



Technical Bulletin



Solder plus Support

M8 No Clean Solder Paste

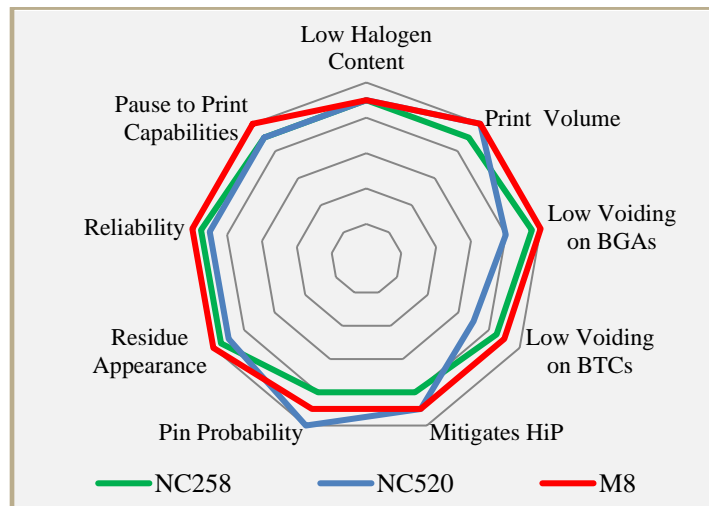
DESCRIPTION

AIM's M8 no clean solder paste brings performance to the next level. Developed in combination with T4 and finer mesh leaded and lead-free alloy powders, M8 provides stable transfer efficiencies required for today's UFP and umBGA devices, reducing DPMO on the most challenging applications. M8 activators will reduce wetting related defects such as HiP (head-in-pillow) and provide smooth shiny joints. M8 has reduced BGA and BTC voiding to as low as <5% on BGA and <10% on BTC ground pads. M8 passes stringent automotive and high reliability SIR and electrochemical test requirements.

FEATURES AND BENEFITS

- Low Voiding: <5% on BGA and <10% on BTC
- Excellent Print Transfer Efficiencies <0.50 AR
- Eliminates HiP Defects
- REACH and RoHS* Compliant
- Formulated for use with T4 and Finer Powders
- Powerful Wetting on Lead-Free Surface Finishes
- Minimal Transparent Residue – LED Compliant
- Passes Bono and Automotive SIR Testing

CHARACTERISTICS



STORAGE & SHELF LIFE

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. Alloy and storage conditions may affect shelf life. Please refer to M8 Certificate of Analysis for product specific information.

PARAMETER	TIME	TEMPERATURE
Sealed Refrigerated Shelf Life	1 year	0°C-12°C (32°F-55°F)
Sealed Unrefrigerated Shelf Life	3 months	< 25°C (< 77°F)

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SOLDER CONNECTION

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CLEANING

Pre-Reflow: AIM DJAW-10 effectively removes M8 solder paste from stencils while in process. DJAW-10 can be hand applied or used in under stencil wipe equipment. DJAW-10 will not dry M8 and will enhance transfer properties. Do not over-apply DJAW-10. Do not apply DJAW-10 to stencil topside. Isopropanol (IPA) is not recommended in process but may be used as a final stencil rinse.

Post-Reflow Flux Residue: M8 residues can remain on the assembly after reflow and do not require cleaning. Where cleaning is mandated, AIM has worked closely with industry partners to ensure that M8 residues can be effectively removed with common defluxing agents. Contact AIM for cleaning compatibility information.

HEALTH & SAFETY

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



REFLOW PROFILE

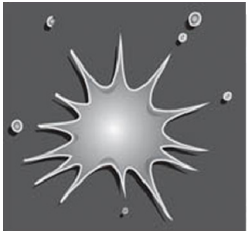
Detailed profile information may be found at <http://www.aimsolder.com/reflow-profile-supplements>.

TEST DATA SUMMARY

RECOMMENDED INITIAL PRINTER SETTINGS - DEPENDENT ON PCB AND PAD DESIGN	
Parameter	Recommended Initial Settings
Squeegee Pressure	0.4 - 0.7kg/25mm
Squeegee Speed	13 – 152 mm/second
Snap-off Distance	On Contact 0.00 mm
PCB Separation Distance	0.75 - 2.0 mm
PCB Separation Speed	3 - 20 mm/second
Solder Paste Stencil Life	>8 hours


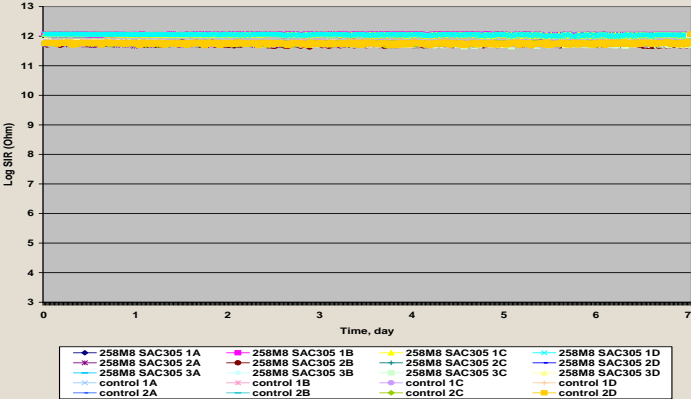

TEST DATA SUMMARY

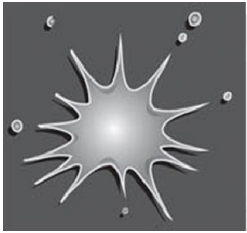
NAME	TEST METHOD	RESULTS	
IPC Flux Classification	J-STD-004 A	ROL0	
IPC Flux Classification	J-STD-004 B and C	ROL1	
NAME	TEST METHOD	TYPICAL RESULTS	IMAGE
Mass Density*		4.2 gr/cm ³ (*SAC305)	
Copper Mirror	J-STD-004B 3.4.1.1 IPC-TM-650 2.3.32	LOW	
Corrosion	J-STD-004B 3.4.1.2 IPC-TM-650 2.6.15	PASS	
Quantitative Halides	J-STD-004B 3.4.1.3 IPC-TM-650 2.3.28.1	Cl: 0.0% Typical	



