MacDermid Alpha ELECTRONICS SOLUTIONS

TECHNICAL DATA SHEET

KESTER® 924-FB SOLDERING FLUX

Low-Solids, No-Clean Liquid Flux

DESCRIPTION

Kester 924-FB Soldering Flux is a non-rosin, organic flux designed for wave soldering conventional and surface mount circuit board assemblies. The very low solids content, surface tension properties 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 and the expense of cleaning is eliminated.

Although cleaning is eliminated, the flux will not harm the electrical reliability of the assembly. This non-corrosive and non-conductive flux meets the strictest requirements of Bellcore GR-78-CORE and ANSI/J-STD-004 specifications. 924-FB is suitable for automotive, computer, telecommunications and other applications where reliability considerations are critical. The surface insulation resistance on soldered boards is higher than provided by typical organic water soluble fluxes.

924-FB is suitable for soldering bare copper and solder coated circuit boards. Solder coated circuit boards are the preferred solderability protection for use of this flux. It is advised that bare copper boards be free of excessive oxides and other contamination for adequate soldering performance.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

FEATURES & BENEFITS

- Essentially no residue left behind after soldering
- Eliminates the expense of cleaning
- Non-corrosive
- No surface insulation resistance degradation
- No offensive odors given off during soldering
- Uniform, stable foam head provided in foam fluxing equipment
- Compliant to GR-78-CORE
- Classified as ORL0 per J-STD-004

ROHS COMPLIANCE

This product meets the requirements of the Restriction of Hazardous Substances (RoHS) Directive, 2011/65/EU for the stated banned substances.

TECHNICAL DATA

Category	Results	Procedure/Remarks
Physical Properties		
Specific Gravity	0.801 + 0.005	Anton Paar DMA @ 25 °C
Percent Solids (Theoretical)	4.1	
Pounds per Gallon	6.68	
Acid Number (Typical)	12.7 mg KOH/g flux	Tested by potentiometric titration
pH (5% Solution, Typical)	3.2	Mettler-Toledo MA235 pH/Ions Analyzer
Thinner	Kester 4662	
Reliability Properties		
Copper Mirror Corrosion	Low	JIS-Z-3197
Copper Corrosion	Low	J-STD-004, IPC-TM-650, Method 2.6.15
Surface Insulation Resistivity (SIR) Bellcore, IPC	Pass	Bellcore TR-NWT-000078

	Blank	924-FB PD	924-FB PU
Day 4	$1.3*10^{13}$ Ω	$2.2*10^{13}$ Ω	$9.1*10^{11}$Ω
Day 11	$2.3*10^{13}$ Ω	$1.4*10^{13}$ Ω	$2.2*10^{12}$ Ω

FLUX APPLICATION

924-FB can be applied to circuit board by foam and spray fluxing. The foam flux process will present a surface tension quality that will provide a stable, uniform head of small bubbles. To assure proper foaming action, filters and traps should be used on airlines to prevent dirt and excessive water from contaminating the flux. Flux deposition should be 120 to 240 µg of solids/cm^2 (750 to 1500 µg 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. In a spray application it is suggested to inspect for even distribution across the bottom of the circuit board. Ensure the flux does not drip after it is applied to the circuit board.

PROCESSING GUIDELINES

Process Considerations

The optimum preheat temperature for most circuit assemblies is 93 to 110 °C (200 to 230 °F), as measured on the top of component side. Dwell time in the wave is typically 2 to 4 seconds for leaded solder alloys and 4 to 8 seconds for lead free alloys. The conveyor speed should be adjusted to accomplish proper contact time with the solder, then the temperatures of the preheat zone(s) should be adjusted to achieve the proper preheat temperatures.

Flux Control

Control of the flux tank during use in a foam application is necessary to assure a consistent amount of flux is applied to the circuit boards, the least amount of residue remains after soldering, no interference in electrical probe testing and consistent soldering results are obtained. Due to the low solids of this flux (4.1%) a titration method is required to control the flux solids level in a foam application. The PS-22 test kit includes directions and solution required to perform this test. It will direct you as to how much 4662 flux thinner will need to be added. Testing should be done every 4 hours while the flux is exposed to air. This is not required in a spray application.

Cleaning

924-FB residues are non-conducive, 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

924-FB 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).

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