ALPHA® JP-530

Tin-Lead Eutectic Solder Paste for Jet Printing

DESCRIPTION

ALPHA JP-530 is a tin lead, no-clean solder paste designed for use in Jet Printers. **ALPHA JP-530** is formulated to offer best in class in circuit pin test yields, high electrical reliability, all in a Zero Halogen flux formulation.

Outstanding reflow process window delivers good soldering on CuOSP, lead free HASL, immersion silver, immersion tin and ENIG surface finishes. **ALPHA JP-530** is formulated to deliver excellent visual joint cosmetics. Additionally, **ALPHA JP-530** is rated ROL0 per IPC J-STD-004.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

FEATURES & BENEFITS

- Maximizes reflow yield for lead-free processing, allowing full alloy coalescence at circular dimensions as small as 0.25mm (0.010”).
- Excellent deposit consistency with high process capability index across all board designs.
- Designed for use with the MYCRONIC® MY500 & MY600 Jet Printers.
- Zero Halogen.
- Wide reflow profile window with good solderability on various board / component finishes.
- Excellent solder and flux cosmetics after reflow soldering.
- Reduction in random solderballing levels, minimizing rework and increasing first time yield.
- Excellent pin-test yield for single and double reflow.
- Meets highest IPC 7095 voiding performance classification of Class III.
- Excellent reliability properties, zero halogen material.
- Capable of high reflow yield without the use of nitrogen.

PRODUCT INFORMATION

Alloys: SnPb Eutectic (63Sn/37Pb)

For other alloys, contact your local Alpha salesperson.

Powder Size: Type 5

Packaging Sizes: Iwashita 30 cc dispensers.

HALOGEN STATUS

ALPHA JP-530 passed all the standards listed in the Table below:

Halogen Standards			
Standard	**Requirement**	**Test Method**	**Status**
JEITA ET-7304 Definition of Halogen Free Soldering Materials	< 1000 ppm Br, Cl, F in solder material solids	**TM EN 14582** Solids extraction per IPC TM 2.3.34	Pass
IEC 612249-2-21	Post Soldering Residues contain < 900 ppm each or total of < 1500 ppm Br or Cl from flame retardant source		Pass
JEDEC A Guideline for Defining "Low Halogen" Electronics	Post soldering residues contain < 1000 ppm Br or Cl from flame retardant source		Pass
Zero Halogen: No halogenated compounds have been intentionally added to this product			

TECHNICAL INFORMATION

Category	Results	Procedures/Remarks
Chemical Properties		
Activity Level	ROL0 = J-STD Classification	IPC J-STD-004
Halide Content	Halide free (by titration). Passes Ag Chromate Test	IPC J-STD-004
Copper Mirror Test	Pass	IPC J-STD-004
Copper Corrosion Test	**Pass**, (No evidence of Corrosion)	IPC J-STD-004
Electrical Properties		
SIR (IPC 7 days @ 85 °C/85% RH)	**Pass**, 4.1 x 10^9 ohms	IPC J-STD-004 {Pass ≥ 1 x 10^8 ohm min}
SIR (Bellcore 96 hours @ 35 °C/ 85% RH)	**Pass**, 8.4 x 10^{11} ohms	Bellcore GR78-CORE {Pass ≥ 1 x 10^{11} ohm min}
Electromigration (Bellcore 96 hours @ 65 °C/ 85% RH 10V 500 hours)	**Final** = 1.3 x 10^{11} ohms	Bellcore GR78-CORE {Pass = final > initial/10)
Physical Properties		**Using 88.5% Metal, Type #5 Powder.**
Color	Clear, Colorless Flux Residue	Sn63Pb37 alloy
Tack Force vs. Humidity (t=8 hours)	**Pass,** Change of <1 g/mm^2 over 24 hours at 25% and 75 % Relative Humidity	IPC J-STD-005
	Pass, Change of <10% when stored at 25±2 °C and 50±10% relative humidity.	JIS Z3284 Annex 9
Solderball	Pass < 10 count (63Sn/37Pb alloy)	IPC J-STD-005
Stencil Life	**N/A**	@ 50%RH, 23 °C (74 °F)
Spread	**Pass**	JIS-Z-3197: 1999 8.3.1.1
Slump	**Pass**	IPC J-STD-00 (10 min 150 °C)
	Pass	DIN Standard 32 513, 5.3
	Pass	JIS-Z-3284-1994 Annex 8

