

KESTER® 961-E SOLDERING FLUX

Low-Solids, No-Clean, Liquid Flux

DESCRIPTION

Kester 961-E Soldering Flux is a no-clean, non-conductive, non-corrosive, zero-halogen and rosin-free liquid flux that is specifically designed for the wave soldering of conventional and surface mount circuit board assemblies. Essentially no residue remains after soldering. Boards are dry and cosmetically clean as they exit the wave solder machine, thus posing no interference with electrical testing. 961-E has been developed for bare copper soldering applications. This comprehensive formulation possesses improved wetting characteristics, which continuing to exhibit superior corrosion inhibiting properties and providing a non-tacky residue that is considered non-corrosive and non-conductive by common industry specifications.

This non-corrosive and non-conductive flux meets the strictest requirements of Bellcore TR-NWT-000078 and IPC-SF-818 specifications. A major advantage of this flux is the reduced odor associated with the soldering process.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

FEATURES & BENEFITS

- Zero-Halogen (none intentionally added)
- Improves soldering performance
- Reduced odor associated with soldering process
- Eliminates the needs and expense of cleaning
- Non-corrosive tack-free residues
- No surface insulation degradation
- Compliant to IPC-SF-818
- Compliant to Bellcore TR-NWT-000078

ROHS COMPLIANCE

This product meets the requirements of the Restriction of Hazardous Substances (RoHS) Directive, 2015/863 for the stated banned substances.

TECHNICAL DATA

Category	Results		Procedure/Remarks	
Physical Properties				
Specific Gravity	0.801 ± 0.005		Anton Paar DMA 35 @ 25 °C	
Percent Solids (typical)	3.1		Tested by potentiometric titration	
Acid Number (typical)	20.0 mg KOH/g of flux		Tested by potentiometric titration	
Reliability Properties				
Copper Mirror Corrosion	Low		Tested to J-STD-004, IPC-TM-650, Method 2.3.32	
Copper Corrosion Test	Low		Tested to J-STD-004, IPC-TM-650, Method 2.6.15	
Spreading Test (typical)	84%		Tested to JIS-Z-3197	
Electromigration, Bellcore (typical)	Pass		Tested to Bellcore TR-NWT-000078	
Surface Insulation Resistivity (SIR) Bellcore (typical)	Pass		Tested to Bellcore TR-NWT-000078	
		Blank	961-E PD	961-E PU
	Day 1	1.6*10 ¹² Ω	4.2*10 ¹⁰ Ω	2.1*10 ¹⁰ Ω
	Day 4	2.9*10 ¹² Ω	1.2*10 ¹¹ Ω	3.5*10 ¹⁰ Ω

FLUX APPLICATION

961-E can be applied to circuit board by spray or foam fluxing. To assure proper foaming action, filters and traps should be used on airlines to prevent direct and excessive water from contaminating the flux/ Flux deposition should be 120 to 240µg of solids/cm² (750 to 1500µg of solids/in²). An air knife after the flux tank is recommended to remove excess flux from the circuit board and prevent dipping on the preheater surface.

PROCESSING GUIDELINES

The optimum preheat temperature for most circuit assemblies is 90 to 105 °C (194 to 221 °F) as measured on the top or component side of the printed circuit board. The optimum preheat temperature for most circuit assemblies is 110 to 145 °C (230 to 293 °F) as measured on the bottom or component side of the printed circuit board. It is still important to note that the optimum preheat temperature for a given assembly will depend on the circuitry board design, board thickness, length of contact time with molten solder, solder wave shape, speed of solder flow and preheating time. Dwell time in the wave is typically 2 to 4. The wave solder speed should be adjusted to accomplish proper preheating and evaporate excess solvent, which could cause splattering. For best results, speeds of 1.1 to 1.8 m/min (3.5 to 6 feet/min) are used. The surface tension has been adjusted to help the flux form a thin film on the board surface allowing rapid solvent evaporation. The solder pot temperature is recommended to be 245 to 260 °C (473 to 500 °F) for Sn63Pb37 alloy. Above information is a guideline and it is advisable to note that the optimum settings for a given assembly may vary and this is dependent on the circuit board design, board thickness, and components and equipment used. A design of experiment is recommended to be done to optimize the soldering process.

Cleaning

961-E flux residues are non-conductive, non-corrosive and do not require removal in most applications. If residue removal is required, call MacDermid Alpha Technical Support.

Storage, Handling and Shelf Life

961-E is flammable. Store away from sources of ignition. Shelf life is 1 year from date of manufacture when handled properly and held at 10 to 25 °C (50 to 77 °F).

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.



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.**

CONTACT INFORMATION

www.macdermidalpha.com

North America 140 Centennial Avenue Piscataway, NJ 08854 1.800.367.5460	Europe Unit 2, Genesis Business Park Albert Drive Woking, Surrey, GU21 5RW, UK 44.01483.758400	Asia 8/F., Two Sky Parc 51 Hung To Road Kwun Tong, Kowloon, Hong Kong, SAR China 852.2500.5365
---	---	--

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.

© 2019 MacDermid, Inc. and its group of companies. All rights reserved. "(R)" and "TM" are registered trademarks or trademarks of MacDermid, Inc. and its group of companies in the United States and/or other countries.