SUPERIOR
SOLDER PASTE 59-193-87

- ♦ **Formula 59:** **No-Clean**
- ♦ **Type 3 Powder:** **-325+500 Mesh Powder**
- ♦ **Alloy: Sn42/Bi57/Ag1**
- ♦ **Metal Content:** **87%**

- ◈ Passes Bellcore requirements
- ◈ Superior wetting characteristics, lot-to-lot consistency, and stable viscosity
- ◈ Halide-free, halogen-free
- ◈ Capable of dispensing 16 mil pitch with 25-45µ size powder
- ◈ Residues are Non-Soluble in water. Residues act as a conformal coating
- ◈ For Nitrogen or air atmosphere reflow ovens
- ◈ Passes IPC Tests
- ◈ No slump
- ◈ Long tack time
- ◈ Low temperature reflow
- ◈ For HASL, ENIG and OSP PCBs
- ◈ Viscosity is 350,000 - 425,000 kcps*

** Viscosity can be adjusted to meet process requirements.*

RECOMMENDED PROCESSING GUIDELINES

I. Dispensing

Tack Time for ***Superior Solder Paste 59-193-87*** is sixteen (7) hours between printing and or dispensing for placements and reflow under ambient conditions below 23°C/74°F and a relative humidity below 60%. The exact time will depend on the environmental condition of the solder paste and plant. The ideal temperature range for operation of the solder paste is 20°C/68°F – 23°C/74°F, with a relative humidity of 35-55%. The viscosity of this solder paste is 350,000 to 425,000 +/- 10% kcps on the Brookfield viscometer.

Should printed circuit boards need to be stored for more than 8 hours prior to reflow after populating, it is recommended that PCBs are maintained in a tightly controlled area. Humidity should be controlled between 35% - 55% and temperature should not exceed 23°C/74°F.

II. RECOMMENDED REFLOW PARAMETERS

Sn42/Bi57/Ag1 (Low Temperature) in No-Clean Formulation

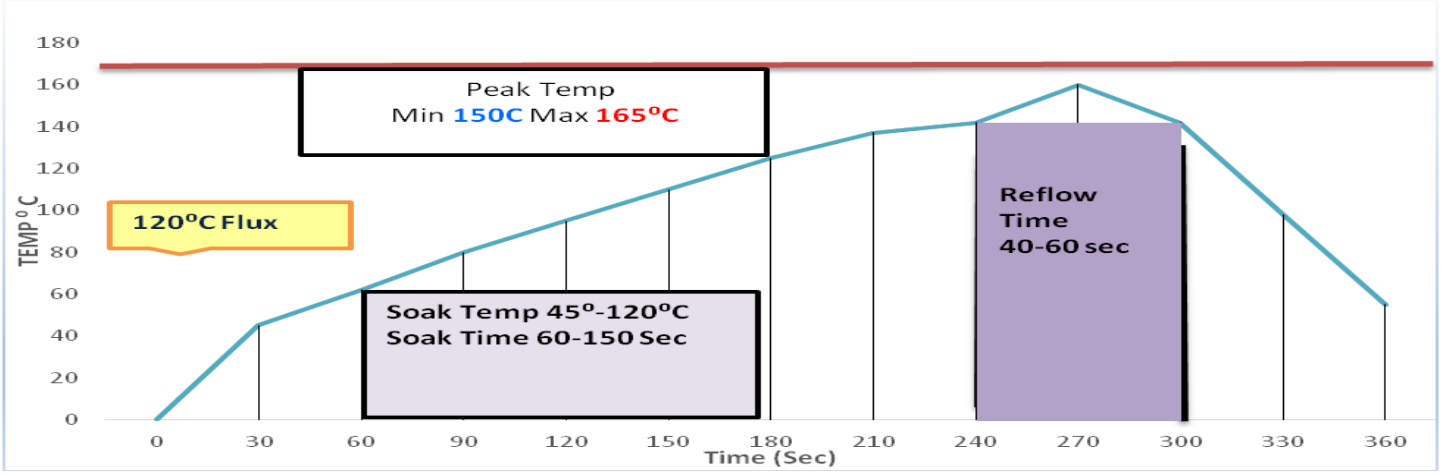
❶ **PREHEAT ZONE**: Ramp from room temperature to 120°C (Flux Activation) in 45-60 seconds to dry the volatiles from the solder paste.

