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CONNECTING INNOVATION™

958
Low-Solids No-Clean Liquid Flux

Product Description

Kester 958 is a no-clean, non-corrosive, liquid flux that is specifically designed for the wave soldering of conventional and surface mount circuit board assemblies. Kester 958 was developed to give excellent soldering performance on bare copper printed circuit boards treated with OSP coatings. Essentially, no residue remains after soldering. Boards are dry and cosmetically clean as they exit the wave solder machine, thus posing no interference with electrical testing. Kester 958 has excellent compatibility with most conformal coating products on the market today. This comprehensive formulation possesses improved wetting characteristics and also exhibits superior corrosion inhibiting properties and provides a non-tacky residue. A major advantage of this flux is the reduced odor associated with the soldering process.

Performance Characteristics:

- Excellent for bare copper circuit board technology
- Compatible with conformal coat processes
- Improves soldering performance
- Reduced odor associated with soldering process
- Eliminates the need and expense of cleaning
- Non-corrosive tack-free residues
- Classified as ORL0 per J-STD-004
- Compliant to Bellcore GR-78

Physical Properties

Specific Gravity: 0.806 ± 0.005
Antoine Paar DMA 35 @ 25°C

Percent Solids (typical): 2.7
Tested to J-STD-004, IPC-TM-650, Method 2.3.34

Acid Number: 23.2 ± 1.0 mg KOH/g of flux
Tested to J-STD-004, IPC-TM-650, Method 2.3.13

pH (10% solution): 3.1
Hanna Instruments 8314 @ 25°C

Flash Point: 18°C (64°F)

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-004, 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

SIR, IPC (typical): Pass
Tested to J-STD-004, IPC-TM-650, Method 2.6.3.3

	Blank	958 PD	958 PU
Day 1	$5.0 \times 10^9\ \Omega$	$3.1 \times 10^9\ \Omega$	$5.2 \times 10^9\ \Omega$
Day 4	$5.8 \times 10^9\ \Omega$	$4.9 \times 10^9\ \Omega$	$6.8 \times 10^9\ \Omega$
Day 7	$6.3 \times 10^9\ \Omega$	$5.5 \times 10^9\ \Omega$	$7.2 \times 10^9\ \Omega$

Application Notes

Flux Application:

Kester 958 can be applied to circuit boards by a spray, foam or dip process. Flux deposition should be 120-240 μg of solids/cm² (750-1500 μg of solids/in²). An air knife after the flux tank is recommended to remove excess flux from the circuit board and prevent dripping on the preheater surface.

Process Considerations:

The optimum preheat temperature for most circuit assemblies is 90-105°C (194-221°F) as measured on the top or component side of the printed circuit board. Dwell time in the wave is typically 2-4 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 1.1-1.8 m/min (3½-6 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.

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-20 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 4662 Thinner be used to replace evaporative losses. When excessive debris from circuit boards, such as board fibers and from the air line build up in the flux tank, these particulates will redeposit on the circuit boards which may create a build up 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:

Kester 958 flux residues are non-conductive, non-corrosive and do not require removal in most applications.

Storage and Shelf Life:

Kester 958 is flammable. Store away from sources of ignition. Shelf life is 3 years 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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