Water Soluble Solder Paste

Features:

- 48 Hour Stencil Life
- Excellent Activity
- 24 Hour Tack Time
- Excellent Printing Characteristics
- Slump Resistant
- Good for Batch or Continuous Runs
- Extended Cleaning Window
- High-Humidity Resistant
- Will Not Foam During Wash

Description:

WS483 is a halogen- and halide-free organically activated formulation. WS483 offers improved heat and humidity resistance, while maintaining high tack and resistance to slump. WS483 also provides an exceptional post-process cleaning window and will not foam during the cleaning process, even in high-pressure wash systems.

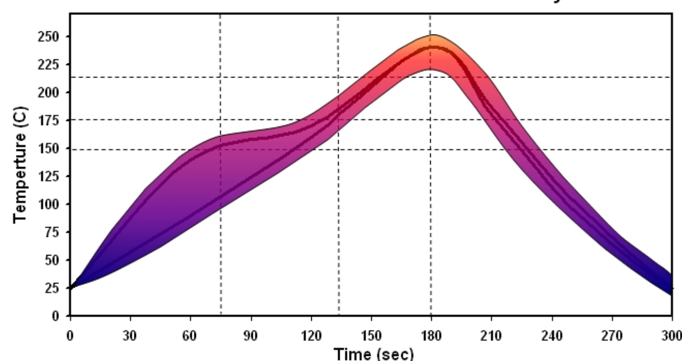
Printing:

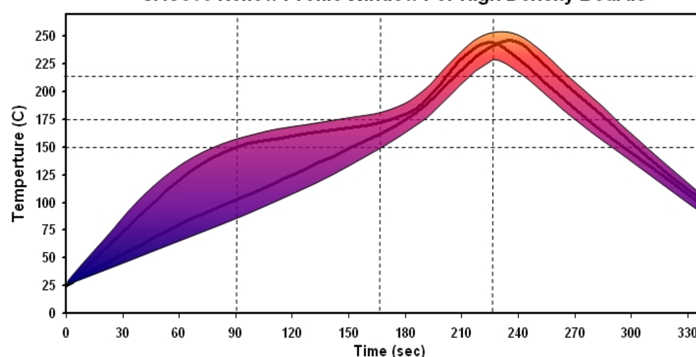
- Apply sufficient paste to the stencil to allow a smooth, even roll during the print cycle (a bead diameter of 12 to 16 mm (½ to ⅝ inch) is normally sufficient to begin).
- Apply small amounts of fresh solder paste to the stencil at controlled intervals to maintain paste chemistry and workable properties.
- WS483 provides the necessary tack time and force for today's high speed placement equipment, which will enhance product performance and reliability.

RECOMMENDED INITIAL PRINTER SETTINGS BELOW ARE DEPENDENT ON PCB AND PAD DESIGN			
PARAMETER	*RECOMMENDED INITIAL SETTINGS*	*PARAMETER*	*RECOMMENDED INITIAL SETTINGS*
Squeegee Pressure	0.10-0.30 kg/cm (.6 - 1.7 lbs/In.) of blade	PCB Separation Distance	0.75-2.0 mm (.030-.080")
Squeegee Speed	12-150 mm/sec (.5-6"/sec)	PCB Separation Speed	Slow
Snap-off Distance	On Contact 0.00 mm (0.00")		

Reflow Profile:

Two unique profile families are depicted below; both can be used in ramp-spike or ramp-soak-spike applications, and they each have similar reflow temperatures. The two profiles differ in where they reach their respective peak temperatures, as well as the time above liquidus (TAL). The shorter profile of the two would apply to smaller assemblies, whereas the longer profile would apply to larger assemblies, such as backplanes or high-density boards. The shaded area defines the process window. Oven efficiency, board size/mass, component type and density all influence the final profile for a given assembly. These profiles are starting points, and processing boards with thermal-couples attached is recommended to optimize the process.





