SUPERIOR
SOLDER PASTE 8100 SERIES
LEAD-FREE

- ♦ **Formula 80: Water-Soluble**
- ♦ **Type 3 Powder: -325/+500 Mesh Powder**
- ♦ **Alloy: Lead-Free**
- ♦ **Metal Content: Adjusted to process**

- ◈ Passes Bellcore requirements
- ◈ Superior wetting characteristics, lot-to-lot consistency, and stable viscosity
- ◈ Halide-free, halogen-free
- ◈ Capable of printing 12 mil pitch
- ◈ Residues are completely Water-Soluble
- ◈ For Nitrogen or air atmosphere reflow ovens
- ◈ Passes IPC Tests
- ◈ No slump
- ◈ Long tack time
- ◈ Air reflow
- ◈ For HASL and OSP PCBs
- ◈ Viscosity *

** Viscosity is adjusted to meet process requirements.*

RECOMMENDED PROCESSING GUIDELINES

I. PRINTING

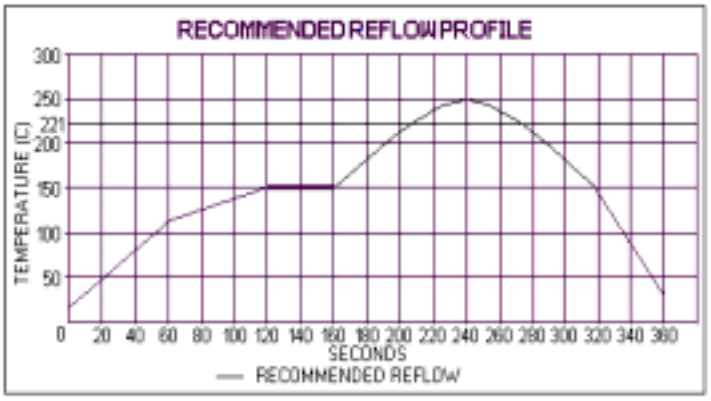
Tack Time for ***Superior Solder Paste 8100 Series Lead-Free*** is sixteen (16) hours between printing, placement and reflow under ambient conditions below 23°C/74°F and a relative humidity below 60%. The exact time will depend on the environmental condition of the solder paste and plant. The ideal temperature 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 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

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.



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III. POST-SOLDER CLEANING

Superior Solder Paste 8100 Series Lead-Free is a Water-Soluble paste formulated for post-reflow cleaning in aqueous in-line or batch cleaning systems. A water temperature of 55°C/130°F - 70°C/158°F is recommended for the removal of post-solder residues, while the addition of ***Superior SyberKleen 2000*** Saponifier may be incorporated to add a detergent to the cleaning process.

Wet solder paste is easiest to remove using water. 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 water in semi-automated stencil cleaning systems; with hand wipes; or by hand-wiping the stencils. ***Residues are water-soluble. Isopropanol and/or other alcohol solvents will prolong the cleaning process and should not be used for residue or 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 **6-12 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-12C/55°F**.
- For non-refrigerated/frozen storage, maintain in a cool and dry location. Maximum temperature should not exceed **23°C/74°F**. A storage time of up to **3 months** can be expected.
- Avoid direct sunlight.

VI. SAFETY

Superior Solder Paste 8100 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. Consult 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

QQS-571E

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

Bellcore (TR-NWT-000078)

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

ANSI/IPC SF-818

Copper Mirror Test:	*Pass*
Silver Chromate Paper Test:	*Pass*
Solids Content, Alloy:	*90%*
Flux residual solid after reflow:	*4.3%*
Halide Content:	*-0-*

ANSI/IPC SP-819

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

Alloy conforms to Mil-STD-45662 and Mil-I-45208

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

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