Enclosed Print Head Performance
Rheometric Pumphead System

The following solder paste qualification was performed in conjunction with Speedline Technologies in Franklin, MA.

Objective: Determine if NC-SMQ230 Solder Paste is suitable for use in Speedline's Rheometric Pumphead System.

Material and Equipment:

Solder Paste	NC-SMQ230, 95.5Sn/3.8Ag/0.7Cu, type III, 89.3%
Printer	MPM UP 3000 with 12" Rheometric Pumphead
Stencil	5 mil, laser cut, electropolished
Board	Bare Cu MPM test board (10" x 8" x .062")
Inspection	SVS measurement system

Procedure:

- Perform minimum 2000 prints. Printing is done on paper attached to boards with spray adhesive. Every hundredth board is printed "live" without paper and sent through SVS.
- Solder paste height and volume is measured on 16 and 20 mil QFP's. Both horizontal and vertical pads are measured.
- Visual inspection is performed after every print and any defects noted.

Optimal Settings for NC-SMQ230 in the Rheometric Pumphead System

Print Speed	3"/sec (high speed capable to 16"/sec)
Total System Force	20 lbs
Low Pressure	2.2 psi
High Pressure	2.5 psi
Charge Pressure	10.0 psi
Print Pressure	6.0 psi

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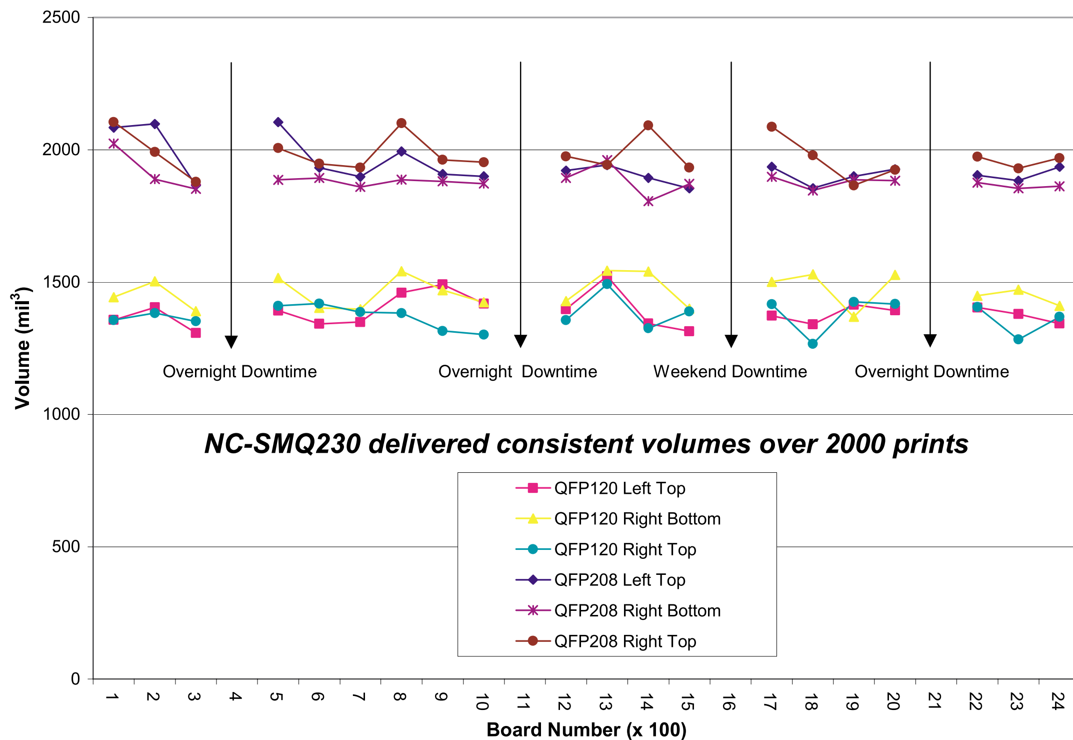

Results:

- The entire length of the pumphead gave quality prints for the duration of the study.
- Response to dwell time was excellent. Easy start-up after overnight and weekend downtime was achieved without kneading the paste.
- Paste was properly contained in the chamber head with minimal leakage and stayed soft and creamy for the duration of the study.
- 16 and 20 mil pitch height and volume measurements were consistent for the duration of the study.
- Speeds up to 16"/sec were achieved with acceptable results.

NC-SMQ230 Solder Paste is well suited for use in Speedline's Rheometric Pumphead System.