

ALPHA[®] WS-833

Lead-Free Capable, Halide-Free, Water-Soluble Flux

DESCRIPTION

ALPHA WS-833 is a halide-free, water-soluble, organic flux designed for the soldering of mixed technology assemblies, where the effective cleaning of residues becomes most critical. The densely-packed assemblies, associated with today's mixed technology boards, adds a difficulty to cleaning which makes the older technology water-soluble flux non-optimal for applications requiring complete residues removal after high temperature soldering with longer dwell times on solder waves.

ALPHA WS-833 is recommended where maximum flux activity is required, such as the soldering of assemblies with very dense component packing and with multilayer boards requiring relatively high preheat temperatures. After soldering, flux residues are highly water-soluble and can be readily removed. This results in assemblies with high surface insulation resistance.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

FEATURES & BENEFITS

- ALPHA WS-833 is halide-free, Pb-free and Sn/Pb-capable.
- ALPHA WS-833 exhibits defect-free soldering, excellent hole-filling properties even with 275°C pot temperature and 6 seconds dwell time.
- ALPHA WS-833 has excellent thermal stability. It is an easily cleanable water-soluble flux which does not leave white residues behind.
- ALPHA WS-833 has maximum electrical integrity. It has passed J-STD-004 SIR and EM tests.

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

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 WS-833 can be applied by foam or spray techniques. 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 recommended top-side preheat temperatures are 82 to 120 °C (180 to 248 °C).

Residue Removal: Thorough cleaning can be accomplished with 50 to 75 °C (120 to 170 °C) water. For critical cleanliness requirements, final rinsing with DI water is required. To avoid the risk of corrosion, residues should be thoroughly cleaned, preferably, immediately or not beyond 24 hours after reflow.

TECHNICAL DATA

Item	Typical Values	Item	Typical Values
Appearance	Clear, Pale Yellow Liquid	Flash Point (T.C.C.)	12 °C (53 °F)
Solids Content, wt/wt	4.0%	Recommended Thinner	ALPHA 425
Specific Gravity @ 25 °C (77 °F)	0.7940 +/- 0.0030	Shelf Life (from Date of Mfg.)	360 days
Acid Number (mg KOH/g)	17.5	IPC J-STD-004(B) Designation	ORM0
pH (5% aqueous solution)	3.1	Packaging Size	1, 5 and 55 gallon

CORROSION & ELECTRICAL TESTING
Corrosion Test

Test		Requirement for ORM0	Results
IPC	Silver Chromate Paper IPC-TM 650 Test Method 2.3.33	No detection of halide	PASS
	Copper Mirror Test IPC-TM 650 Test Method 2.3.32	<50% removal of copper	Class M
	Copper Corrosion Test IPC-TM650 Test Method 2.6.15	No evidence of corrosion	PASS

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

Test	Conditions	Requirements	Results
"Comb-Down" Hydro cleaned	85 °C/85% RH, 7 days	$> 1.0 \times 10^8$	2.8×10^9
Control Boards	85 °C/85% RH, 7 days	$>1.0 \times 10^9$	1.8×10^9
IPC Test Condition (per J-STD-004): -50V, measurement @ 100V/IPC B-24 board (0.4 mm lines, 0.5 mm 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
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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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