

Technical Bulletin

SN100C WS157

Water Soluble Solder Paste

Product Description

SN100C WS157 Water Washable Solder Paste is specifically designed for lead free solder processes. It displays previously unseen level of repeatability and consistency. This paste offers an excellent open time, extended abandon time and good soldering activity at the elevated processing temperatures required for lead free alloys.

Attributes

- Stable at Lead Free process temperatures
- Enhanced activity for tough to solder boards and components
- High speed stencil printing up to 100mm/sec
- Excellent tack performance and printer open time
- Extended “between-print” abandon time
- Very cleanable post solder residues

Performance

The performance of solder paste depends in part on the metal content, solder alloy and the solder particle size range. Increasing metal content reduces the tendency to slump and reduces the tack life of the solder paste, while the solder balling performance improves.

Viscosity (measured at 25C using Brookfield)	700- 800kcps
Print Speed	20-100 mm/sec.
Squeegee Blade	80 to 90 durometer or stainless steel
Stencil Material	Stainless Steel, Molybdenum, Brass, Nickle Plated
Temperature/ Humidity	Optimal ranges are 70-77F and 35-65% RH

Performance Parameters	Value
SN100C Composition	Sn/.7Cu/.05Ni
Stencil Life (25C @ 45% RH)	+24 Hours
Tack Life	+48 Hours
Tack Force	1.8 grams/mm ²
Slump	
Room Temp., 1 hour	
0.7mm pads	0.4mm
1.5mm pads	0.4mm
80 ⁰ C, 20 minutes	
0.7mm pads	0.4mm
0.7mm pads	0.4mm
Note: Slump is expressed as the minimum spacing between pads that does not allow bridging.	
Abandon Time	
Pitch	
20 mil and greater	>2 hours
16 mil and less (10 mil aperture)	2 hour
(8 mil or less aperture)	1 hour

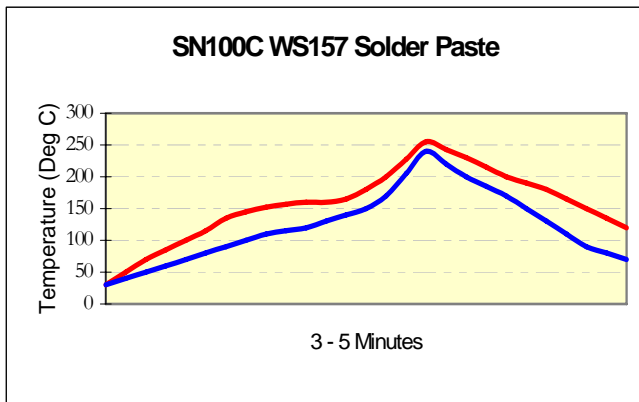
Processing Parameters

Refrigeration and storage: It is recommended to store WS157 at 5-10⁰C. The paste should be removed from cold storage a minimum of 8 hours in the unopened container prior to use. If the paste does not reach room temperature, it may stick to the stencil, not deposit onto the SMT pads, de-wet pads during reflow, outgas during reflow, or produce solder balls. Avoid direct sunlight.

Handling and shelf life: The optimum temperature and humidity are 75⁰F and 60% or below respectively. Provided WS157 solder paste is stored tightly sealed in the original container at 5-10⁰C, a minimum shelf life of 6 months can be expected. Air shipment is recommended to minimize the time that containers are exposed to higher temperatures.

Printing: WS157 solder paste is currently available for stencil printing down to 16 mil (0.4mm) pitch devices with type 3 powder (-325+500 mesh). Printing at up to 100 mm/sec. can be reliably achieved in production using a metal squeegee blade. This is due to a unique rheology, which ensures that the higher shear rate viscosity is relatively low and the thixotropic index is high enough to ensure excellent definition and slump resistance, while maintaining good rolls and drops off behavior. High squeegee pressures are not required, making WS157 particularly useful for second side printing processes. For fine pitch applications (less than 20 mil pitch), type 4 powder (-400+635 mesh) is recommended.

Reflow: SN100C alloy melts at 227°C. Reflow should be performed with a peak of 13-25°C above the liquid temperature of the alloy (depending on the type of board). This temperature should be maintained for 30-60 seconds. Profiles should have less than a 3-minute preheat time above 260°F(130°C) to insure proper wetting of fine pitch leads. A representative profile is shown below:



Cleaning: The post reflow residue of WS157 solder pastes must be removed. It is suggested that the residues are removed as soon after reflow as possible, although effective cleaning can be effected up to 3 days after reflow allowing time for secondary processing.

Cleaning can be achieved using moderate temperatures 25-70°C in most conventional aqueous cleaners. Cleaning takes typically 2-5 minutes. The best cleaning results are obtained when the peak reflow temperature is maintained between 235°C and 255°C. If the peak reflow

temperatures for the solder creams are substantially exceeded, some residues may persist and it will be necessary to use a saponifier such as Florida Cirtech RA2000 at 6% to remove the residue remaining.

Health & Safety: This product, during handling or use, may be hazardous to health or the environment. Read the Material Safety Data Sheet and warning label before using this product.

Packaging:

WS157 Solder paste is available in:

- 500gram or 250 gram plastic jar.
- 1Kilogram, 500 gram or 250 gram cartridge for direct application.
- DEK ProFlow cassettes available upon request.

The information given in this technical data sheet is to the best of our knowledge accurate. It is intended to be helpful but no warranty is expressed or implied regarding the accuracy of such data. It is the users responsibility to determine the suitability of his own use of the product described herein; and since conditions of the use are beyond our control, we disclaim all liability with respect to the use of any material supplied by us. Nothing contained herein shall be construed as permission or as recommendations to practice any patented invention without a license from the patent owner nor as recommendation to use any product or to practice any patented invention without a license from the patent owner nor as recommendation to use any product or to practice any process in.

