MacDermid Alpha ELECTRONICS SOLUTIONS

TECHNICAL DATA SHEET

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/cm^2 (750 to 1500µg of solids/in^2). 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 circuity 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 AlphaTechnical 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

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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