

Processing Guidelines for ElectroSperse™ S-540 and S-680

ElectroSperse S-series pastes may be printed over a broad range of screen printing conditions, providing consistent print quality and exceptional fine line resolution. General guidelines for printing parameters are provided on the Product Information Sheets.

Thinner: S-series pastes are designed for screen printable rheology, and thinning is not normally required or recommended.

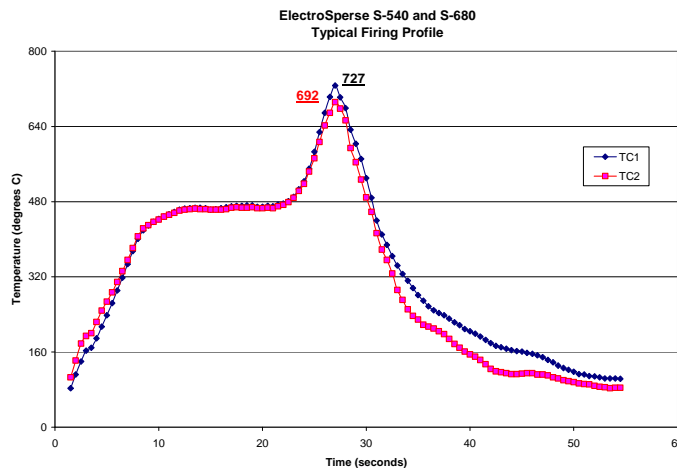
Screen Cleaning: IPA or acetone may be used for screen cleaning.

Drying: Typically 1-3 minutes in an IR belt dryer at 200°C.

Firing: ElectroSperse S-540 silver front side contact ink and S-680 back surface field aluminum ink are designed to be co-fired for ease of processing. ElectroSperse S-540 may also be co-fired with many commercial Al BSF pastes and back-side Al-doped Ag pastes. A typical recommended firing profile is presented below, as obtained using a six-zone IR furnace with a belt speed of 508 cm/min. The peak firing temperature is of critical importance, as is the sharp-spike ramp profile. The recommended ramp profile is as follows:

- Room temperature to 430°C: ramp time of 10 sec.
- 430° to 470°C: ramp time of 10-15 sec.
- 470° to 730°C peak firing temperature: ramp time of 5-7 sec.
- Rapid cool-down from 730° to below 300°C: ramp time of 7-10 sec.

Five Star recommends the use of a traveling thermocouple to replicate this temperature and ramp profile as a starting condition. Once the furnace profile is established as closely as possible to these guidelines, it is recommended that a limited matrix of peak temperatures be tested to optimize performance.



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