❷ **SOAK ZONE**: Ramp from 40-125°C in 60-150 or 3-4° per second to get uniform temperature equilibrium of PCB.

❸ **REFLOW ZONE**: 1) Ramp from a temperature of 120°C to 165°C for a period of 40 - 60 seconds*.
* Time above 165°C should not exceed 60 seconds in liquidus if possible.

❹ **COOLING ZONE:** A cool down rate of 1-2°C per second is recommended for optimum results.

❺ **CLEANING LAG TIME**: No Cleaning Needed. A small hard conformal coating is left to protect the solder joint.



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III. POST-SOLDER CLEANING

Superior Solder Paste 59-193-87 is a No-Clean paste and designed for not cleaning as the residue acts as a conformal protective coating on the solder and around the solder joint. If cleaning is desired, a water temperature of 55°C/130°F - 70°C/158°F is recommended for the removal of post-solder residues, with the addition of ***Superior SyberKleen 2000*** Saponifier must be incorporated to the cleaning process for residue removal.

Wet solder paste is easiest to remove using IPA (Isopropanol Alcohol). If printing interval exceeds two (2) hours, remove solder paste from screen stencil and store in a separate container.

IV. STENCIL CLEANING

Stencils should always be cleaned using alcohol or solvent based materials in semi-automated stencil cleaning systems; with hand wipes; or by hand-wiping the stencils. ***Isopropanol and/or other alcohol solvents should be used for the cleaning process for solder paste removal***.

V. STORAGE

The following conditions are recommended to achieve long-term stability and the assurance of fresh solder paste:

- To achieve a shelf life of **6 months**, store in a refrigerator below **3-5.5°C/38-42°F**.
- A storage time of up to **3 months** can be expected in ambient room temperatures.
- Avoid direct sunlight.
- Store syringes by standing with tip down.
- Do not place syringes back in refrigeration after use.
- Bring jars and syringes to room temperature naturally for a minimum of 7 hours (jars) and 3 hours (syringes) before use.

VI. SAFETY

Superior Solder Paste 59-193-87 is a product formulated for use in assembly processes that require safety precautions be taken. Avoid contact with skin and eyes. When using, do not eat, drink, or smoke. Wear gloves and eye protection. Most alloys contain lead; wash hands if hands come in contact with the product.

Observe industrial hygiene and safety practices to assure conformance with local, state, and federal safety health and environmental regulations.

Adequate ventilation should be provided when soldering. Consult the Safety Data Sheet (SDS) for additional information.

VII. PACKAGING

- Jars of 250 or 500 grams available.
- Cartridges available in 500 gram, 600 gram, 700 and 1,200 gram amounts.
- Syringes available in 10cc (10-35 grams) and 30cc (50-75 grams) sizes.
- Squeezer Pack in 10 grams.

VIII. TECHNICAL TEST DATA

QQS-571E

Resistivity of Water Extract:	215,000 Ohm/CM^2	*Pass*
Silver Chromate Paper Test:		*Pass*
Copper Mirror Test:		*Pass*

ANSI/IPC SF-818

Copper Mirror Test:	*Pass*
Silver Chromate Paper Test:	*Pass*
Solids Content, Alloy:	*87%*
Halide Content:	*-0-*

Bellcore (TR-NWT-000078)

Halogen Content:	*-0-*
Copper Mirror Test	*Pass*
Surface Insulation Resistance Test	*Pass*

ANSI/IPC SP-819

Solder Ball Test:	*Pass*
Wetting Test:	*Pass*
Slump:	*-0-*

Metal Compliance*:* J-STD-006C Amendments 1&2 (Solder Alloys and Fluxed/Non-Fluxed Solders): *Yes*

RoHS Compliant: RoHS 2 Directive 2011/65EU: *Yes*

Alloy Temperature: *137-138°C (279° – 280°F)*

Base Flux pH*:* *6.7*

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