

Sn/Pb

No-Clean

Halogen Free

High Speed

Pin in Paste

# Heraeus

## TYPICAL CAPABILITIES AND INSTRUCTIONS FOR USE:

	Property	Recommendations/ Attributes	Reference Document/ Test Procedure
Printing	Print Environment	21 to 27 C (70 to 81 F) ≤ 85 %RH	Recommendation
	Speed	25-150 mm/sec (1-6 in/sec)	Recommendation, equipment dependent
	Squeegee pressure	≥ 0.5 kg/cm (≥ 1.0 lb/in) of squeegee length	Minimum pressure to achieve a clean wipe
	Print gap	0 (on-contact)	Recommendation
	Separation speed	fast (≥10 mm/sec)	Recommendation
	Wipe Frequency	5 - 10 prints per wipe	Recommendation, dependent on application
	Print after wait (PAW)	1 hour	Heraeus test procedure TSTP-104
	Tack Life	8 hours	IPC TM-650 2.4.44
	Stencil Life	8 hours	Heraeus test procedure TSTP-108
	Finest pitch/feature	0.4 mm pitch	Type 3 powder with 5 mil stencil
	Enclosed print system capable	Yes	Heraeus test procedure TSTP-105
<b>Comments:</b> Typically SMT application use metal squeegees at 60 degree angle . For best results, use bead 15 cm (1/2 inch) diameter.			

	Thermal processing parameters	See profile recommendations at right
Reflow	Voiding	Ultra-low voiding exceeds IPC class 3 standards in typical applications
	Solder beading	Ultra-low in typical applications
	Wetting to different finishes	Excellent
	PIP (Pin in paste) capability	Yes
	Hot Slump	None / Excellent
	Solder balls over mask	Ultra-low, air, ≤ 65% RH

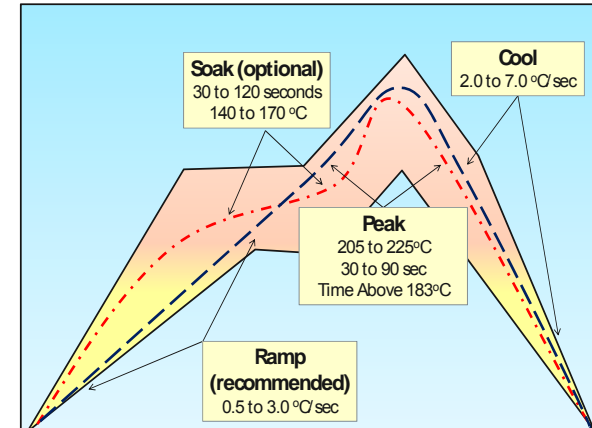
Clean	Stencils or Misprints	Stencils and PWBs can be cleaned with IPA, acetone or suitable solvent
	Flux residue	F377 solder paste residues are considered "no-clean" and are designed to be left on the PWB after reflow. However, if desired they can be cleaned. Contact Heraeus or your current cleaning material provider for more information.

ICT	Pin testability	Excellent	Heraeus test procedure TSTP-101
	Residue color	Clear to light amber	
	Residue consistency	Hard	Heraeus test procedure TSTP-101

## F377 Solder Paste

- High Reliability
- Wide print and reflow process windows
- Ultra-low sensitivity to humidity
- Developed using Design for 6σ methodology

### Reflow Profile – Tin-Lead



Document number: F377

Revision: original

Date: 17Sept.2008

[www.4cmd.com](http://www.4cmd.com)

The descriptions and engineering data shown here have been compiled by Heraeus using commonly-accepted procedures, in conjunction with modern testing equipment, and have been compiled as according to the latest factual knowledge in our possession. The information was up-to date on the date this document was printed (latest versions can always be supplied upon request). Although the data is considered accurate, we cannot guarantee accuracy, the results obtained from its use, or any patent infringement resulting from its use (unless this is contractually and explicitly agreed in writing, in advance). The data is supplied on the condition that the user shall conduct tests to determine materials suitability for a particular application

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USA  
Asia  
Europe

+1 (610) 825-6050  
+852 (2675) 1200  
+49 (0) 6181 35-5265

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## F377 Solder Paste

### TYPICAL PROPERTIES:

	Property	Result/Value	Requirement	Reference Document/ Test Procedure
Physical Properties	Viscosity	700 - 850 kcps	+/- 10%	J-STD-005
	Tack force	> 1.1 g/mm <sup>2</sup>	N/A	J-STD-005
	Cold slump	Pass	Pass/Fail	J-STD-005
	Hot slump	Pass	Pass/Fail	J-STD-005
	Wetting	Pass	Pass/Fail	J-STD-005
	Solder balls	Pass	Pass/Fail	J-STD-005
	Halogenated	None	N/A	J-STD-005

Reliability	Flux Classification	RELO	LO	J-STD-004A
	Copper Mirror	Pass	Pass/Fail	J-STD-004A
	Qualitative Halide	Pass	Pass/Fail	J-STD-004A
	Quantitative Halide	< 10 ppm	< 0.05% wt.	IPC-TM-650 2.3.28.1
	Corrosion	Pass	Pass/Fail	J-STD-004A
	SIR	Pass	> 1 x 10E8	J-STD-004A
	ECM	Pass	Pass/Fail	J-STD-004A
	Bellcore	Pass	Pass/Fail	TR-NWT-000078 Issue 3

Storage and Handling	Packaging	Jars, Cartridges, Proflow
	Refrigerated shelf life	Minimum 6 months at 5-15 C
	Room temperature storage	Minimum 2 months at 21-27 C
	Orientation - cartridge/syringe	Tip down
	Shipping	Per customer/Heraeus agreement
	<b>Comments:</b>	Can be re-refrigerated, do not put used paste in jar with new, paste conditioning systems not required and therefore not recommended, always wear personal protective gear when handling and dispose of properly, do not apply heat to thaw after refrigeration

### Availability

Alloy	Melt Temp	Powder Type		
		3	4	5
SnPb 63/37	183°C	●	●	●
SnPb 60/40	191°C	●	■	■
SnPbAg 62/36/2	179°C	●	■	▲
SnPbAg - AT	183°C	●	▲	▲

● = Available    ■ = Special Order    ▲ = Not Available

### Heraeus Assembly Materials

- Global reach/regional commitment
- Innovation
- ISO Certified
- Full product line for SMT, packaging and semiconductor
- Committed to Quality and Service

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