

KESTER® NF372-TB SOLDERING FLUX

Zero-Halogen, High-Reliability, No-Clean Liquid Flux

DESCRIPTION

Kester NF372-TB Soldering Flux is a zero-halogen, no-clean, low solids liquid flux designed for use in wave and hand soldering processes. It can be used with both leaded and lead-free alloys. A key feature is its wide processing window for thin boards and thick boards that require short or long dwell times and high preheat temperatures. Sustained activity within the flux allows for good barrel fill in challenging applications, such as reflowed copper OSP boards or with difficult to solder components. NF372-TB residues are minimal, clear and non-tacky for improved cosmetics. For a list of compatible products, contact MacDermid Alpha Technical Support.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

FEATURES & BENEFITS

- Zero-Halogen (none intentionally added)
- Provides good solderability under air atmosphere
- Classified ROL0 per IPC J-STD-004B
- Non-corrosive, non-conductive and non-tacky residues
- Pass SIR in raw state (unheated boards dried at 25 °C/50%RH for 24 hours before test)
- Compliant to GR-78-CORE (Telcordia/Bellcore)
- Ability to provide desired hole-fill with preheat temperatures up to 140 °C max
- Safe for rework (available in flux-pens)

Advantages:

- Wide process preheat window of 75 to 140 °C that accommodates both thin and thick board applications
- High reliability flux that passes both IPC SIR 85/85 and SIR 40/90 and Bono Test for both leaded and lead-free alloys
- Pallet process friendly
- Extends pallet life and does not attack pallet materials
- The seepage of the flux between pallets and PCB is safer and does not cause reliability issues in condensing or high humidity environment

ROHS COMPLIANCE

This product meets the requirements of the Restriction of Hazardous Substances (RoHS) Directive.

TECHNICAL DATA

Category	Results	Procedure/Remarks
Physical Properties		
Acid Number (Typical)	16.6 mgKOH/gm	
Specific Gravity (Typical)	0.793	@ 25 °C
Solids Content (Theoretical)	3.90 %	
Reliability Properties		
Copper Mirror	Low	J-STD-004B, IPC-TM-650, Method 2.3.32
Copper Corrosion	Low	J-STD-004B, IPC-TM-650, Method 2.6.15
Electrochemical Migration (ECM)	Pass	J-STD-004B, IPC-TM-650, Method 2.6.14.1 Test Conditions: 65 °C, 90% RH, 25 days, 100V
Surface Insulation Resistance (SIR)	Pass [All Readings > 1.0x10 ⁸ Ω]	J-STD-004B, IPC-TM-650, Method 2.6.3.7 Test Conditions: 40 °C, 90% RH, 7 days, 12.5V
Surface Insulation Resistance (SIR)	Pass	J-STD-004A, IPC-TM-650, Method 2.6.3.3 Test Conditions: 85 °C, 85% RH, 7 days, 100V
Surface Insulation Resistance, Bellcore, IPC	Pass [All Readings > 2.0x10 ¹⁰ Ω]	GR-78 13.1.3 Test Conditions: 35 °C, 85% RH, 4 days, 100V
Halogen Content	None Detected	J-STD-004B, IPC-TM-650, Method 2.3.28.1
Bono Corrosion Test	Pass [Fc = 0.5%]	Test Conditions: 85 °C, 85% RH, 15 days, 12V

PROCESSING GUIDELINES

Process Considerations / Recommendations

NF372-TB is designed for spray fluxing. This flux is not designed for foam applications. The information below is a guideline. It is advisable to note that the optimum setting for a given assembly may vary and this is dependent on the circuit board design, board thickness, components used, and equipment used. A design of experiment is recommended to be done to optimize the soldering process.

Process Parameters	Recommendation
Flux deposition	600 to 1400 $\mu\text{g/in}^2$ of solids (93 to 217 $\mu\text{g/cm}^2$) of solids
Top side board temperature (bottom preheaters only)	75 to 120 $^{\circ}\text{C}$ ^{2,3}
Top side board temperature (bottom and top preheaters) ¹	95 to 140 $^{\circ}\text{C}$ ^{2,3}
Bottom side board temperature	0 to 32 $^{\circ}\text{C}$ vs top side board temperature ³
Recommended preheat profile	Straight ramp to top side board temperature
Conveyor speed	0.5 to 1.2 m/min (1.6 to 3.9 ft/min)
Solder contact time	3 to 7 seconds
Solder bath temperature	260 to 270 $^{\circ}\text{C}$ (500 to 518 $^{\circ}\text{F}$) for SnCu or SAC alloy 245 to 260 $^{\circ}\text{C}$ (473 to 500 $^{\circ}\text{F}$) for Sn63Pb37 alloy

¹ When board is heated from top and bottom, there will be a smaller delta temperature between top and bottom of the board and minimizing the risk of sublimation. The top heater should be set between 10 to 20 $^{\circ}\text{C}$ higher the setting bottom heater under it. This will tend to draw the solder up to the top of the board. Caution: Using top and bottom preheaters simultaneously does not ensure the center of the board reach proper temperature for soldering.

² Caution: Lower top side board temperature is acceptable only in low thermal areas of an assembly with proper lead/hole clearance.

³ Board temperature should not exceed 140 $^{\circ}\text{C}$.

Flux Control

NF372-TB is designed to be sprayed. Incoming solderability inspection of circuit boards and components is advisable as a part of process control to maintain consistent soldering results.

Cleaning

NF372-TB residues are non-conductive, non-corrosive and do not require removal in most applications. If residue removal is required, it can be removed using commercially available flux residue cleaner. Contact MacDermid Alpha Technical Support for additional assistance.

Storage, Handling and Shelf Life

NF372-TB is flammable. Store away from sources of ignition. Shelf life is 2 years 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

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