



# Product Spotlight

## SOL500 Series

### New Ag Pastes for Low Temperature Processing of Thin Film and c-Si Technologies

An industry leader in metallization pastes for crystalline solar cells, Heraeus has now developed a new line of screen printable silver paste products for low temperature processing for the thin film market segment. These materials are applicable to Organic Thin Film Technologies such as Organic and Printed Plastic solar cells; but also applicable to PERL, HIT and other crystalline silicon technologies.

Designed for a variety of applications, Heraeus' SOL530, SOL540 and SOL550 all possess faster cure times, higher efficiencies and greater adhesion than commercially available materials.

### Key Benefits

- High efficiencies
- Lower curing temperatures
- Faster cure time
- Lower resistivity
- Stronger adhesion
- Better contact

### Typical Properties

#### Viscosity:

HBT Cone and Plate Viscometer (Brookfield):

SOL530:

- 10 – 30 kcps;
- CPE-51 spindle, @ 1 RPM, 25°C.

SOL540:

- 40 – 60 kcps;
- CPE-51 spindle, @ 1 RPM, 25°C.

SOL550:

- 30 – 50 kcps;
- CPE-51 spindle, @ 1RPM, 25°C.

## Heraeus SOL530 for Organic PV

Heraeus' new SOL530 is a fast curing, screen printable, low temperature processing paste that has the added benefit of large area printing with minimal pinholes. Reduced pinholes improve the current flow from solar cells. Figure 1 shows the reduced number of pinholes formed using SOL530 relative to typical commercially available films (reference material).

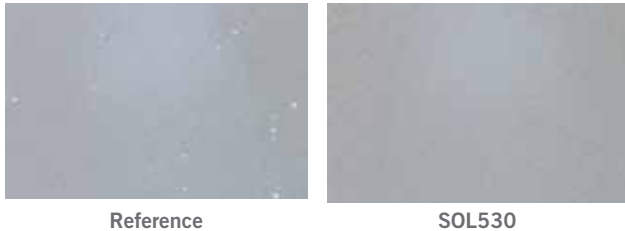


Figure 1

## Heraeus SOL540 for Busbars

Heraeus' new SOL540 is a fast curing, screen printable, low temperature processing paste that has the added benefit of high adhesion for busbar applications. This new paste has demonstrated adhesion strengths greater than 3 Newtons for such designs as passivated emitter with rear locally diffused or PERL solar cells.

## Heraeus SOL550 for Front-side

Heraeus' new SOL550 is a fast curing, screen printable, low temperature processing paste that has been optimized to provide low resistivity. Due to SOL550's faster cure time relative to other available pastes; its resistivity is lower, thereby providing higher efficiencies. This product is ideal for applications such as HIT cells.

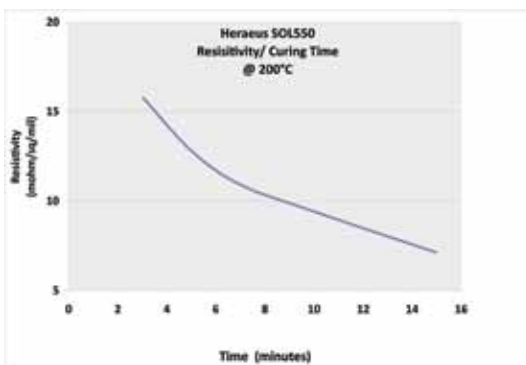


Figure 2

## Product Specifications

	SOL530	SOL540	SOL550
Viscosity	10 – 30 kcps	40 – 60 kcps	30 – 50 kcps
Resistivity	< 20 m /sq/mil	< 10 m /sq/mil	< 10 m /sq/mil
Adhesion	NA	> 3N	NA
Solids (%)	80%	80%	86.5%
Polymer Type	Thermoplastic	Thermoset	Thermoplastic

## Recommended Processing Guidelines

	SOL530	SOL540	SOL550
Application	Organic PV	PERL Cells	HIT Cells
Cure Temp.	125 – 135°C	250 – 280°C	200 – 230°C
Cure Time	5 – 10 minutes	3 – 8 minutes	10 – 15 minutes
Recommended Screens	Polyester or Stainless Steel	Polyester or Stainless Steel	Polyester or Stainless Steel
Screen Parameters	<ul style="list-style-type: none"> <li>• PET 1500;</li> <li>• 305/40 PW;</li> <li>• 30° bias;</li> <li>• 15 µm of EOM.</li> </ul>	<ul style="list-style-type: none"> <li>• 325/0.9mil;</li> <li>• 1.6mm bus bars;</li> <li>• 30° bias;</li> <li>• 20 µm of EOM.</li> </ul>	<ul style="list-style-type: none"> <li>• 325/0.9mil;</li> <li>• 90 µm finger lines;</li> <li>• 30° bias;</li> <li>• 20 µm of EOM.</li> </ul>

**Storage:** Store in a dry location at 5°C – 25°C.  
DO NOT REFRIGERATE.

Allow paste to come to room temperature prior to opening. Spatulate well before using.

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