

# SOL7100 Series



SOL7100  
for  
TOPCon

*efficiency*

Patent Pending

TOPCon PASTE



## New Generation Silver Paste for TOPCon

- Ideal for n-type cells with TOPCon on rear
- Lower firing temperature to maintain high Voc

The SOL7100 paste has been developed based on our brand-new glass chemistry, combined with the latest breakthrough in organic vehicle system for fire through contact of TOPCon layers. SOL7100 enables lower firing temperatures to reduce the impact of metal induced recombination and maintain high cell Voc while also providing excellent contact resistance.

SOL7100 has a wide firing window, up to 100° C and can be fired at low temperatures, which makes the paste especially suitable for the application on TOPCon (Tunnel Oxide Passivated Contact) solar cells. The paste is also specifically designed for the rear side of the solar cell with the advantage of lower material usage.

Please contact our local technical service teams for detailed progress recommendations.

### KEY BENEFITS

- For outstanding efficiency gain
- Optimized material usage
- Wide process window
- Lower firing temperature
- Reduced metal induced recombination
- Suitable for rear side of solar cells

## LOW TEMPERATURE FIRING TOPCon PASTE

The SOL7100 features a unique glass chemistry, in which over 45 years of experience and expertise in glass development for the thick film paste industry are incorporated. This key ingredient, exclusively developed and manufactured by Heraeus, enables low firing temperatures, which is key to achieving very high Voc on the finished solar cell. At the same time, the contact properties of this paste are such that even when fired at lower temperatures, excellent specific contact resistivity and high FF are achieved. After low temperature firing the microstructure of the fired finger shows very little damage to the Poly Si layer, leaving the thin tunnel oxide undisturbed.

The SOL7100 paste is perfectly tailored for screen printing on the rear side of the solar cell where shading is not a primary concern. By taking advantage of the rear side application, the paste is optimized for best contact properties while also ensuring that material usage is consistent with low cost solar cell manufacturing requirements. By enabling the combination of excellent contact and minimum metal induced recombination, SOL7100 provides a path of commercializing TOPCon technology in high volume manufacturing.

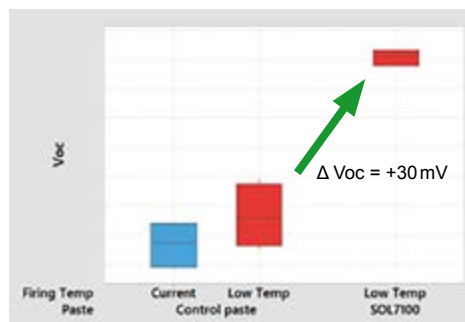


Figure 1: SOL7100 enables higher Voc at low firing temperatures

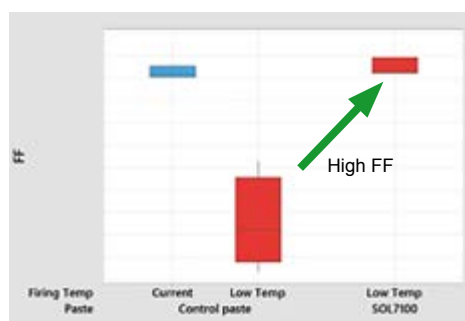


Figure 2: SOL7100 enables higher FF at low firing temperatures

## TYPICAL PROPERTIES

### Wafer types:

- Monocrystalline

### Recommended finger opening:

- Single Print: 70–90 μm
- Double Print: can be optimized based on customer case

**Solid content** : 75.00 ± 1.0 %

### Fineness of Grind (FOG):

4th scratch: ≤ 10 μm

50%: ≤ 5 μm

### Viscosity:

SOL7100:

- CPE-51 spindle (Brookfield):  
200–250 kcps @ 1 RPM, 25°C

## RECOMMEND PROCESSING GUIDING PRINTING

**Printing:** Screen parameter recommendations with stainless steel screen:

≥ 70–90 μm opening:

calendared 360 mesh, 15 μm or

calendared 430 mesh, 15 μm or

calendared 325 mesh, 15 μm

- EOM thickness: 12–20 μm

**Drying:** Typically dried in an IR dryer with set points of 250–300°C in less than 30 seconds or 150–200°C for 10 minutes in circulated air oven.

### Storage:

DO NOT REFRIGERATE.

Store in a dry location at 5°C–25°C. Allow paste to come to room temperature prior to opening.

Spatulate well before using.

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