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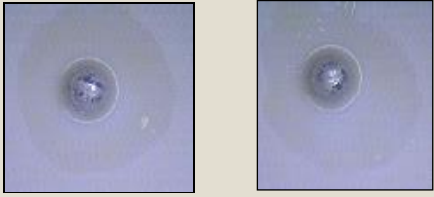
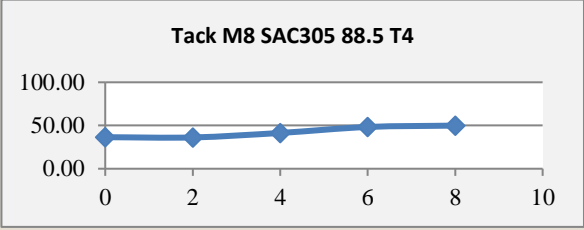
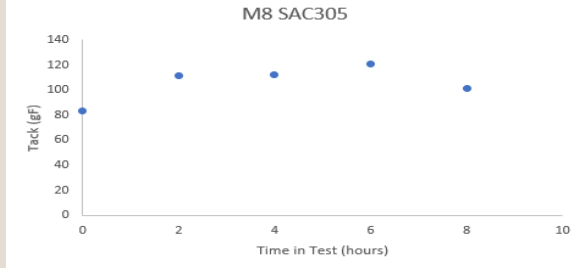
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Name	Test Method	Typical Results	Image
Qualitative Halides, Silver Chromate	J-STD-004B 3.5.1.1 IPC-TM-650 2.3.33	PASS	
Qualitative Halides, Fluoride Spot	J-STD-004B 3.5.1.2 IPC-TM-650 2.3.35.1	No Fluoride	
Surface Insulation Resistance	J-STD-004B 3.4.1.4 IPC-TM-650 2.6.3.7	All measurements on test patterns exceed 100 MΩ	
Bono Testing		PASS Fc < 8.0 Typical	
Oxygen Bomb Halogen Testing	EN14582:2007 SW 9056 SW 5050	Cl < 122 mg/Kg	
Electrochemical Migration	J-STD-004B 3.4.1.5 IPC-TM-650 2.6.14.1	PASS	
Flux Residue Dryness	IPC-TM-650 2.4.47	PASS	
Flux Solids, Nonvolatile Determination	J-STD-004B 3.4.2.1 IPC-TM-650 2.3.34	94.8% Typical	
Acid Value Determination	J-STD-004B 3.4.2.2 IPC-TM-650 2.3.13	136 mgKOH/g flux Typical	
Viscosity (Brookfield)	J-STD-005A 3.5.1 IPC-TM-650 2.4.34	400-1000 Kcps	Formula Dependent
Viscosity (Malcom)	J-STD005A 3.5.1 IPC-TM650 2.4.34	70-300 Pa.S	Formula Dependent



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NAME	TEST METHOD	TYPICAL RESULTS	IMAGE												
Visual	J-STD-004B 3.4.2.5	PASS													
Slump	J-STD-005A 3.6 IPC-TM-650 2.4.35	PASS													
Spread Test	J-STD-004B 3.7.2 IPC-TM-650 2.4.46	PASS													
Solder Ball	J-STD-005A 3.7 IPC-TM-650 2.4.43	PASS	 <p>15 min 4 hrs</p>												
Tack	J-STD-005A 3.8 IPC-TM-650 2.4.44	36.1 gf Time 0 Typical	 <p>Tack M8 SAC305 88.5 T4</p> <table border="1"> <caption>Tack M8 SAC305 88.5 T4 Data</caption> <thead> <tr> <th>Time (hours)</th> <th>Tack (gf)</th> </tr> </thead> <tbody> <tr><td>0</td><td>36.1</td></tr> <tr><td>2</td><td>36.1</td></tr> <tr><td>4</td><td>36.1</td></tr> <tr><td>6</td><td>36.1</td></tr> <tr><td>8</td><td>36.1</td></tr> </tbody> </table>	Time (hours)	Tack (gf)	0	36.1	2	36.1	4	36.1	6	36.1	8	36.1
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Tack	JIS Z 3284	105.92 gf Typical	 <p>M8 SAC305</p> <table border="1"> <caption>M8 SAC305 Data</caption> <thead> <tr> <th>Time in Test (hours)</th> <th>Tack (gf)</th> </tr> </thead> <tbody> <tr><td>0</td><td>105.92</td></tr> <tr><td>2</td><td>105.92</td></tr> <tr><td>4</td><td>105.92</td></tr> <tr><td>6</td><td>105.92</td></tr> <tr><td>8</td><td>105.92</td></tr> </tbody> </table>	Time in Test (hours)	Tack (gf)	0	105.92	2	105.92	4	105.92	6	105.92	8	105.92
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