

SOL9661D Series

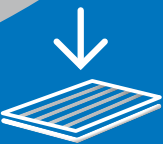


SOL9661D
> 0.05 %
Eta gain

efficiency

Patent Pending

FRONT-SIDE PASTE



Front-side Silver Paste designed for DWC mc Cell

- Ultra-Fine-Line printing can boost additional efficiency gain on DWC wafer
- New glass can provide great adhesion on DWC/Black-silicon cells
- Balanced metallization in both contact and Voc to achieve great efficiency gain

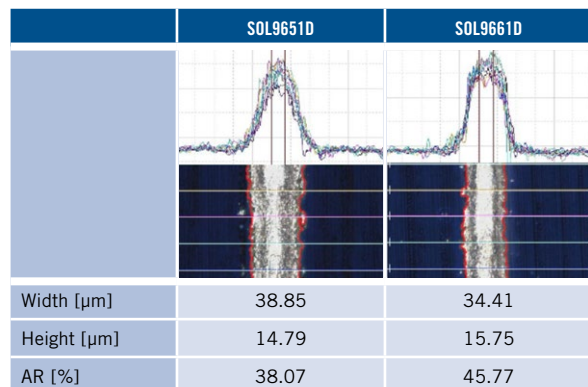
The Heraeus SOL9661D series front-side silver paste was specially designed for the Diamond-Wire-Cut (DWC) multi crystalline solar cells with specially textured surface. In addition to great cost reduction, SOL9661D can raise the conversion efficiency of DWC cells by > 0.05%. The new glass chemistry was developed to provide excellent adhesion of SOL9661D, which allows customers to optimize their busbar design for better electrical performance and cost reduction, especially on DWC/Black-silicon texturing. Meanwhile, the new organic vehicle system is developed to provide superior ultra-fine-line screen printing, which allows customers to further narrow finger width for better electrical performance and cost reduction. It is worth mentioning that the SOL9661D platform allows our R&D to offer solutions for different printing technology, especially for Knotless screen printing.

KEY BENEFITS

- Ultra-Fine-Line printing can boost additional efficiency gain on DWC wafer
- New glass can provide great adhesion on DWC/Black-silicon cells
- Balanced metallization in both contact and Voc to achieve great efficiency gain
- Compatible for Single printing, Dual and Double printing
- Allow quick and efficient customization

ULTRA-FINE-LINE COMPATIBILITY FOR ADDITIONAL EFFICIENCY GAIN

Due to the specially “polished” surface of DWC cells, the organic vehicle of SOL9661D has been fine-tuned for such textured surface, and still provide fine-line printability without defects in mass production. As confirmed by customer, Efficiency gains significantly from the benefit of narrower finger.

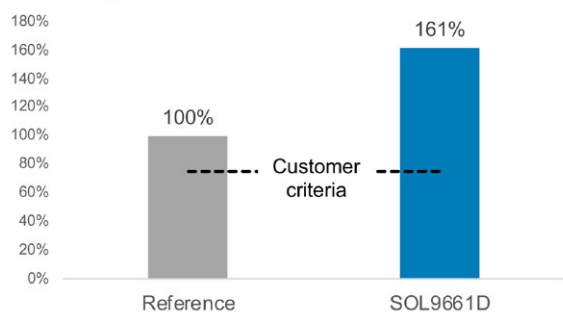


Wafer	DWC-Additive	
Screen	Mixed braiding knotless screen with 23 μm opening	
Paste	SOL9661D VS SOL9651D	
Electrical Performance	ΔEff [%]	+0.08
	ΔVoc [mV]	+0.3
	ΔIsc [mA]	+21
	ΔFF [%]	+0.10
	ΔRs [m Ω]	-0.09
	ΔRsh [Ω]	+9

NEW GLASS WITH GREAT ADHESION AND RELIABILITY

As cost driven, customer reduce the laydown more and more aggressively. The new glass chemistry of SOL9661D was developed to provide excellent adhesion, which allows customers to optimize their busbar design for better electrical performance and cost reduction.

Superior Busbar adhesion on MCCE cell



TYPICAL PROPERTIES

Wafer types:

- DWC-Additive
- MCCE
- RIE texturing

Solids: $91 \pm 1\%$

Fineness of Grind (FOG):

- 4th scratch: $\leq 12\ \mu\text{m}$
- 50%: $\leq 8\ \mu\text{m}$

Viscosity:

CPE-51 spindle (Brookfield):
40–110 kcps @ 1 RPM, 25°C

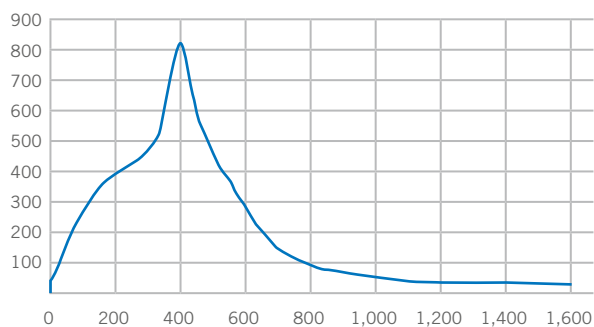
RECOMMENDED PROCESSING GUIDELINES

Single Print: Knotless 430/13 $\leq 26\ \mu\text{m}$ opening;
430/11 $\leq 28\ \mu\text{m}$ opening

Dual Print: Knotless 430/13 $\leq 26\ \mu\text{m}$ opening;
430/11 $\leq 28\ \mu\text{m}$ opening

Drying: Typically dried in an IR dryer with set points of 250–300°C in less than 20 seconds.

Firing: A Typical Co-firing Profile (measured temperature).



Storage:

Store in a dry location at 5°C–25°C.
Stir well before using.

Contact your Application Engineering Team partner for individual advice.

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