

# Lead-Free Solder Paste Data Sheet

Rev:2007/9/29 Ver. 6

## FORMOSA No Clean Solder Paste

Model: PF602-P

### Specification:

NO	Item	Specification	Standard
1	Appearance	Gray paste , No foreign , No Stiff	
2	Alloy	Bi / Sn42	JIS-Z-3282
3	Melting Point	139℃	DSC
4	Particle Size	(Type 3) +45μm 1% less , -20μm 10% less (Type 4) +38μm 1% less , -20μm 10% less	IPC-TM-650, 2.2.14
5	Powder Shape	Sphere	
6	Flux Content	10 ± 1.0wt%	JIS-Z-3197, 6.1
7	Halide Content	<0.3 wt% (in flux)	J-STD-004
8	Viscosity	180 ± 30 Pa.S (25±1℃ , 10rpm,Malcom )	JIS-Z-3284, Annex 6
9	Flux Type	ROL1	J-STD-004

### Physical Properties & Reliability Data

No	Test Item	Test Result	Test Method
1	Copper Plate Corrosion Test	PASS	JIS-Z-3197, 6.6.1
2	Spread Test	75% up	JIS-Z-3197, 6.10
3	Silver Chromate Test	PASS	IPC-TM-650, 2.3.33
4	Copper Mirror Test	PASS	IPC-TM-650, 2.3.32
5	Fluorides By Spot Test	PASS	IPC-TM-650, 2.3.35.1
6	S.I.R Test ▲	1×10 <sup>9</sup> up	IPC-TM-650, 2.6.3.3
7	Electro Migration Test ◆	1×10 <sup>12</sup> up Pass	IPC-TM-650, 2.6.14.1
8	Viscosity Test(25℃ ,10rpm)	180 ± 30 Pa.s	JIS-Z-3284. Annex 6
9	Tack Test (gf)	140 up(8hr)	JIS-Z-3284. Annex 9
10	Slump Test	Less than 0.3 mm	JIS-Z-3284. Annex 8
11	Solder Ball Test	PASS	JIS-Z-3284. Annex 11

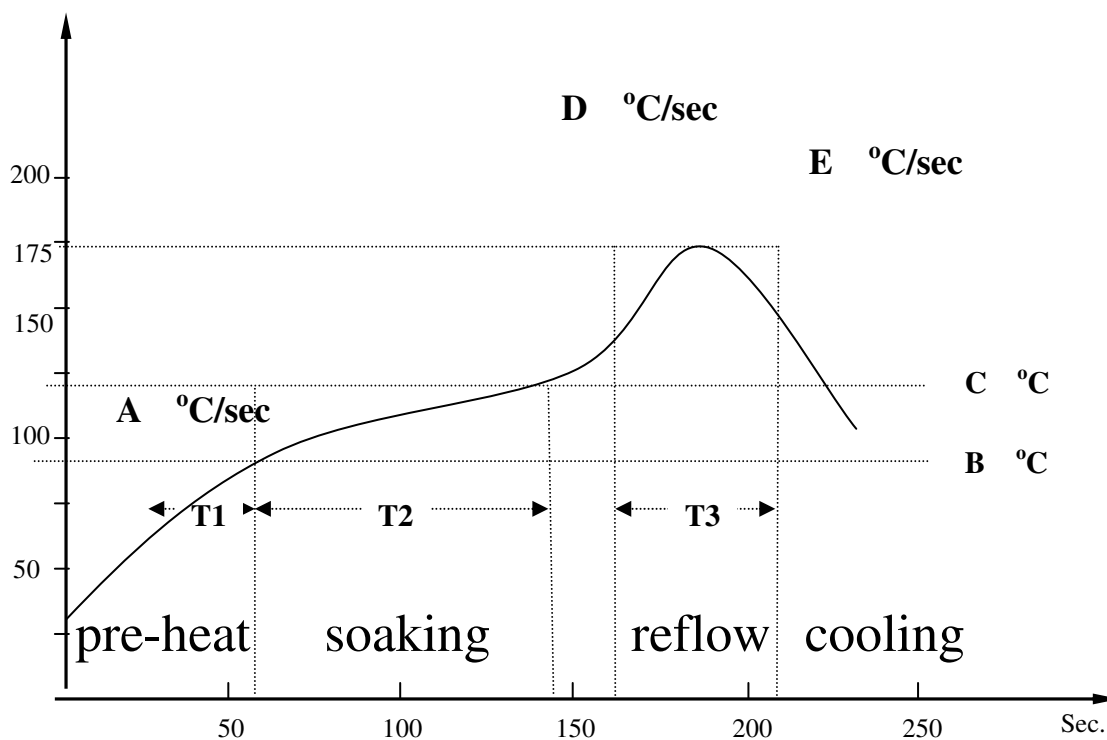
▲ Test Conditions : 85℃ , 85% RH

◆ Test Conditions : 65℃ , 85% RH

## ALLOY COMPOSITION

(Sn)	(Ag)	(Cu)	(Ni)	(Zn)	(Al)	(Sb)	(Fe)	(As)	(Bi)	(Cd)	(Pb)
41~43	0.10 MAX	0.05 MAX	0.01 MAX	0.001 MAX	0.001 MAX	0.05 MAX	0.02 MAX	0.03 MAX	REM	0.002 MAX	0.05 MAX

## Temperature Profile



<b>A: ramp up rate during preheat:</b>	<b>1~3 °C/sec</b>
<b>B~ C : soaking temperature:</b>	<b>90~120 °C</b>
<b>D: ramp up rate during reflow:</b>	<b>1.0~2.0 °C/sec</b>
<b>E: ramp down rate during cooling:</b>	<b>1.0~3.0 °C/sec</b>
<b>D~E : peak temperature:</b>	<b>165~185 °C</b>
<b>T1: preheat time:</b>	<b>50~80 sec</b>
<b>T2 : dwell time during soaking:</b>	<b>60~120 sec</b>
<b>T3 : time above 139 °C :</b>	<b>25~50 sec</b>

## **Handling and Storage Instruction**

### **1. Storage**

- (1) Keep in 0~10°C temperature.
- (2) Expiration period: 6 months from production date. 7 days storage in (25 ± 2°C) (sealed condition)
- (3) Keep out of direct sunlight.

### **2. Operation Manual (Sealed)**

- (1) Keep solder paste in room temperature (25 ± 2°C) for 3~4 hours. Do not use any heater to raise temperature.
- (2) Kindly mixed averagely for 1~3 minutes according to necessity.

### **3. Operation Manual (Opened)**

- (1) At first, add 2/3 can of solder paste onto the stencil, do not add more than 1 can of which.
- (2) Add solder paste a little at a time according to production procedure.
- (3) To maintain the solder paste quality, please make sure not to storage the opened can with sealed can.
- (4) Use new opened solder paste at the beginning of the next day. Mix opened solder paste with sealed one at ratio 1:2, add a little at a time during printing.
- (5) Soon after printing, please make sure all components to be mount on printed circuit board between 4~6 hours.
- (6) Please withdraw solder paste from stencil and seal kindly if printing progress would pause for more than 1 hour.
- (7) After continuously printing for 24 hours, kindly withdraw printed solder paste and follow step (4).
- (8) It is recommended to clean both side of stencil every 4 hours manually to ensure printing quality.
- (9) Kindly keep room temperature between 22~28°C, room humidity RH 30~60% is recommended.
- (10) To clean up the defect printed board, kindly use isoprophyl alcohol or IPA.

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