



NF372-TB Zero-Halogen No-Clean Liquid Flux for High Temperature Applications



Product Description

Kester NF372-TB is a zero-halogen, no-clean, low solids liquid flux designed to withstand long dwell times and high pre-heat temperatures needed in thick board assemblies. 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. NF372-TB is classified as ROL0 flux under IPC J-STD-004B.

Performance Characteristics:

- Zero-halogen (none intentionally added)
- Provides good solderability under air atmosphere
- Non-corrosive, non-conductive and non-tacky residues
- Ability to provide desired hole-fill with preheat temperatures over 130°C
- Safe for rework
- Compliant to GR-78-CORE (Telcordia/Bellcore)
- Classified as ROL0 per J-STD-004B
- Pass SIR in raw state



RoHS Compliance

Kester does not determine any applicable Restriction of Hazardous Substances (RoHS) exemptions for our lead containing products at the user level.



Physical Properties

Specific Gravity: 0.793
Anton Paar DMA @ 25°C

Acid Number (typical): 16.5 mg KOH/g flux
Tested by potentiometric titration

Percent Solids (theoretical): 3.90%



Reliability Properties

Copper Mirror Corrosion: Low
Tested to J-STD-004B, IPC-TM-650, Method 2.3.32

Surface Insulation Resistivity (SIR):
Pass All Readings $> 1.0 \times 10^8 \Omega$
Tested to J-STD-004B, IPC-TM-650, Method 2.6.3.7
Test Conditions: 40°C, 90% RH, 7 days, 12.5V

Bellcore SIR, IPC: Pass
All Readings $> 2.0 \times 10^{10} \Omega$
Tested to GR-78 13.1.3
Test Conditions: 35°C, 85% RH, 4 days, 100V

Corrosion Test: Low
Tested to J-STD-004B, IPC-TM-650, Method 2.6.15

Surface Insulation Resistivity (SIR):
Pass
Tested to J-STD-004A, IPC-TM-650, Method 2.6.3.3
Test Conditions: 85°C, 85% RH, 7 days, 100V

Halogen Content: None Detected
Tested to J-STD-004-B, IPC-TM-650, Method 2.3.28.1

Bono Corrosion Test: Pass;
Fc=0.5%
Test Conditions: 85°C, 85% RH, 15 days, 20V

Electrochemical Migration (ECM):
Pass
Tested to J-STD-004B, IPC-TM-650, Method 2.6.14.1
Test Conditions: 65°C, 90% RH, 25 days, 100V



Flux Application

NF372-TB is designed for spray fluxing. Flux deposition should be 93-217 μg of solids/cm² (600-1400 μg of solids/in²). This flux is not designed for foam applications.

Process Considerations

62 mil Thick Circuit Board Process Recommendations	
Flux deposition	600-1200 $\mu\text{gr}/\text{in}^2$ (93-186 $\mu\text{gr}/\text{cm}^2$) of solids
Top side board temperature (bottom preheaters only)	100°C-120°C
Top side board temperature (bottom and top preheaters) ¹	120°C-140°C
Bottom side board temperature	120°C-140°C
Recommended preheat profile	Straight ramp to top side board temperature
Conveyor speed	0.8-1.2 m/min. (2.6-3.9 ft/min.)
Solder contact time	3-7 seconds
Solder bath temperature	260°C-270°C (500°F-518°F) for SnCu or SAC alloy 245°C-260°C (473°F-500°F) for Sn63Pb37 alloy

93 mil Thick Circuit Board Process Recommendations	
Flux deposition	800-1400 $\mu\text{gr}/\text{in}^2$ (124-217 $\mu\text{gr}/\text{cm}^2$) of solids
Top side board temperature (bottom preheaters only)	110°C-120°C
Top side board temperature (bottom and top preheaters) ¹	120°C-140°C
Bottom side board temperature	120°C-140°C
Recommended preheat profile	Straight ramp to top side board temperature
Conveyor speed	0.5-0.9 m/min. (2.6-3.9 ft/min.)
Solder contact time	4.5-7 seconds
Solder bath temperature	260°C-270°C (500°F-518°F) for SnCu or SAC alloy 245°C-260°C (473°F-500°F) for Sn63Pb37 alloy

¹Board is heated from top and bottom there will be a smaller delta temperature between the top and bottom of the board and minimizing the risk of sublimation. The top heater should be set between 10°C-20°C degrees 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 insure the center of the board reach proper temperature for soldering.

Above information is a guideline and 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.

Flux Control

NF372-TB is designed to be sprayed or used in a Wave Flux system. 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, call Kester Technical Support.

Storage, Handling and Shelf Life

NF372-B is flammable. Store away from sources of ignition. Shelf life is 1-year from the date of manufacture when handled properly and held at 10-25°C (50-77°F).

Health and Safety

This product, during handling or use, may be hazardous to your health or the environment. Read the Safety Data Sheet and warning label before using this product.