# WS488
# SAC305

Solder plus Support

## Water Soluble Solder Paste

## Features:

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

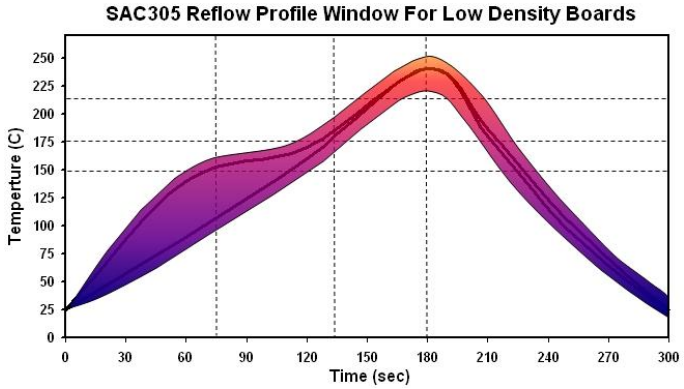
## Printing:

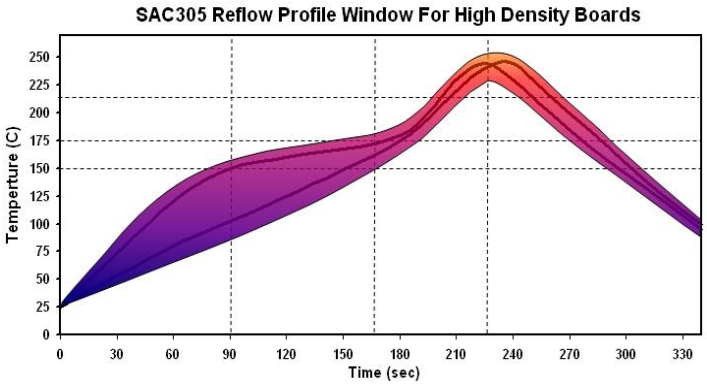
- Apply sufficient paste to the stencil to allow a smooth, even roll during the print cycle (a bead diameter of 12 to 16 mm (½ to ⅝ inch) is normally sufficient to begin).
- Apply small amounts of fresh solder paste to the stencil at controlled intervals to maintain paste chemistry and workable properties.
- 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.



| *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.

## 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:

| *ITEM* | *SPECIFICATION* |
|---|---|
| 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:

| *CLASSIFICATION* | | | |
|---|---|---|---|
| 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 |
| *POWDER TESTING* | | | |
| 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 |
| *FLUX MEDIUM TESTING* | | | |
| 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 |
| *VISCOSITY TESTING* | | | |
| 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 |
| *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 Annez 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 |

Manufacturing and Distribution Worldwide
Canada +1-514-494-2000 · USA +1-401-463-5605 · Mexico +52-656-630-0032 · Europe +44-1737-222-258
Asia-Pacific +86-755-2993-6487 · India +91-80-41554753 ·
info@aimsolder.com · www.aimsolder.com
*AIM IS ISO9001:2008 CERTIFIED*

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/terms.cfm to review AIM's terms and conditions.

ООО «ЛайфЭлектроникс» “LifeElectronics” LLC

ИНН 7805602321 КПП 780501001 Р/С 40702810122510004610 ФАКБ "АБСОЛЮТ БАНК" (ЗАО) в г.Санкт-Петербурге К/С 30101810900000000703 БИК 044030703

*Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.*

*С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров*

*Мы предлагаем:*

- *Конкурентоспособные цены и скидки постоянным клиентам.*
- *Специальные условия для постоянных клиентов.*
- *Подбор аналогов.*
- *Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.*

- *Приемлемые сроки поставки, возможна ускоренная поставка.*
- *Доставку товара в любую точку России и стран СНГ.*
- *Комплексную поставку.*
- *Работу по проектам и поставку образцов.*
- *Формирование склада под заказчика.*

- *Сертификаты соответствия на поставляемую продукцию (по желанию клиента).*
- *Тестирование поставляемой продукции.*
- *Поставку компонентов, требующих военную и космическую приемку.*
- *Входной контроль качества.*
- *Наличие сертификата ISO.*

*В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.*

*Конструкторский отдел помогает осуществить:*

- *Регистрацию проекта у производителя компонентов.*
- *Техническую поддержку проекта.*
- *Защиту от снятия компонента с производства.*
- *Оценку стоимости проекта по компонентам.*
- *Изготовление тестовой платы монтаж и пусконаладочные работы.*

*Тел: +7 (812) 336 43 04 (многоканальный)*
*Email: org@lifeelectronics.ru*

***www.lifeelectronics.ru***