

## W20 WATER SOLUBLE SOLDER PASTE

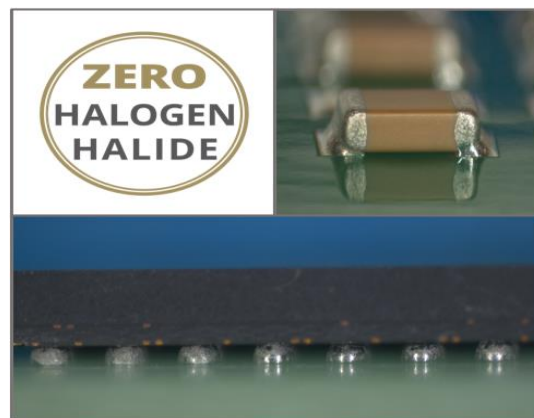
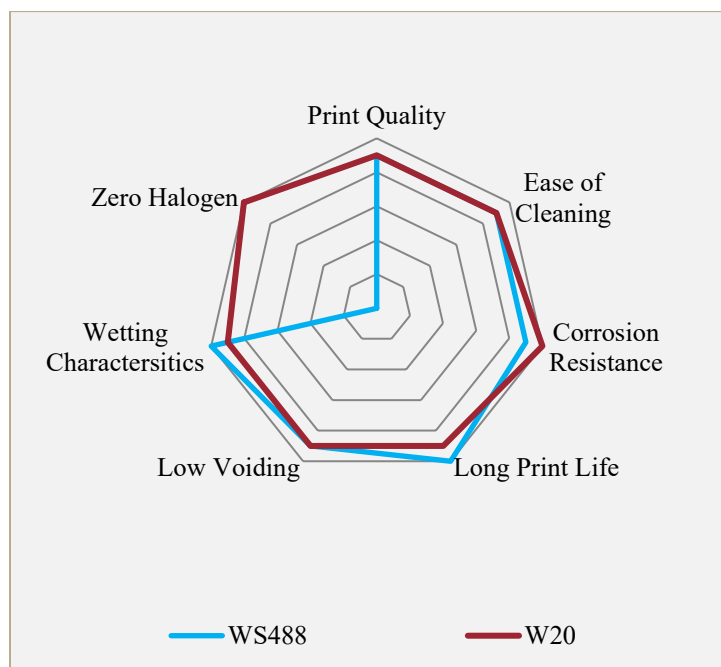
### FEATURES

- Zero Halide/Halogen per J-STD-004
- RoHS Compliant\*
- DI Water Wash
- Low Foaming
- Available in T4 and T5 powders sizes
- Extended Cleaning Window of 2+ Weeks
- 8+ Hour Stencil Life

### DESCRIPTION

AIM's W20 water soluble solder paste is a zero halide/halogen flux formula. W20 has been engineered for enhanced wetting performance on all solderable electronic surfaces. W20 exhibits excellent print characteristics and 8+ hours of stencil life. W20 highly soluble residues are easily removed in plain water, even under low stand-off components. This all-purpose water soluble product was created to meet the industry's demand for a consistently reliable zero halogen water soluble solder paste.

### CHARACTERISTICS



### HANDLING & STORAGE

| Parameter                        | Time      | Temperature          |
|----------------------------------|-----------|----------------------|
| Sealed Refrigerated Shelf Life   | 6 Months* | 0°C-12°C (32°F-55°F) |
| Sealed Unrefrigerated Shelf Life | 2 Weeks*  | < 25°C (< 77°F)      |

\*T4 powder size. Contact AIM for T5 shelf-life information.

Do not add used paste to unused paste. Store used paste separately; keep unused paste tightly sealed with internal plug or end cap in place. After opening, solder paste shelf life is environment and application dependent. See AIM's paste handling guidelines for further information. Alloy and storage conditions may affect shelf life. Please refer to W20 Certificate of Analysis for product specific information.

### CLEANING

**Pre-Reflow:** AIM stencil cleaner effectively removes solder paste from stencils while in process. Stencil cleaner can be hand applied or used in under stencil wipe equipment. Stencil cleaner will not dry paste and will enhance transfer properties. Do not over-apply stencil cleaner. Do not apply stencil cleaner to stencil topside. Isopropanol (IPA) is not recommended in process but may be used as a final stencil rinse.

