

SOL9380 Series



SOL9380
> +0.1 %
Eta gain

efficiency

Patent Pending

N-TYPE FRONT-SIDE PASTE



New Generation N-type Front Side Paste Paste

- Improved Voc and contact
- Double and Dual printing application
- Fine line printing with improved printability

As N-type cells have drawn much attention as another option for high efficiency c-Si solar cell. Those designs have demonstrated high efficiencies for cell manufactures and Heraeus is supporting those efforts since over four years with the development and mass production of SOL9350, SOL9360 and SOL9370 series pastes. Heraeus continues to invest into R&D and has developed pastes with greater performance for N-type cells.

The Heraeus SOL9380 is our newest N-type paste for p+ wafer surfaces. In conjunction with our pastes for n+ wafer surfaces, beta test customers have demonstrated higher cell efficiencies with better contact to the cell's boron emitter.

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

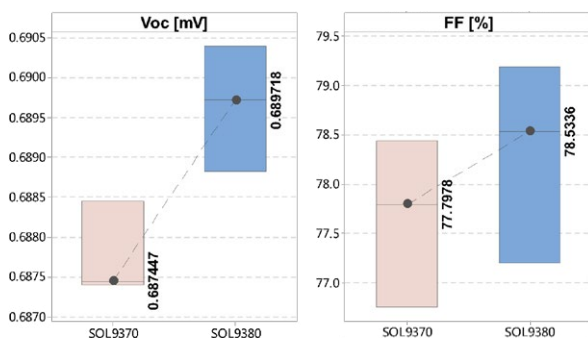
KEY BENEFITS

- Customer confirmed > +0.1 % efficiency gain
- Higher Voc potential
- Improved printability / line uniformity
- Finer line resolution
- Co-fireable with Heraeus n+-surface paste
- A+B mode double printing packages (SOL9380/SOL9622B) available
- Better contact resistivity
- Large firing window

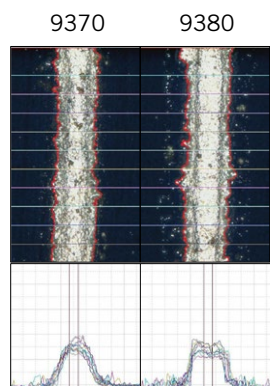
HIGHER CELL PERFORMANCE

Heraeus' SOL9380 Series is our newest front-side metallization paste for N-type cell designs with p+ wafer surfaces. The performance of this series improved in comparison to our industry leading SOL9370 Series. Test results show that SOL9380 Series shows significant improvement in cell Voc while maintaining or improving FF characteristics relative to SOL9370.

SOL9380 shows significant improvement in Voc and FF



IMPROVED PRINTABILITY



Beyond the electrical performance, SOL9380 Series shows improved printability and flooding characteristics over the SOL9370 Series, which enables superior line shape, uniformity and higher aspect ratio benefited by the new organic vehicle system. Meanwhile, fine line printing allows customer to further narrow finger width for better electrical performance and cost reduction to improve the competitiveness of N-type cells.

TYPICAL PROPERTIES

Wafer types:

- Monocrystalline N-type

Solid content: 91.00±1%

Fineness of Grind (FOG):

- 4th scratch: ≤ 10 μm
- 50%: ≤ 5 μm

Viscosity:

CPE-51 spindle (Brookfield):

50–150 kcps @ 1 RPM, 25°C

RECOMMENDED PROCESSING GUIDELINES

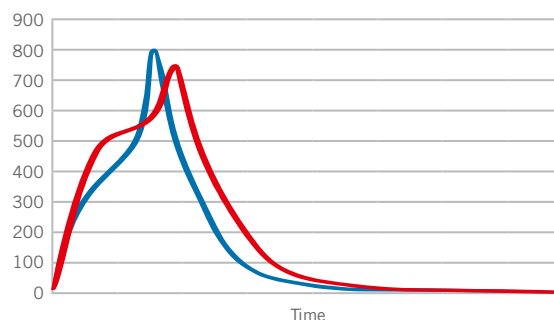
Dual Print: 380/14, 430/13 ≤ 28 μm opening

Double Print: 380/14, 430/13 ≤ 24 μm opening

EOM thickness: ≤ 15 μm EOM

Drying: Typically dried in an IR dryer with set points of 250–300°C in less than 20 seconds or 150–200°C for 10 minutes in circulated air oven.

Firing: SOL9380 has a wide firing window toward lower temperature side (Red profile).



Storage:

Store in a dry location at room temperature.

Stir well before using.

Contact your Application Engineering Team partner for individual advice.

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