ALPHA® SLS 10W

Low Solids Flux

DESCRIPTION

ALPHA SLS 10W is a no-clean flux developed to meet the industry's need for high-speed automation and high reliability, while reducing cost and potential environmental impact. The unique non-rosin, halide-free formulation of **ALPHA SLS 10W** promotes excellent wetting and solder joint formation of leaded and SMT components to bare copper and solder coated surfaces. Thermal/kinetic forces of the soldering process transform **ALPHA SLS 10W** to a vapor and a near invisible non-conductive, non-corrosive coating. Pin testing and high S.I.R.s are achieved without cleaning.

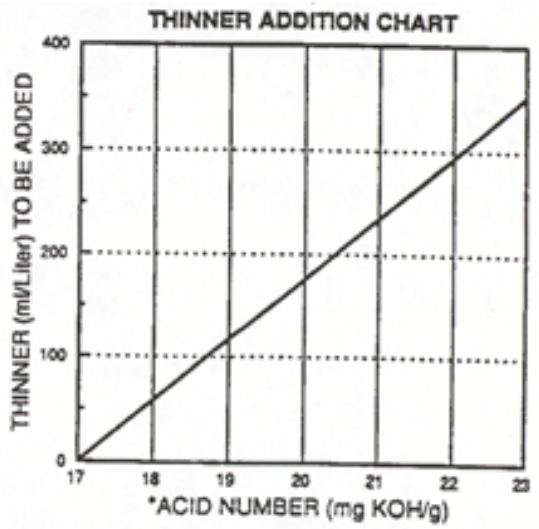
READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

APPLICATION GUIDELINES

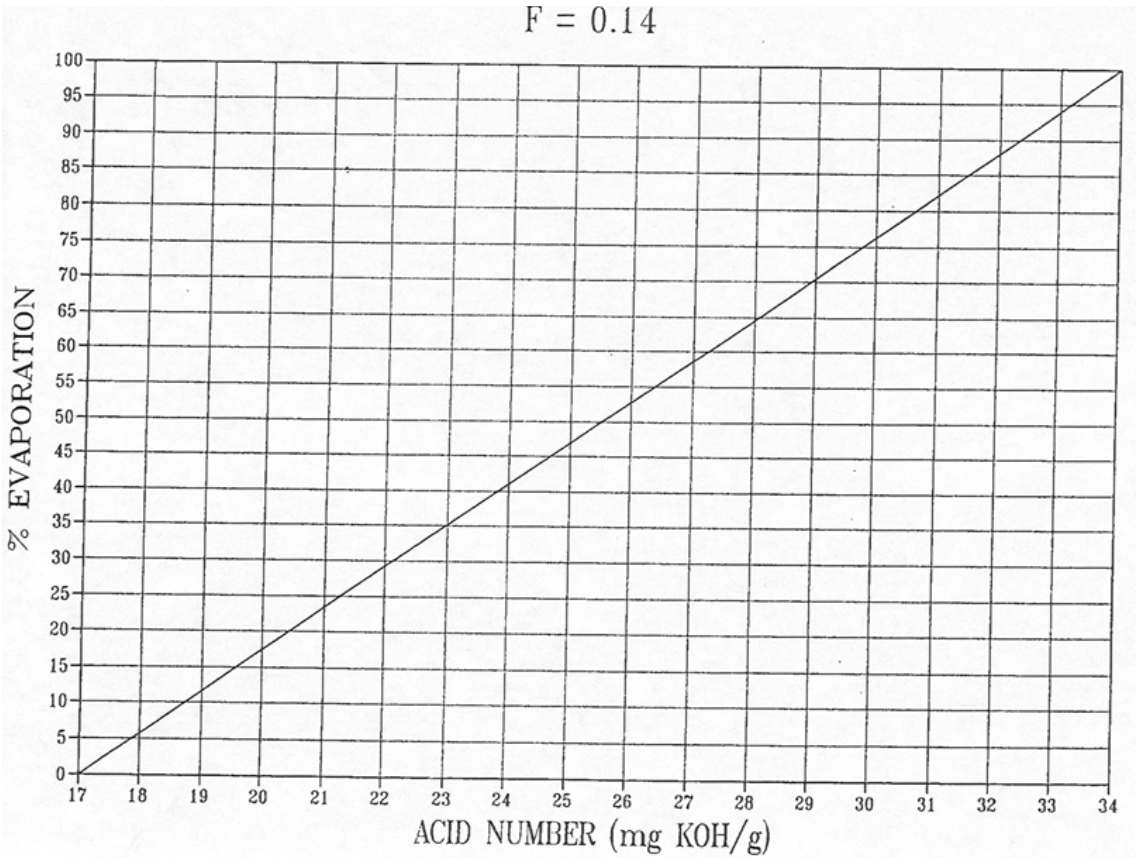
ALPHA SLS 10W is formulated to be applied with wave, spray, and mist fluxers. Flux deposition density and uniformity are critical to successful use of a low solids no-clean flux. Applying ALPHA SLS 10W to a dry flux coating density of 500 to 1500 micrograms per square inch is recommended. Preheating the circuit assembly will partially dry the flux, enhance oxide removal, and promote optimum wicking, as well as superior solder joint formation. Degree of preheat is dependent on many variables, such as conveyor speed, type of components, and substrates. Entering the solder wave with a topside temperature of 88 to 115 °C (190 to 240 °F) and a bottom-side temperature of 121 to 163 °C (250 to 325 °F) is typical.

