



# WS488 SAC305



## Water Soluble Solder Paste

### Features:

- Excellent Wetting
- Superior Slump Resistance
- Aqueous Wash with Water
- Extended Cleaning Window
- 8 Hour + Stencil Life
- Large Process Window

### Description:

AIM's WS488 water soluble solder paste has been designed to wet virtually any solderable electronic surfaces, components, assemblies, and substrates. WS488 offers superior slump resistance, as well as excellent print characteristics and 8+ hours of stencil life. WS488 is compatible with all leaded and lead-free alloys, and has been developed for use in a wide range of applications. Easily cleaned in tap water, this all purpose water soluble product was created to meet the industry's demand for a consistently reliable water soluble product.

### 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 (1/2 to 5/8 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.
- WS488 provides the necessary tack time and force for today's high speed placement equipment, which will enhance product performance and reliability.

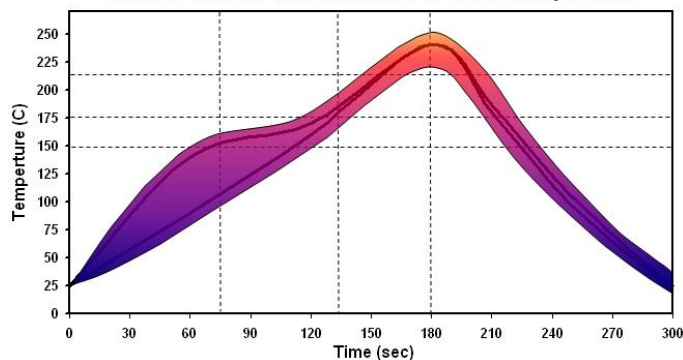
### RECOMMENDED INITIAL PRINTER SETTINGS BELOW ARE DEPENDENT ON PCB AND PAD DESIGN

| 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")                  |                         |                              |

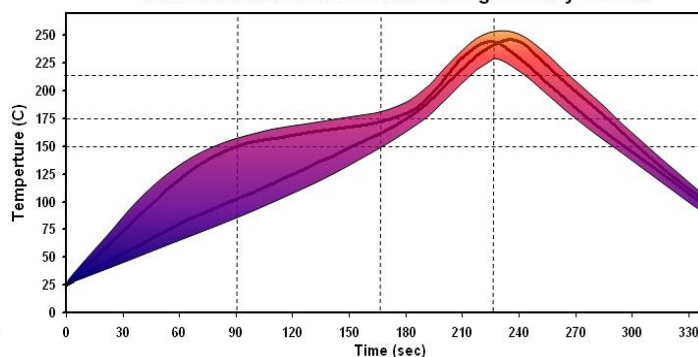
### Reflow Profile:

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, where as 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.

SAC305 Reflow Profile Window For Low Density Boards



SAC305 Reflow Profile Window For High Density Boards



| <i>RATE OF RISE 2°C / SEC MAX</i> | <i>RAMP TO 150°C (302°F)</i> | <i>PROGRESS THROUGH 150°C-175°C (302°F-347°F)</i> | <i>TO PEAK TEMP 230°C-245°C (445°F-474°F)</i> | <i>TIME ABOVE 217°C (425°F)</i> | <i>COOLDOWN ≤ 4 °C / SEC</i> | <i>PROFILE LENGTH AMBIENT TO COOL DOWN</i> |
|-----------------------------------|------------------------------|---|---|---------------------------------|------------------------------|--|
| 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 IS 230°C – 245°C.

### Compatible Products:

- Electropure Solder Bar
- WS Tacky Flux
- WS715; WS375 Spray Flux
- WS482 Cored Wire
- Epoxy 4089 – Chip Bonding Epoxy
- 200AX – Stencil Cleaner

### Cleaning:

WS488 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:

- WS488 has a refrigerated shelf life of 1 year 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:

| <i>ITEM</i>           | <i>SPECIFICATION</i>                          |
|-----------------------|---|
| Appearance            | Gray, Smooth, Creamy                          |
| Alloy                 | SAC305  |
| Melting Point         | 217°C   |
| Particle Size         | T3, T4, T5                                    |
| General Metal Loading | 88.5% (T3)                                    |
| Viscosity             | Print/Dispense Versions Available             |
| Packaging             | Available in all industry standard packaging. |

## Test Data Summary:

| <b>CLASSIFICATION</b>       |   |  |  |
|-----------------------------|---|--|--|
| Product Name                | IPC Classification to J-STD-004   | Copper Mirror to J-STD-004   | Silver Chromate to J-STD-004                                   |
| WS488                       | ORM1  | < 50% Breakthrough – M   | Halides Present  |
| <b>POWDER TESTING</b>       |   |  |  |
| No.                         | Item  | Results  | Test Method  |
| 1                           | Powder Size   | Type 3 – 45-25 micron<br>Type 4 – 38-20 micron   | J-STD-004 IPC TM 650 2.2.14                                    |
| 2                           | Powder Shape  | Spherical  | Microscope   |
| <b>FLUX MEDIUM TESTING</b>  |   |  |  |
| No.                         | Item  | Results  | Test Method  |
| 1                           | Acid Value  | 55.17 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<br>J-STD-004 IPC TM 650 2.3.35.2 |
| 3                           | Corrosivity Test/ Copper Mirror   | < 50% Breakthrough – M   | J-STD-004 IPC TM 650 2.3.32                                    |
| 4                           | Halide-Free/Silver Chromate Paper Test  | Halides Present  | J-STD-004 IPC TM 650 2.3.33                                    |
| 5                           | Surface Insulation Resistance<br>(Solder paste was reflowed on test coupons, left at ambient temperatures for 2 weeks, then cleaned with 55-58°C tap water for 120 sec, and allowed to air dried for 30 min before testing) | Control Coupons > 1E9Ω at 96 & 168 h. - Pass<br>Sample Coupons > 1E8Ω at 96 & 168 h. - Pass<br>> No dendrite growth or corrosion, after a visual inspection - pass | J-STD-004 IPC TM 650 2.6.3.3                                   |
| 6                           | Compatibility Test  | See list of recommended products above   | GR-78-CORE   |
| <b>VISCOSITY TESTING</b>    |   |  |  |
| No.                         | Item  | Results  | Test Method  |
| 1                           | T-Bar Spindle Test Method   | Printing: 900 ± 10% kcps<br>Dispensing: 400 ± 20% kcps   | J-STD-005 IPC TM 650 2.4.34                                    |
| <b>SOLDER PASTE TESTING</b> |   |  |  |
| 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 (39°F) = 1 year  | AIM TM 125-11  |
| 6                           | Solder Paste Slump Test   | Pass   | J-STD-005 IPC TM 650 2.4.35                                    |

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 AIM IS ISO9001:2008 CERTIFIED

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- Поставка более 17-ти миллионов наименований электронных компонентов;
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- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
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- Подбор аналогов;
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- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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