

ALPHA[®] SM4592-10T

No-Clean Dulling Rosin Flux

DESCRIPTION

ALPHA SM4592-10T is a no-clean, low halide flux specifically designed for wave soldering by foam application. **ALPHA SM4592-10T** has a high solids content therefore promotes good capillary action and excellent wetting performance.

The flux residues produced are minimal, non-corrosive, low moisture absorbing, highly insulating, and are safe to be left on the board. **ALPHA SM4592-10T** eliminates bright spots and glare due to reflections of high-intensity inspection lights from conventional solder finished boards by forming a lusterless, dull, and uniform film on all solder joints.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

APPLICATION GUIDELINES

Preparation: 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 an incoming inspection. A common specification for the ionic cleanliness of incoming boards and components is $5\mu\text{g}/\text{in}^2$ 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.

Conveyors, fingers, and pallets should be cleaned. ALPHA SM-110 Solvent Cleaner has been found to be very useful for these cleaning applications.

Flux Application: ALPHA SM4592-10T can be applied by conventional foaming techniques.

Operating Parameter	Recommendation
Flux application	Foam
Top Side Preheat Temperature	Single Sided: 80 to 90 °C (176 to 194 °F); Double Sided: 100 to 120 °C (212 to 248 °F)
Conveyor Speed	1.2 to 1.8 m/min (4 to 6 ft/min)
Solder Pot Temperature	250 to 260 °C (482 to 500 °F)

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, top side preheat temperature, solder pot temperature and board orientation).

Flux Solids Control: The solids content of ALPHA SM4592-10T should be maintained by the addition of thinner to compensate for evaporation losses. Only ALPHA 425 Thinner should be used for this purpose, to ensure consistency of flux application and soldering characteristics.

Flux solids content should be monitored by periodic measurements of the specific gravity at 25 °C (77 °F). Flux thinner should be added to maintain the specific gravity between 0.803 and 0.813.

Residue Removal: ALPHA SM4592-10T is a no-clean flux and the residues are designed to be left on the board. If flux residue removal is required, it can be cleaned with chlorinated solvent cleaners such as ALPHA 546FE, saponifiers such as ALPHA 2110 or other commercially available solvent cleaners.

TECHNICAL DATA

Parameters	Typical Values	Parameters	Typical Values
Appearance	Clear, Amber Liquid	Flash Point (T.C.C.)	17 °C
Specific Gravity @ 25 °C (77 °F)	0.808 ± 0.005	Recommended Thinner	ALPHA 425
Halide Content, %	0.041 ± 0.004	Shelf Life (from Date of Mfg.)	540 days
Solids Content, % wt/wt	10	Packaging Size	5 gallons
Pounds per Gallon	6.73	IPC J-STD-004 Designation	ROL1

CORROSION & ELECTRICAL TESTING

Test	Requirements	Results
Copper Mirror Test MIL-F-14256	No evidence of corrosion	No evidence of corrosion
Surface Insulation Resistance IPC-TM-650 2.6.3.3	$>1.0 \times 10^8 \Omega$	$>1.0 \times 10^{10} \Omega$

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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