Control: Currently, ultrasonic mist fluxers offer the ultimate in control and uniformity for applying ALPHA SLS 10W. Since mist fluxers apply fresh flux from a reservoir without recirculation and evaporation, flux density control is not necessary. Flux thinner is recommended for cleaning and purging the mist fluxer system. Recirculating type wave and spray fluxers will require the addition of flux thinner to replace evaporative losses and maintain the balance in flux composition.

Due to the very low solids content of ALPHA SLS 10W, specific gravity is not an accurate measure for assessing the solids content. Monitoring and controlling the acid number is recommended for maintaining the flux composition in balance. The acid number should be controlled between 16 and 18 mg KOH/gm. Titration can be done with Digital Titration Kit (#EQ091). Request a Technical Bulletin for details on the kit and titration procedure. Refer to chart below for thinner additions. Should the titration process not be available, specific gravity should be carefully maintained between 0.791 and 0.801 at 25 °C. The specific gravity versus temperature compensation factor is 0.0007 per °C (0.0005 per °F).



Using Flux Titration Kit EQ091
Acid No. = Titrator No. + Flux Factor
ALPHA SLS 10W Flux Factor = 14.2



In time, debris and contaminates will accumulate in recirculating type flux applicators. For consistent soldering performance, dispose of spent flux in accordance with Federal, State, and Local laws, rules, and regulations periodically. After emptying used flux, the reservoir and applicator should be thoroughly cleaned with flux thinner. Refill reservoir with fresh flux and allow a few minutes to stabilize before resuming soldering operation.

Flux residues built up on the equipment can be removed with IPA.

Key factor for no clean soldering: Start with clean boards and components. Maintain uniform flux coating. Separate boards to prevent flux carry-over.

TECHNICAL DATA

Item	Typical Values	Item	Typical Values
Appearance	Clear colorless liquid	IPC SF-818 Class III Classification	L3N
Solids Content, wt/wt	1.8%	Flash Point	12 °C (53 °F)
Specific Gravity @ 25 °C (77 °F)	0.793 ± 0.005	Recommended Thinner	Additive A
Acid Number (mg KOH/g)	17 ± 2	Shelf Life (from Date of Mfg.)	360 days
% Chloride	None	Pounds per Gallon	6.61
Water Extract Resistivity	25,400 Ohm-cm	Packaging Size	1, 5 and 55 gallons

CORROSION & ELECTRICAL TESTING

Corrosion Test

Test	Test Method	Results
Silver Chromate Paper Test	Mil-F-14256 E	PASS
Copper Mirror Test	IPC TM-650 (2.3.32)	PASS
Copper Corrosion Test	IPC TM-650 (2.6.15)	PASS

Surface Insulation Resistance (all values in ohms)

Test	Results
IPC TM-650 SIR (7 Day) Minimum Required	1.0×10^4
IPC TM-650 SIR (7 Day) Uncleaned	1.0×10^9

Surface Insulation Resistance (all values in ohms)

Test	Results
Bellcore SIR Comb-Up – Uncleaned	3.0×10^{11}
Bellcore SIR Comb-Down – Uncleaned	4.3×10^{10}
Bellcore SIR Comb-Down - (Cleaned in IPA @ 25 °C)	4.1×10^{10}
Bellcore SIR Minimum Required	2.0×10^{10}
Test Condition (per Bellcore TR-NWT-000078): IPC B-25 board	

Electromigration Resistance (all values in ohms)

Test	Results
Bellcore EM (500 hr.) Pattern Up	3.5×10^{10}
Bellcore EM Minimum Required Pattern Up	3.1×10^9
Bellcore EM (500 hr.) Pattern Down	1.8×10^{10}
Bellcore EM Minimum Required Pattern Down	1.6×10^9
Test Condition (per Bellcore TR-NWT-000078): IPC B-25 board	

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

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

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

DISCLAIMER: All statements, technical information and recommendations contained herein are based on tests we believe to be reliable, but the accuracy or completeness thereof is not guaranteed. No statement or recommendation shall constitute a representation unless set forth in an agreement signed by officers of seller and manufacturer. NO WARRANTY OF MERCHANTABILITY, WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY IS MADE. The following warranty is made in lieu of such warranties and all other warranties, express, implied, or statutory. Products are warranted to be free from defects in material and workmanship at the time sold. The sole obligation of seller and manufacturer under this warranty shall be to replace any noncompliant product at the time sold. Under no circumstances shall manufacturer or seller be liable for any loss, damage or expense, direct, indirect, incidental or consequential, arising out of the inability to use the product. Notwithstanding the foregoing, if products are supplied in response to a customer request that specifies operating parameters beyond those stated above, or if products are used under conditions exceeding said parameters, the customer by acceptance or use thereof assumes all risk of product failure and of all direct, indirect, incidental and consequential damages that may result from use of the products under such conditions, and agrees to exonerate, indemnify, defend and hold harmless MacDermid, Incorporated and its affiliates therefrom. No suggestion for product use nor anything contained herein shall be construed as a recommendation to use any product in a manner that infringes any patent or other intellectual property rights, and seller and manufacturer assume no responsibility or liability for any such infringement.