PROCESSING GUIDELINES

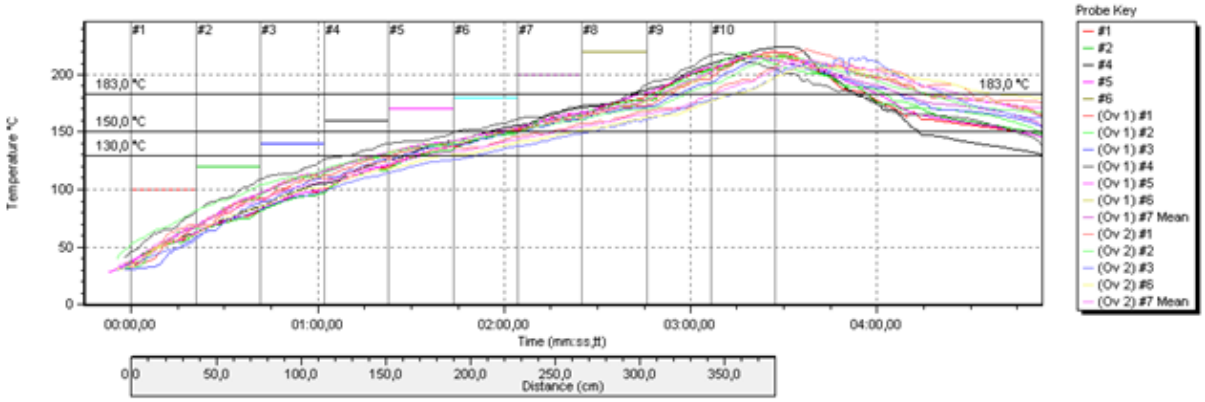
Storage-Handling	Jetting or Dispensing	Reflow (See Figure #1)	Cleaning
• Refrigerate to guarantee stability @ 0 to 10 °C (32 to 50 °F) • Shelf life of refrigerated paste is six months. • Paste can be stored for 2 weeks at room temperatures up to 25 °C (77 °F) prior to use. • When refrigerated, allow paste to reach room temperature before use. Paste must be □19 °C (66 °F) before processing. Verify paste temperature with a thermometer to ensure paste is at 19 °C (66 °F) or Greater before setup. Printing can be Performed at temperatures up to 29 °C (84 °F). • The dispense paste is designed to stay homogeneous, and not separate, upon storage in syringes. Therefore. there will be no need for homogenization of the paste within the syringe prior to use. • Do not remove worked paste from cartridge and mix with unused paste. This will alter rheology of unused paste. • These are starting recommendations and all process settings should be reviewed independently.	Designed for use with MYDATA® AG 01 Ejector System.	ATMOSPHERE: Clean-dry air or nitrogen atmosphere. PROFILE (Sn63Pb37 Alloy): Profile window From 40 °C to 183 °C: 2min 30sec to 3min 30sec From 150 °C to 183 °C: 45sec to 90 seconds From 130 °C to 183 °C: 1min to 2 min -Time above 183 °C = (30 to 90) seconds Acceptable reflow / coalescence and IPC Class III voiding were obtained for the range of profiles depicted below. Note 1: Refer to component and board supplier data for thermal properties at elevated temperatures. Lower peak temperatures require longer TAL for improved joint cosmetics.	ALPHA JP-530 residue is designed to remain on the board after reflow. If reflowed residue cleaning is required, ALPHA BC-2200 aqueous cleaner is recommended. For solvent cleaning, agitation for five minutes in the following cleaners is recommended: - ALPHA SM-110E - Kyzen A4520 Misprints and un-reflowed paste may be cleaned with: ALPHA SM-110E ALPHA SM-440 ALPHA BC-2200.

REFLOW PROCESS

Parameter	Guideline	Additional Information
Atmosphere	Air or N_2	Clean/Dry Air/N_2
Sn63/37 alloy melting ranges	Sn63/37Pb: 183 °C Eutectic	Use for reflow above liquidus setting

Profile General Guideline	
Setting Zone	Optimal Dwell Period
40 to 183 °C	150 to 220 sec.
150 to 183 °C	45 to 90 sec
130 to 183 °C	1 to 2 min.
Above 183 °C	30 to 90 sec.
Peak temperature	< 230 °C
Joint cool down rate from 170 °C	> 3 to 8 °C

Figure #1: Typical Reflow Profiles



RECYCLING SERVICES

We provide safe and efficient recycling services to help companies meet their environmental and legislative requirements and at the same time, maximize the value of their waste streams.

Our service collects solder dross, solder scrap, and various forms of solder paste waste. Please contact your local sales representative for recycling capabilities in your area or link here.

SAFETY & WARNING

It is recommended that the company/operator read and review the Safety Data Sheets for the appropriate health and safety warnings before use. **Safety Data Sheets are available at MacdermidAlpha.com/assembly-solutions/knowledge-base.**

CONTACT INFORMATION

To confirm this document is the most recent version, please contact Assembly@MacDermidAlpha.com

www.macdermidalpha.com

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Also read carefully warning and safety information on the Safety Data Sheet. This data sheet contains technical information required for safe and economical operation of this product. READ IT THOROUGHLY PRIOR TO PRODUCT USE. Emergency safety directory assistance: US 1 202 464 2554, Europe + 44 1235 239 670, Asia + 65 3158 1074, Brazil 0800 707 7022 and 0800 172 020, Mexico 01800 002 1400 and (55) 5559 1588