kester® Technical Data Sheet

TSF-8808

Lead-Free, Water-Soluble Tacky Soldering Flux

Product Description

Kester TSF-8808 is a synthetic water soluble tacky soldering flux formula. TSF-8808 has no intentionally added halogens. It is specifically formulated to meet the IEC 61249-2-21 definition for halide free materials. TSF-8808 is designed to have low volatiles to reduce outgassing during reflow. This minimizes component movement and misalignment during reflow especially thin flip chip die. TSF-8808 can be a drop in replacement for a variety of metallurgies; such as low melting point alloys (SnBi, etc.), typical tin-lead eutectic and the higher melting point alloys (SnAg, SnCu, SnAgCu, etc.). Post reflow the residues are completely soluble in water and do not require any cleaning additives. To reduce the cost of assembling, DI water can be used to remove TSF-8808 residues.

Performance Characteristics:

- Residue removal by DI water
- Synthetic TSF for maximum lot-to-lot consistency
- Low volatiles
- Truly Halogen-Free (no intentionally added halogens)
- Leaves bright/shiny solder joints after reflow
- ANSI/J-STD-004B flux designator ORH0
- Can reflow in air or nitrogen environ ments

RoHS Compliance

This product meets the requirements of the Restriction of Hazardous Substances (RoHS) Directive, 2015/863 for the stated banned substances.

Physical Properties

Viscosity: 230 poise - Typical
Tested to J-STD-004B, IPC-TM-650, Method 2.4.34.4

Tackiness (grams-force): 70 Typical
Kester Method #1W-QC-3-04

Quantitative Halides: None
Tested to J-STD-004B, IPC TM-650 2.3.42

Acid Number: 52 - Typical
Tested to J-STD-004B, IPC-TM-650, Method 2.3.13

Quantitative Halogen: None
BS EN14582 (Halogen Analysis) O2 Bomb

pH 10% Solution: 4.1
Kester Method #1W-QC-G-15

Visual Appearance: Pale White
Kester Method #1W-QC-G-18

Reliability Properties

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

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

Typical ECM, IPC: Pass
Tested to J-STD-004B, IPC-TM-650, Method 2.6.14.1

	TSF-8808
96 hours	$6.34*10^{11}$ Ω
500 hours	$1.01*10^{11}$ Ω

SIR, IPC (typical): Pass
Tested to J-STD-004B, IPC-TM-650, Method 2.6.3.7

	Blank	TSF-8808
Day 1	$1.12*10^{10}$ Ω	$6.04*10^{9}$ Ω
Day 4	$1.87*10^{10}$ Ω	$8.49*10^{9}$ Ω
Day 7	$1.72*10^{10}$ Ω	$9.50*10^{9}$ Ω

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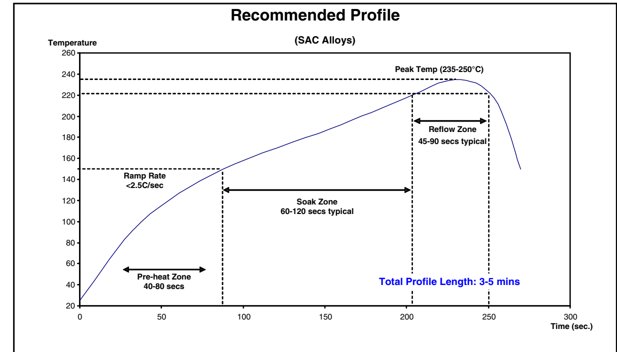
Standard Applications

TSF-8808 Tacky solder flux formulations are designed for stencil/screen printing, pin transfer, dot dispensing and/or syringe applications. Tacky solder flux formulations can be used as a tack and flux vehicle for soldering components to a solid solder deposit (SSD), or precision pad technology (PPT) board surfaces. Great for rework applications on all PCB packages. Works on flip chip, chip scale package and flip chip bumping sites assemblies as a soldering flux.

Recommended Reflow Profile

The recommended convection reflow profile for Sn96.5Ag3.5, Sn99.3Cu0.7, or the various SnAgCu alloys is shown here. This profile is simply a guideline. As TSF-8808 was engineered to be a versatile, robust interconnect material other reflow profiles will be effective. The optimal profile for a process may be different from the one shown based on oven type, component design, fixturing and mix of defects. Please contact Kester if additional profiling advice is needed. TSF-8808 will facilitate excellent wetting in an air reflow environment and can also be used in an inert (nitrogen) environment.



Cleaning

TSF-8808 residues are best removed using automated cleaning equipment (in-line or batch). A de-ionized water final rinse is recommended. Water temperatures should be around >40°C, with water pressure of 45 to 65 psi. For best results, flux residues should be removed as soon as possible, preferably within 4 hours after soldering. Assemblies should be checked for ionic cleanliness levels to maintain the highest standards possible. IPC J-STD-001 specifies a maximum of 1.56 micrograms/cm^2 NaCl equivalent when tested in accordance with IPC-TM-650, Test Method 2.3.25 or 2.3.26.

Storage, Handling and Shelf Life

TSF-8808 should be kept at standard refrigeration conditions, 0-10°C (32-50°F). TSF-8808 should be stabilized at room temperature prior to usage. Please contact Kester if you require additional advice with regard to storage and handling of this material. Shelf life is 10 months from date of manufacture when stored at refrigerated conditions and handled properly.

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.

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