



## Product Data Sheet

# WS-486 Water Soluble Solder Paste

### Product Description

- Non-resin formula
- Long stencil life
- Wide process window
- Excellent wetting compatibility on most board finishes
- Low voiding
- Compatible with enclosed printing heads

### Alloys

Hirsch Metals manufactures a low-oxide, spherical and uniformly sized powder. WS-486 is available in the following alloys: 63Sn/37Pb, 62Sn/36Pb/2Ag, 60Sn/Pb40, 43Sn/43Pb/14Bi and 42Sn/58Bi.

### Powder Distribution

Micron Size	Type	Pitch Requirements
75 - 45	Type-2	24mil & above
45 - 25	Type-3	16mil to 24 mil
38 - 20	Type-4	12mil to 16mil
25 - 15	Type-5	<12mil
15 - 5	Type-6	<8mil

### Available Packaging

The following packaging options are available for stencil printing and dispensing applications: 250g and 500g jars; 250g and 700g cartridges; 750g ProFlow<sup>®</sup> cassettes; 35g and 100g syringes; 2,500g FreshMix<sup>®</sup> Kits.

### Stencil Life

6-8 hrs. @ 30–45% RH & 22–25°C  
~4 hrs. @ 45–70% RH & 22–25°C

### Viscosity

Printing applications: 650 to 850Kcps +/-10%  
Dispensing applications: 450Kcps +/-10%  
Tested according to IPC-TM-650

### Tack Value

Typical tackiness: 34g force

### Printing

The print definition of WS-486 is ideal for fine pitch applications. The stencil life of this water-soluble product virtually eliminates waste of solder paste. Consult the powder distribution chart to determine your mesh size requirements.

### Printer Operation

The following are general guidelines for stencil printer optimization with WS-486. Some adjustments may be necessary based on your process requirements.

Print Speed: 25–100mm/sec

Squeegee Pressure: 0.2–0.7kg/inch of blade

Under Stencil Wipe: Once every 10–25 prints or as necessary

### Stencil Cleaning

Automated stencil cleaning systems for both stencil and misprinted boards. Manual cleaning using water at 60°C or 99% isopropyl alcohol (IPA). Post-reflow cleaning using water at 60°C with 50 PSI pressure.

### Storage and Handling Procedures

Refrigerated storage at 42–47°F will prolong the solder paste shelf life to no less than 6 months. Syringes & cartridges should be stored vertically with the dispensing tip down. Solder paste should be allowed to reach ambient temperature naturally, prior to use (about 6-8 hours). NEVER FREEZE SOLDER PASTE.

(continued)

# WS-486 Water Soluble Solder Paste

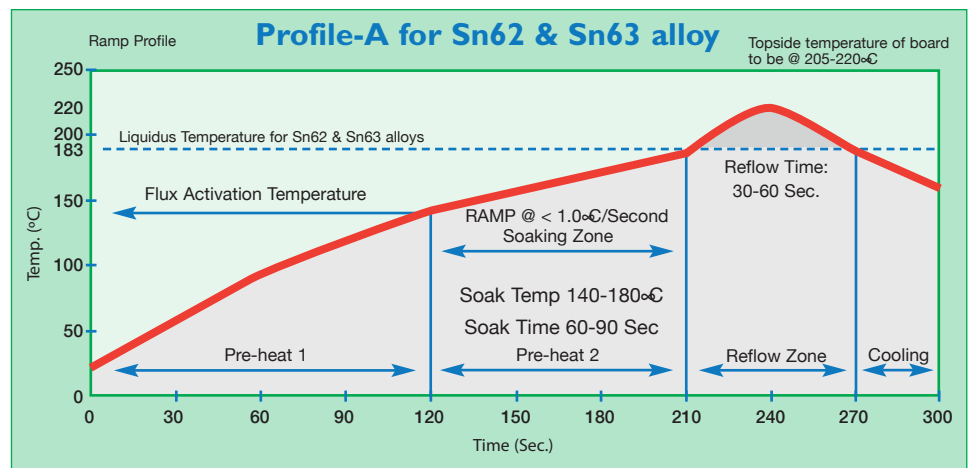
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## J-STD-004 (IPC-TM-650) Test Results

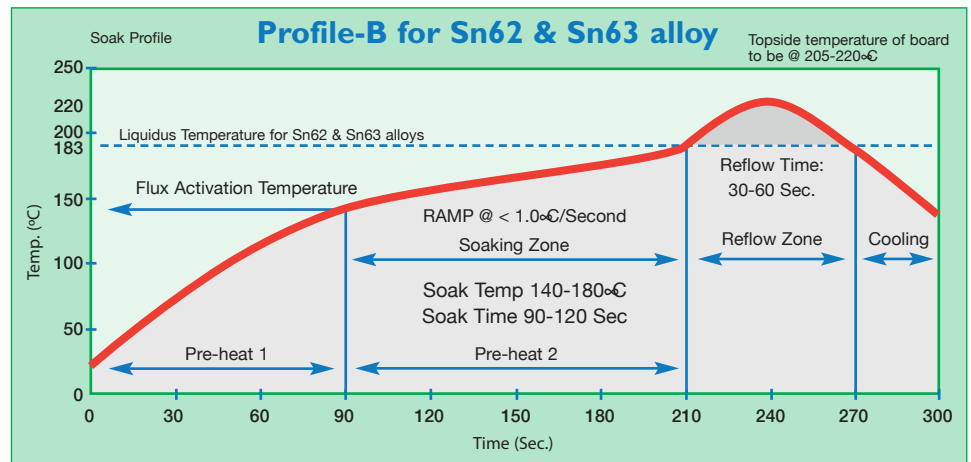
Test	Standard	Values	Results
Flux Designator	IPC-TM-650 2.3.35	NA	ROL0

### Recommended Profiles:

Profile-A was designed to serve as a starting point for process optimization using WS-486. A cool down rate of (-) 2–4°C/second is ideal for the formation of a fine grain structure without risking damage to thermally sensitive components.



A profile utilizing a soak of up to two minutes at 155°C may help to minimize voiding in BGA assemblies. This will allow more time for solvent components of the solder paste to outgas prior to reflow.



The information contained herein is based on technical data that we believe to be reliable and is intended for use by persons having technical skill, at their own risk. Users of our products should make their own tests to determine the suitability of each product for their particular process. Hirsch metals will assume no liability for results obtained or damages incurred through the application of the data presented.