

WS89 Gel Flux

Introduction

WS89 is an excellent water soluble gel flux for soldering and rework of surface mount assemblies. WS89 gel flux is formulated for easy cleaning with D.I. water. WS89 can be used in dispensing, stencil printing and pin transfer applications. WS89 works well with leaded and Pb-free alloys.

Attributes

- Excellent print and dispense characteristics.
- Creates bright and shiny solder joints with a washable residue.
- Superior activity offering good solderability on all surface finishes.
- Works well for Sn/Pb and Pb-free solder alloys.

Gel Flux Packaging	Part Number	Net Weight (Approximate)
Syringe 10 cc	WS89F10CC	5 grams
Syringe 30 cc	WS89F30CC	15 grams
Jar 150 cc	WS89FJ	90 grams

Compatible Products

150N, 152N, 159HF liquid fluxes.
WS889 solder paste.

Storage and Handling

- Shelf life is 1 year when the gel flux is stored between 50 to 90 °F (10 and 32 °C) in a standard warehouse or office environment.
- Store the gel flux sealed inside of the original packaging.

Application

WS89 gel flux is suitable for use in any electronic soldering application. WS89 is designed for stencil printing, pin transfer, dot dispensing and syringe applications. It can be used as a tacky flux for re-balling BGAs and soldering other components. WS89 is also suitable for touchup and rework soldering.

WS89 should be heated through normal soldering operations like SMT reflow, hand soldering, etc. Recommended parameters for heating the gel flux are shown below.

- Heat up at a rate of 1-2 °C/sec.
- Dwell between 135 and 160 °C for 1-2 minutes.
- Ramp up the temperature to 235-260 °C, depending upon the solder alloy used.
- Hold the temperature for a time above liquidus (TAL) of 45-90 seconds.
- Cool down at a rate of 3-7 °C/sec to reach room temperature.

Cleaning

Raw gel flux can be removed from the stencil, squeegee blades, and circuit boards using a variety of commercial cleaners. Isopropyl alcohol (IPA) can also be used.

WS89 flux residues are corrosive and must be removed using a suitable wash process. It is recommended to remove WS89 flux residues within 4 hours after soldering using D.I. water heated to 100 - 180 °F in standard washing equipment. It is possible to wash away WS89 flux residues after multiple heat cycles followed by a 24 hour hold time, although this is not recommended.

Safety

Wear chemically resistant gloves and safety glasses when using gel flux. Avoid contact with the flux and avoid breathing fumes, especially during soldering. Follow the guidelines in the Safety Data Sheet (SDS).

J-STD-004D Standard	Test Method	Result
J-STD-004 classification	J-STD-004 methods	ORH1
Visual appearance	Visual	Brown washable residue
Solids content	IPC 2.3.34	58 to 62% wt
Acid value	IPC 2.3.13	70 - 80 mg KOH / gram flux
Halide ion content (Br ⁻ , Cl ⁻ , F ⁻ , I ⁻)	IPC 2.3.28.1	0.7 to 0.8% wt of solids
Halogen content (Br and Cl)	EN 14582, IPC 2.3.28.1	8.0 to 8.4% wt of solids
Halide by silver chromate	IPC 2.3.33	Halides detected
Fluoride by spot test	IPC 2.3.35.1	None detected
Copper mirror	IPC 2.3.32	High activity
Copper corrosion	IPC 2.6.15	Corrosion present
Surface Insulation Resistance (SIR)	IPC 2.6.3.7	Pass > 1.00E+09 ohms
Electro Chemical Migration (ECM)	IPC 2.6.14.1	Pass, increase of 2.1 Log ₁₀ ohms

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