



## SUPERIOR SOLDER PASTE 3000 SERIES LEAD-FREE



◆ **Formula 30:** No-Clean

◆ **Type 3 Powder:** -325/+500 Mesh Powder

- ◆ Residues and characteristics pass Bellcore.
- ◆ Meets IPC requirements for ROL0, No-Clean.
- ◆ Superior wetting characteristics, lot-to-lot consistency, and stable viscosity
- ◆ Halide-free, halogen-free
- ◆ Capable of printing 12 mil pitch
- ◆ Post-solder joints are pin-testable
- ◆ For Nitrogen or air atmosphere reflow ovens

◆ **Alloys:** LEAD-FREE

◆ **Metal Content:** Adjusted to process

- ◆ Translucent residue
- ◆ No slump
- ◆ Long tack time
- ◆ Air reflow
- ◆ Viscosity\*

\* Viscosity is adjusted to meet process requirements.

### RECOMMENDED PROCESSING GUIDELINES

#### I. PRINTING

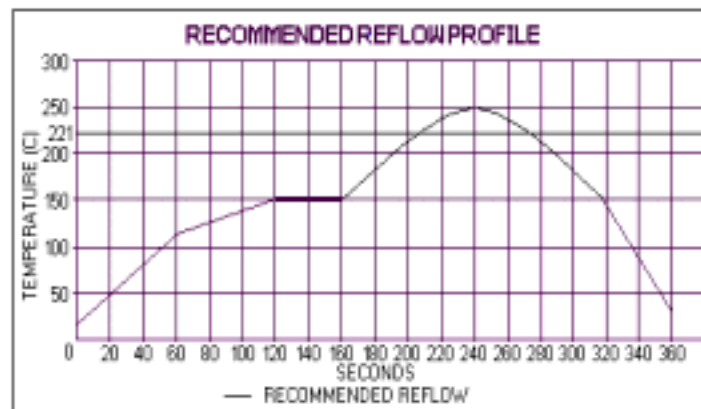
Tack Time for **Superior Solder Paste 3000 Series LEAD-FREE** is sixteen (16) hours between printing, placement and reflow under ambient conditions below 23°C/74°F and a relative humidity below 60%. The exact time will depend on the environmental condition of the solder paste and plant. The ideal temperature range for operation of the solder paste is 20°C/68°F – 23°C/74°F, with a relative humidity of 35-55%.

Should printed circuit boards need to be stored for more than 6 hours after populating, prior to reflow, 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

##### LEAD-FREE SOLDER PASTE

- ❶ **PREHEAT ZONE:** Ramp to 120°C at a rate of 1-3°C per second to dry the volatiles from the solder paste.
- ❷ **SOAK ZONE:** Ramp from 120-150°C at a rate of 0.3-0.7°C per second to get uniform temperature equilibrium of PCB.
- ❸ **REFLOW ZONE:**
  - 1) Ramp from a temperature of 150°C to 250°C for a period of 30 - 80 seconds\*.
  - \* Time above 221°C should not exceed 45 seconds.
  - 2) Ramp from 221°C to 250C-260°C ± 5°C for 16 – 45 seconds\*\*.
  - \*\* Time above 245°C should be no less than 10 seconds, and no more than 30 seconds
- ❹ **COOLING ZONE:** A cool down rate of 2°C, or more, per second is recommended for optimum results.
- ❺ **CLEANING LAG TIME:** Cleaning efficiency is not affected by lag time between reflow soldering and the cleaning process.



Superior manufactures quality solder pastes. Our business is solving problems.



**Superior Flux  
& Mfg. Co.**

6615 Parkland Blvd. • Cleveland, OH 44139 • Phone: 440-349-3000 • Fax: 440-349-3003  
www.superiorflux.com • e-mail: info@superiorflux.com

### III. POST-SOLDER CLEANING

**Superior Solder Paste 3000 Series LEAD-FREE** is a No-Clean paste formulated to remain on PCBs after reflow. While no post-solder cleaning is required for the residue, all residues may be removed using **Superior SyberKleen 2000** Saponifier in an aqueous cleaning process.

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

### IV. STENCIL CLEANING

Stencils should be cleaned using a semi-automated stencil cleaning system, hand wipes, or by hand-wiping the stencils with Isopropanol and/or other alcohol solvents.

### 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 **6-12 months**, store in a freezer below **0°C/32°F**.
- To achieve **3-9 month** storage life, store in a refrigerator, **1°C/33°F-12°C/55°F**.
- For non-refrigerated/frozen storage, maintain in a cool and dry location. Maximum temperature should not exceed **23°C/75°F**. A storage time of up to **3 months** can be expected.
- Avoid direct sunlight.

### VI. SAFETY

**Superior Solder Paste 3000 Series LEAD-FREE** 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. Refer to the Material Safety Data Sheet (MSDS) for additional information.

### VII. PACKAGING

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

### VIII. TECHNICAL TEST DATA

<u>QQS-571E</u>		<u>ANSI/IPC SF-818</u>	
Resistivity of Water Extract:	Pass	Copper Mirror Test:	Pass
Silver Chromate Paper Test:	Pass	Silver Chromate Test:	Pass
Copper Mirror Test:	Pass	Solids Content, Alloy:	90%
		Flux residual solid after reflow:	3.3%
		Halide Content:	-0-
<u>Bellcore (TR-NWT-000078)</u>		<u>ANSI/IPC SP-819</u>	
Halogen Content:	-0-	Solder Ball Test:	Pass
Copper Mirror Test	Pass	Wetting Test:	Pass
Surface Insulation Resistance Test	>1X10 <sup>10</sup> Class 3	Slump:	-0-
		Alloy conforms to Mil-STD-45662 and Mil-I-45208	

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