

# FORMOSA No-clean Lead-Free ,Halide-Free Solder Paste

## Model: PF606-P30

**Halide-Free**

Rev. 2012/10/16 Ver. 03-00

### — Specification —

Item	Specification	Standard
Appearance	Gray paste w/o visible foreign and clusters	
Alloy composition	Sn/Ag3.0/Cu0.5/X	JIS-Z-3282
Melting Point	217~219 °C	
Particle Size	(Type 3) +45µm < 1% , -20µm < 10% (Type 4) +38µm < 1% , -20µm < 10% (Type 5) +25µm < 1% , -15µm < 10% (Type 6) +15µm < 1% , - 5µm < 10%	IPC-TM-650, 2.2.14
Powder Shape	Spherical	
Flux Content	11.5 ± 1.0wt%	JIS-Z-3197, 8.1.2
Viscosity	200 ± 30 Pa · s (25±1 °C , 10rpm, Malcom )	JIS-Z-3284, Annex 6
Flux Type	ROL0	J-STD-004A

### — Test Content —

Test Item	Test Result	Test Method
Copper Plate Corrosion Test	Pass	JIS-Z-3197, 8.4.1
Spreading Test	> 70%	JIS-Z-3197, 8.3.1.1
Ion Chromatography Test	0.0 wt%	IPC-TM-650 Method 2.3.28.1
Copper Mirror Test	Pass	IPC-TM-650, 2.3.32
Viscosity Test(25°C ,10rpm)	200 ± 30 Pa · s	JIS-Z-3284. Annex 6
Tackiness Test (gf)	> 130 (8hr)	JIS-Z-3284. Annex 9
Slump Test	Pass	JIS-Z-3284. Annex 7, 8
Solder Ball Test	Pass	JIS-Z-3284. Annex 11

### — Reliability Test —

S.I.R. Test ▲	> 1×10 <sup>9</sup> Ω, Pass	IPC-TM-650, 2.6.3.3
Electro Migration Test ◆	Pass	IPC-TM-650, 2.6.14.1

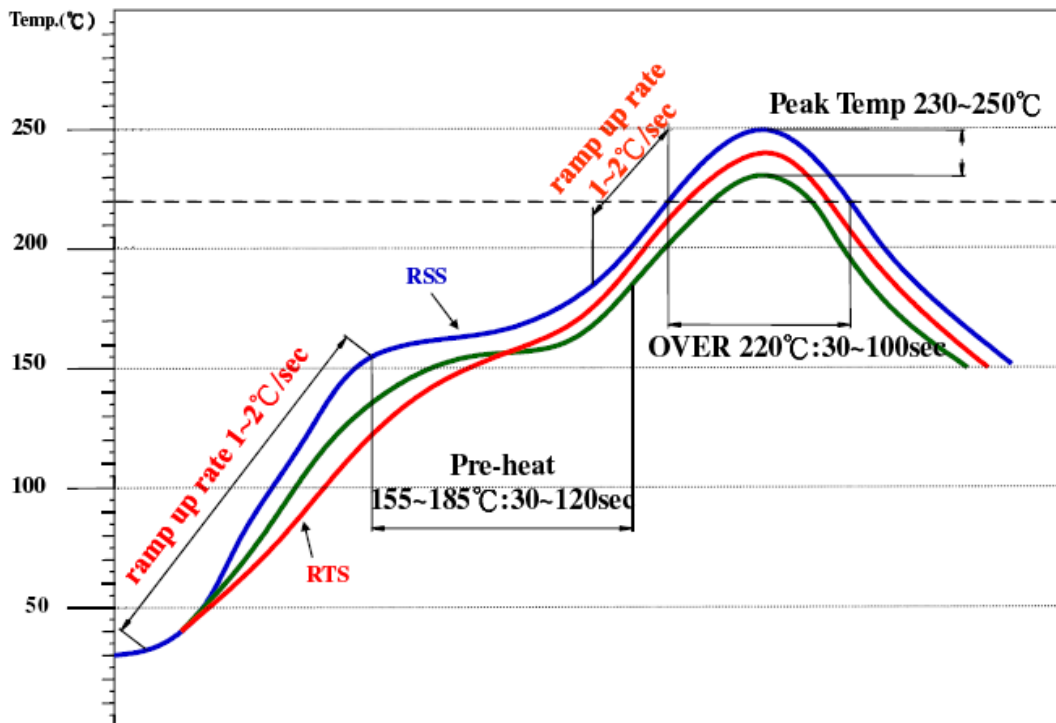
▲ Test Conditions : 85 °C, 85% RH for 168 hrs ◆ Test Conditions : 65 °C, 88.5% RH for 596 hrs

### — Alloy Composition —

(Sn)	(Ag)	(Cu)	(Ni)	(Ge)	(Zn)	(Al)	(Sb)	(Fe)	(As)	(Bi)	(Cd)	(Au)	(In)	(Pb)
REM.	2.8~ 3.2	0.3~ 0.7	0~ 0.01	0~ 0.01	0.001 MAX	0.001 MAX	0.05 MAX	0.02 MAX	0.03 MAX	0.10 MAX	0.002 MAX	0.05 MAX	0.10 MAX	0.05 MAX

Patent No. : Japanese Patent No. 3296289 · U.S Patent No. 6179935B1 · Germany Patent No. 19816671C2. (wt%)

### — Temperature Profile —



ramp up rate(30~150 °C) :	1.0~2.0 °C/sec
pre-heating time(155~185 °C) :	30~120 sec
time period above 220 °C :	30~100 sec
ramp up rate during reflow:	1.0~2.0 °C/sec
peak temperature:	230~250 °C
ramp down rate during cooling:	1.0~6.0 °C/sec

**— Handling and Storage Instructions —**

**1. Storage**

- (1) Refrigerate pastes at 0~10 °C helps prolong shelf life; normal shelf life is 6 months from production date (sealed jars).
- (2) Keep away from direct sunlight.

**2. Operation Manual (Sealed)**

- (1) Allow pastes to reach ambient printing temperature prior to use for 3-4 hrs. Do not heat to raise temperature abruptly.
- (2) Well mix paste with plastic spatula for 1-3 mins before use. Mixing time depends on tool type.

**3. Operation Manual (Opened)**

- (1) At first, add 2/3 jar of solder paste onto the stencil. Do not add more than 1 jar.
- (2) Add a little amount of paste at a time on the stencil according to printing speed.
- (3) It is recommended to finish fresh paste within 24 hrs. To maintain paste quality, make sure not to store used paste and fresh paste in the same jar.
- (4) After printing, it is suggested to place components to be mounted on the circuit board and reflow within 4 – 6 hrs.
- (5) If printing process was interrupted for more than 1 hr, be sure to remove paste remnant from stencil and seal them in the jar.
- (6) It is recommended to keep printing environment at 22~28 °C and RH of 30~60%.
- (7) To clean up printed circuit boards, it is suggested to use ethanol or isopropanol.

**Contact Information**

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**BRANCHES:**

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