

## ALPHA<sup>®</sup> 859

### Neutral Water-Soluble Organic Flux

#### DESCRIPTION

**ALPHA 859** is a water-soluble organic activated liquid flux for use in mass soldering process employing water cleaning. ALPHA 859 can be used to solder a large variety of metals and their alloys, such as tin/lead, gold, copper, nickel, etc. in printed circuit board assembly process.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

#### FEATURES AND BENEFITS

- Has neutral pH resulting to minimum attack on fixtures of soldering machines.
- Has very good solderability with little or no spattering even at high conveyor speed.
- Has good cleanability producing bright and shiny solder joints.
- Results to a fast-breaking and fine bubble foam head.
- Flux residues can be washed off easily to very low levels of ionic contamination.

#### 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 incoming inspection.

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.

**Flux Application:** ALPHA 859 is suggested to be applied by foam application. A proper preheat setting will help to achieve a goal of best soldering performance. Please refer below recommend preheat setting:

Operating Parameters	Recommendation
Flux Application	Foam
Top-Side Preheat Temperature	80 to 100 °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. To optimize your process, it is recommended to perform a design experiment, optimizing the most important variables (amount of flux applied, topside preheat temperature, soldering temperature and board orientation).	

**Control:** ALPHA 859 flux should be applied by foam fluxing application. A uniform coating of flux is essential to successful soldering. When applying flux, it is important to run a series of tests to ensure that the flux is being applied uniformly, that it is penetrating from top to bottom of the board on all holes to be soldered and to make sure that excessive amounts of flux are not being applied. There are various methods for conducting these tests. Consult with your local Alpha Customer Technical Service Representative for more information.

The consistency of ALPHA 859 should be maintained by the addition of ALPHA 425 thinner to compensate for evaporation losses. It is recommended that the specific gravity at 25 °C be maintained between 0.875 to 0.890, by the addition of the thinner. Only ALPHA 425 thinner should be used for this purpose, to ensure consistency of flux foam and soldering characteristics.

**Residue Removal:** After soldering, flux residues can be completely and easily removed by in-line aqueous cleaning machines. To avoid the risk of corrosion, residues should be thoroughly cleaned, preferably, immediately or not beyond two to four hours after processing.

The residues can be washed off even with lukewarm water (45 to 65 °C) easily to very low levels of ionic contamination. Water washing can be done without the use of rinse aids and with little or no foaming. The flux is formulated so that the cleaning process water effluent is biodegradable. The water effluent is neutral, eliminating the need for pH adjustment prior to disposal.

**TECHNICAL DATA**

Item	Typical Values	Item	Typical Values
Appearance	Clear, Pale Yellow	Flash Point (T.C.C.)	17 °C
% Non-volatiles	29%	Recommended Thinner	ALPHA 425
Specific Gravity @ 25 °C (77 °F)	0.880 +/- 0.005	Shelf Life	18 months
pH	7.0	Packaging Size	1, 5 and 55 gallon
IPC Flux Designation	ORH1		

**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](http://MacdermidAlpha.com/assembly-solutions/knowledge-base).**

**STORAGE**

The 18-month shelf life is valid from the date of manufacture for factory-sealed containers of the ALPHA 859 product. Containers of this material should be protected from exposure to direct sunlight and precipitation which may cause container failure over time.

**CONTACT INFORMATION**

**To confirm this document is the most recent version, please contact  
[Assembly@MacDermidAlpha.com](mailto:Assembly@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

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