Surface Insulation Resistance

Test	Conditions	Requirements	Results
IPC J-004 SIR	85 °C/85% RH, 7 days	1.0 X 10 ⁸ Ω min.	PASS

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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