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MacDermid Alpha ELECTRONICS SOLUTIONS

TECHNICAL DATA SHEET

KESTER® 951 SOLDERING FLUX

Low-Solids, No-Clean Liquid Flux

DESCRIPTION

Kester 951 Soldering Flux is a halogen-free flux designed for wave soldering conventional and surface mount circuit board assemblies. The extremely low solids content (2.0%) and nature of the activator system results in practically no residue left on the assembly after soldering. Boards are dry and cosmetically clean as they exit the wave solder machine. There are no residues to interfere with electrical testing. 951 exhibits improved soldering performance to minimize solder bridges (shorts) and excessive solder defects. This flux is suitable for automotive, computer, telecommunications and other applications where reliability considerations are critical. 951 contains a corrosion inhibitor such that no corrosion products are formed when bare copper surfaces are exposed to humid environments.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

FEATURES & BENEFITS

- Improves soldering performance
- Eliminates the need and expense of cleaning
- Non-corrosive tack-free residues
- Classified as ORL0 per J-STD-004

ROHS COMPLIANCE

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

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TECHNICAL DATA

Category	Results	Procedure/Remarks
Physical Properties		
Specific Gravity	0.814	Anton Paar DMA @ 25 °C
Percent Solids (Theoretical)	2.0%	
Acid Number (Typical)	14.3 mg KOH/g flux	Tested by potentiometric titration
Thinner	110	
Reliability Properties		
Copper Mirror Corrosion	Low	Tested to J-STD-004, IPC-TM-650, Method 2.3.32
Corrosion Test	Low	Tested to J-STD-004B, IPC-TM-650, Method 2.6.15
Silver Chromate	Pass	Tested to J-STD-004, IPC-TM-650, Method 2.3.33
Chloride and Bromides	None Detected	Tested to J-STD-004, IPC-TM-650, Method 2.3.35
Fluorides by Spot Test	Pass	Tested to J-STD-004, IPC-TM-650, Method 2.3.35.1
Surface Insulation Resistance (SIR) IPC (Typical)	Pass	Tested to J-STD-004B, IPC-TM-650, Method 2.6.3.3

	Blank	951PD	951PU
Day 1	2.3×10^{10} Ω	9.4×10^{9} Ω	8.2×10^{9} Ω
Day 4	1.3×10^{10} Ω	7.8×10^{9} Ω	7.5×10^{9} Ω
Day 7	9.8×10^{9} Ω	6.3×10^{9} Ω	5.8×10^{9} Ω

FLUX APPLICATION

951 can be applied to circuit boards by a spray, foam or dip process. 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 dripping on the preheater surface when used in a foam or wave application.

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PROCESSING GUIDELINES

The optimum preheat temperature for most circuit assemblies is 93 to 115 °C (200 to 230 °F) as measured on the top or component side of the printed circuit board. Dwell time in the wave is typically 2 to 4 seconds for leaded alloys and 4 to 8 seconds for lead-free alloys. The conveyor speed should be adjusted to accomplish proper board contact time with the solder. Then the preheat temperatures are adjusted to achieve the required preheat top board temperatures. In the event you need further direction on the setup of your wave soldering system, please contact Kester Technical Support.

Flux Control

Acid number is normally the most reliable method to control the flux concentration of low solids, no-clean fluxes. To check concentration, a simple acid-base titration should be used. PS-22 Test Kit and procedure are available from Kester. Control of the flux in the foam flux tank during use is necessary for assurance of consistent flux distribution on the circuit boards. The complex nature of the solvent system for the flux makes it imperative that Kester 110 Thinner be used to replace evaporative losses. When excessive debris from circuit boards, such as board fibers and from the airline build up in the flux tank, these particulates will redeposit on the circuit boards which may create a buildup of residues on probe test pins. It is, therefore, necessary to clean the tank and then replenish it with fresh flux when excessive debris accumulates in the flux tank.

Cleaning

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

Storage, Handling and Shelf Life

951 is flammable. Store away from sources of ignition. Shelf life is 1 year from the date of manufacture when handled properly and held at 10 to 25 °C (50 to 77 °F). The cap must be in place when not being used.

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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

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