**Post-Reflow Flux Residue:** AIM recommends water soluble flux residue to be removed within 24 hours for optimal results but can be left on the board for up to 2 weeks. Cleaning can be performed in plain water between 50°C-60°C (120°F-140°F) following with a final rinse in DI water.

\*For lead-free alloys

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## REFLOW PROFILE

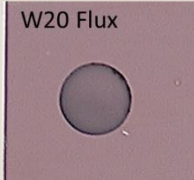
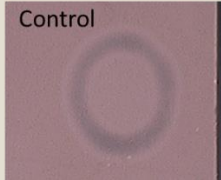
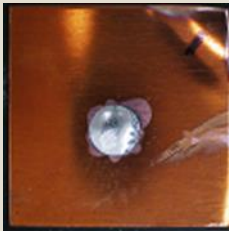
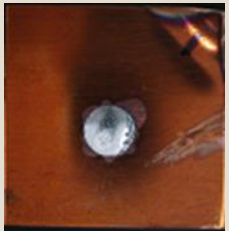
Detailed profile information may be found at <http://www.aimsolder.com/reflow-profile-supplements>. Contact AIM for additional information.

## PRINTING

| Recommended Initial Printer Settings - Dependent on PCB and Pad Design |                                             |
|------------------------------------------------------------------------|---------------------------------------------|
| Parameter                                                              | Recommended Initial Settings                |
| Squeegee Pressure                                                      | 0.30-0.60 kg/cm (1.7- 3.4 lbs/In.) of blade |
| Squeegee Speed                                                         | 25-120 mm/sec (1-4.7"/sec)                  |
| Snap-off Distance                                                      | On Contact 0.00 mm                          |
| PCB Separation Distance                                                | 0.75 - 2.0 mm                               |
| PCB Separation Speed                                                   | 3-6 mm/sec                                  |


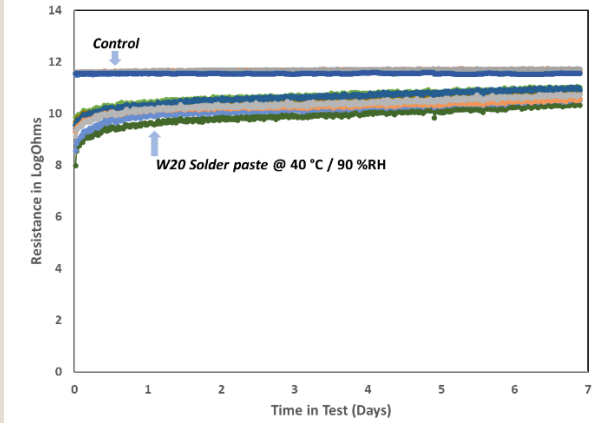
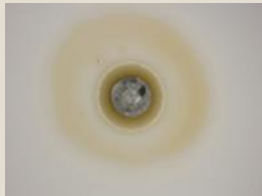

## TEST DATA SUMMARY

**Note:** All test data is for T4 SAC305 formulation.

| Name                    | Test Method                               | Results                  |                                                                                                                                                                                                                 |
|-------------------------|-------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IPC Flux Classification | J-STD-004 Current rev                     | ORM0                     |                                                                                                                                                                                                                 |
| Name                    | Test Method                               | Typical Results          | Image                                                                                                                                                                                                           |
| Copper Mirror           | J-STD-004B 3.4.1.1<br>IPC-TM-650 2.3.32   | MED = < 50% Breakthrough | <p>@ 23 °C / 55 %RH</p> <div>   </div> |
| Corrosion               | J-STD-004B 3.4.1.2<br>IPC-TM-650 2.6.15   | PASS                     | <div>   </div>                         |
| Halogen                 | J-STD-004B 3.5.4<br>EN 14582              | 400 ppm Typical          | Halogen Free                                                                                                                                                                                                    |
| Quantitative Halides    | J-STD-004B 3.4.1.3<br>IPC-TM-650 2.3.28.1 | 200 ppm Typical          | Halide Free                                                                                                                                                                                                     |

