

NF372-TB

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

Product Description

Kester NF372-TB is a zero-halogen, low solids, no-clean liquid flux. NF372-TB was designed to withstand long dwell times and high pre-heat temperatures needed in challenging applications, such as 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. Kester NF372-TB is classified as Type ROL0 flux under IPC J-STD-004B Joint Industry Standard.

- Zero Halogen (none intentionally added)
- Provides good solderability on surface mount circuit boards under air wave soldering
- Non-corrosive, non-conductive and non-tacky residues
- Ability to provide desired hole-fill with preheat temperatures over 130°C
- Classified as ROL0 per J-STD-004B

RoHS Compliance

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

Physical Properties

Specific Gravity (typical): 0.793

Anton Parr DMA @ 25°C

Percent Solids (theoretical): 3.90

Acid Number (typical): 16.5 mg KOH/g flux

Tested by potentiometric titration

Thinner: Kester 4662

Reliability Properties

Copper Mirror Corrosion: Low

Tested to J-STD-004B, IPC-TM-650, Method 2.3.32

Copper Corrosion: Low

Tested to J-STD-004B, IPC-TM-650, Method 2.6.15

Chloride and Bromides: None Detected

Tested to J-STD-004B, IPC-TM-650, Method 2.3.28.1

SIR, IPC: Pass

All Readings $>1.0 \times 10^8 \Omega$

Tested to J-STD-004B, IPC-TM-650, Method 2.6.3.7

SIR, IPC: Pass

All Readings $>1.0 \times 10^8 \Omega$

Tested to J-STD-004A, IPC-TM-650, Method 2.6.3.3

Application Notes

Flux Application:

Kester NF372-TB is designed for spray fluxing. Flux deposition should be 90-190 µg of solids/cm² (600-1200 µg of solids/in²). An air knife after the flux tank is recommended to remove excess flux from the circuit board and prevent dipping on the preheater surface.

Process Considerations:

The optimum preheat temperature for most circuit assemblies is 110-145°C (230-293°F) in an air atmosphere, as measured on the top or component side of the assembly. It is still important to note that the optimum preheat temperature for a given assembly will depend on the circuit 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 3-7 seconds. The wave soldering speed should be adjusted to accomplish proper preheating and evaporate excess solvent, which could cause spattering. For best results, speeds of 0.8-1.2 m/min (2.6-3.9 ft/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 solderpot temperature is recommended to be 245-260°C (473-500°F) for Sn63Pb37 alloy and about 260-270°C (500 – 518°F), for SnCu or SnAgCu 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, components used and equipment used. A design of experiment is recommended to be done to optimize the soldering process.

Flux Control:

The complex nature of the solvent system for the flux makes it imperative that Kester 4662 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. Incoming solderability inspection of circuit boards and components is advisable as a part of process control to maintain consistent soldering results.

Cleaning:

Kester 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 and Shelf Life:

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

Health & Safety:

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

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