RATE OF RISE 2°C / SEC MAX	*RAMP TO 150°C (302°F)*	*PROGRESS THROUGH 150°C-175°C (302°F-347°F)*	*TO PEAK TEMP 230°C-245°C (445°F-474°F)*	*TIME ABOVE 217°C (425°F)*	*COOLDOWN ≤ 4 °C / SEC*	*PROFILE LENGTH AMBIENT TO COOL DOWN*
Short Profiles	≤ 75 Sec	30-60 Sec	45-75 Sec	30-60 Sec	45± 15 Sec	2.75-3.5 Min
Long Profiles	≤ 90 Sec	60-90 Sec	45-75 Sec	60-90 Sec	45± 15 Sec	4.5-5.0 Min

- ❖ THE RECOMMENDED REFLOW PROFILE FOR WS488 IS PROVIDED AS A GUIDELINE. OPTIMAL PROFILE MAY DIFFER DUE TO OVEN TYPE, ASSEMBLY LAYOUT, OR OTHER PROCESS VARIABLES. CONTACT AIM TECHNICAL SUPPORT IF YOU REQUIRE ADDITIONAL PROFILING ASSISTANCE.
- ❖ THE REFLOW PROFILE FOR THE SAC305 PASTES USING A VAPOR PHASE REFLOW OVEN: PEAK TEMPERATURE RANGE I S 230°C – 245°C.

Cleaning:

WS483 can be cleaned easily with normal tap water. Deionized water is recommended for the final rinse. A temperature of 38°C (100°F) - 66°C (150°F) is sufficient for removing residues. An in-line or other pressurized spray cleaning system is suggested, but is not required.

Handling and Storage:

- WS483 has a refrigerated shelf life of 6 months at 4°C (40°F) - 12°C (55°F).
- Allow the solder paste to warm naturally to ambient temperature (8 hrs.) prior to breaking the seal for use.
- Mix the product lightly and thoroughly for 1 to 2 minutes to ensure even distribution of any separated material.
- Do not store new and used paste in the same container, and reseal any opened containers while not in use.
- Replace the internal plug and cap of the 500 gram jars to ensure the best possible seal.

Safety:

- Use with adequate ventilation and proper personal protective equipment.
- Refer to the accompanying Material Safety Data Sheet for any specific emergency information.
- Do not dispose of any lead-containing materials in non-approved containers.

Physical Properties:

ITEM	*SPECIFICATION*
Appearance	Gray, Smooth, Creamy
Alloy	SAC305
Melting Point	217°C
Particle Size	T3, T4, T5
Viscosity	Print/Dispense
Packaging	Available in all industry standard packaging.

Test Data Summary:

CLASSIFICATION			
Product Name	IPC Classification to J-STD-004	Copper Mirror to J-STD-004	Silver Chromate to J-STD-004
WS483	ORM0	Low	Pass
POWDER TESTING			
No.	Item	Results	Test Method
1	Powder Size	Type 3 – 45-25 micron Type 4 – 38-20 micron	J-STD-004 IPC TM 650 2.2.14
2	Powder Shape	Spherical	Microscope
FLUX MEDIUM TESTING			
No.	Item	Results	Test Method
1	Acid Value	150.02 mg KOH/g Flux	J-STD-004 IPC TM 650 2.3.13
2	Fluorides Spot Test	No Fluoride	J-STD-004 IPC TM 650 2.3.35.1
3	Corrosivity Test/ Copper Mirror	Low	J-STD-004 IPC TM 650 2.3.32
4	Halide-Free/Silver Chromate Paper Test	Pass	J-STD-004 IPC TM 650 2.3.33
7	Surface Insulation Resistance	Control coupons > 1E9Ω at 96 & 168 h. - Pass Sample coupons > 1E8Ω at 96 & 168 h. - Pass Post-test visual inspection > No dendrite growth or corrosion - Pass	J-STD-004 IPC TM 650 2.6.3.3
8	Compatibility Test	See list of recommended products above	GR-78-CORE
VISCOSITY TESTING			
No.	Item	Results	Test Method
1	T-Bar Spindle Test Method	900 ± 10% kcps	J-STD-005 IPC TM 650 2.4.34
SOLDER PASTE TESTING			
No.	Item	Results	Test Method
1	Tack Test	30.5 gf	J-STD-005 IPC TM 650 2.4.44
2	Tack Test	82.8 gf	JIS Z 3284 Annex 9
3	Solder Ball Test	Pass	J-STD-005 IPC TM 650 2.4.43
4	Wetting Test	Pass	J-STD-005 IPC TM 650 2.4.45
5	Paste Shelf Life	4°C (40°F) – 12°C (55°F) = 6 months	AIM TM 125-11
6	Solder Paste Slump Test	Pass	J-STD-005 IPC TM 650 2.4.35

The information contained herein is based on data considered accurate and is offered at no charge. Product information is based upon the assumption of proper handling and operating conditions. All information pertaining to solder paste is produced with 45-micron powder. Liability is expressly disclaimed for any loss or injury arising out of the use of this information or the use of any materials designated. Please refer to http://www.aimsolder.com/Home/TermsConditions.aspx to review AIM's terms and conditions.