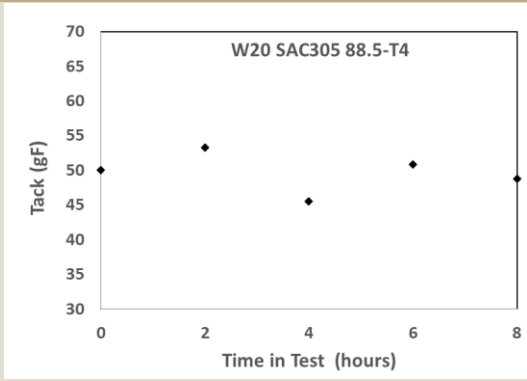
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| Name                                 | Test Method                               | Typical Results                                       | Image                                                                                                                                                                                                     |
|--------------------------------------|-------------------------------------------|-------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Qualitative Halides, Silver Chromate | J-STD-004 3.5.1.1<br>IPC-TM-650 2.3.33    | None Detected                                         |                                                                                                                        |
| Qualitative Halides, Fluoride Spot   | J-STD-004B 3.5.1.2<br>IPC-TM-650 2.3.35.1 | No Fluoride                                           |                                                                                                                                                                                                           |
| Surface Insulation Resistance        | J-STD-004B 3.4.1.4<br>IPC-TM-650 2.6.3.7  | PASS, All measurements on test patterns exceed 100 MΩ |                                                                                                                        |
| Acid Value Determination             | J-STD-004B 3.4.2.2<br>IPC-TM-650 2.3.13   | 54.2 mgKOH/g flux<br>Typical                          |                                                                                                                                                                                                           |
| Viscosity (Brookfield)               | J-STD-004B 3.4.2.4<br>IPC-TM-650 2.4.34   | 450 - 850 kcps<br>Typical (formula dependent)         |                                                                                                                                                                                                           |
| Viscosity (Malcolm)                  | J-STD-004B 3.4.2.4<br>IPC-TM-650 2.4.34   | 120 – 220 Pa.s<br>Typical (formula dependent)         |                                                                                                                                                                                                           |
| Visual                               | J-STD-004B 3.4.2.5                        | PASS                                                  |                                                                                                                                                                                                           |
| Slump                                | J-STD-005A 3.6<br>IPC-TM-650 2.4.35       | PASS                                                  |                                                                                                                                                                                                           |
| Solder Ball                          | J-STD-005A 3.7<br>IPC-TM-650 2.4.43       | PASS                                                  |   <p>15 minutes      4 hours</p> |

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| Tack                 | J-STD-005A 3.8<br>IPC-TM-650 2.4.44 | 43.8 gf<br>Typical |  <table><caption>W20 SAC305 88.5-T4</caption><thead><tr><th>Time in Test (hours)</th><th>Tack (gF)</th></tr></thead><tbody><tr><td>0</td><td>50</td></tr><tr><td>2</td><td>53</td></tr><tr><td>4</td><td>46</td></tr><tr><td>6</td><td>51</td></tr><tr><td>8</td><td>49</td></tr></tbody></table> | Time in Test (hours) | Tack (gF) | 0 | 50 | 2 | 53 | 4 | 46 | 6 | 51 | 8 | 49 |
|----------------------|-------------------------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------|---|----|---|----|---|----|---|----|---|----|
| Time in Test (hours) | Tack (gF)                           |                    |                                                                                                                                                                                                                                                                                                                                                                                     |                      |           |   |    |   |    |   |    |   |    |   |    |
| 0                    | 50                                  |                    |                                                                                                                                                                                                                                                                                                                                                                                     |                      |           |   |    |   |    |   |    |   |    |   |    |
| 2                    | 53                                  |                    |                                                                                                                                                                                                                                                                                                                                                                                     |                      |           |   |    |   |    |   |    |   |    |   |    |
| 4                    | 46                                  |                    |                                                                                                                                                                                                                                                                                                                                                                                     |                      |           |   |    |   |    |   |    |   |    |   |    |
| 6                    | 51                                  |                    |                                                                                                                                                                                                                                                                                                                                                                                     |                      |           |   |    |   |    |   |    |   |    |   |    |
| 8                    | 49                                  |                    |                                                                                                                                                                                                                                                                                                                                                                                     |                      |           |   |    |   |    |   |    |   |    |   |    |
| Wetting              | J-STD-005A 3.9<br>IPC-TM-650 2.4.45 | PASS               |                                                                                                                                                                                                                                                                                                                                                                                     |                      |           |   |    |   |    |   |    |   |    |   |    |

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