

SOL9370 Series



SOL9370
 $> +0.1\%$
 Eta gain

efficiency

Patent Pending

N-TYPE FRONT-SIDE PASTE



New Generation N-type Front Side Paste

- Improved contact
- Single and double printing application
- Fine line printing

As N-type cell has drawn much attention as another avenue to high efficiency c-Si solar cell, designs have demonstrated high efficiencies for cell manufactures and Heraeus has supported this effort for over three years with the development and mass production of our SOL9350 and SOL9360 series pastes. Heraeus continues to innovate through investments in R&D and has developed pastes with greater performance for n-type cells.

The Heraeus SOL9370 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.

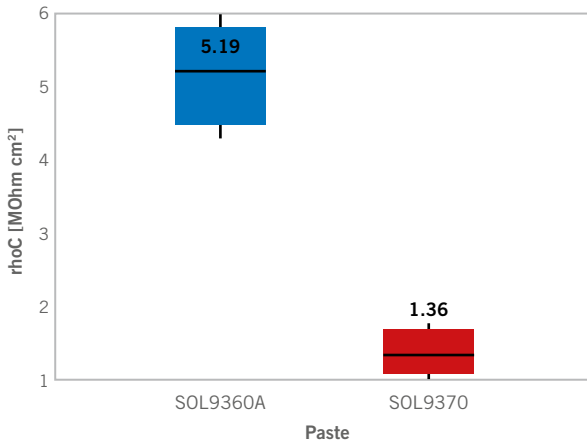
Please contact our local technical service teams for details progress recommendations.

KEY BENEFITS

- Customer confirmed $> +0.1\%$ efficiency gain
- Improved printability / line uniformity
- Finer line resolution
- Co-fireable with Heraeus n+-surface paste
- A+ B mode double printing packages (SOL9370/SOL9622B) available
- Better contact resistivity
- Large firing window

HIGHER CELL PERFORMANCE

Heraeus' SOL9370 Series is our newest front-side metallization pastes for n-type cell designs with p+ wafer surfaces. The performance of this series of pastes is an improvement over our industry leading SOL9360 Series. Test results show that SOL9370 Series has significant improvement in cell contact resistivity and other electrical characteristics relative to SOL9360.



IMPROVED PRINTABILITY

Beyond the electrical performance, the SOL9370 Series has improved printability over the SOL9350 and SOL9360 Series. The SOL9370 Series of pastes allow for excellent flooding and low bleed out. These features give the ability for finer line resolution with improved line uniformity and higher aspect ratio. In combination with the excellent contacting properties, overall cell performance is increased over the previous generation of paste.

	SOL9350C	SOL9360A	SOL9370
Avg W (µm)	57.70	45.28	43.88
Avg H (µm)	15.87	17.60	19.45
A.R.	0.28	0.39	0.44

TYPICAL PROPERTIES

Wafer types:

- Monocrystalline n-type

Recommended finger opening:

Single Print: 25–45 µm

Double Print: to be optimized based on customer case

Solid content: 91.00 ± 1.0%

Fineness of Grind (FOG):

- 4th scratch: ≤ 10 µm
- 50%: ≤ 5 µm

Viscosity:

SOL9370: CPE-51 spindle (Brookfield):

50–150 kcps at 1 RPM, 25°C

RECOMMEND PROCESSING GUIDING PRINTING

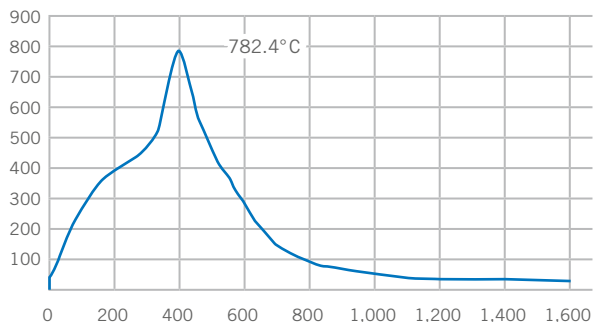
Printing: Screen parameter recommendations with stainless steel screen:

≥ 25–45 µm opening:

- calendared 360 mesh, 16 µm
- calendared 430 mesh, 13 µm
- calendared 325 mesh, 16 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.

Firing:



A typical firing profile for N-Type cell

Storage:

Store in a dry location at 5°C–25°C.

EUROPE (GERMANY)

Heraeus Deutschland GmbH & Co. KG
63450 Hanau
Phone +49 6181 35 5051
pv.hde@heraeus.com

AMERICA (USA)

Heraeus Precious Metals North America Conshohocken LLC/Heraeus Incorporated
19428 W. Conshohocken
Phone +1 610 825-6050
pv.hpmmc@heraeus.com

ASIA (TAIWAN)

Heraeus Materials Technology Taiwan Ltd.
33855 Luzhu (Taoyuan)
Phone +886 3 321 9937
pv.hmmt@heraeus.com

ASIA (KOREA)

Heraeus Korea Corporation
16506 Suwon-si (Gyeonggi-do)
Phone +82 31 270 9428
pv.hmk@heraeus.com

ASIA (CHINA)

Heraeus Materials Technology Shanghai Ltd.
201108 Shanghai
Phone + 86 21 3357 5688
pv.hmmts@heraeus.com

ASIA (JAPAN)

Heraeus K. K.
112-0012 Tokyo
Phone +81 3 6902 6564
pv.hkk@heraeus.com

ASIA (SINGAPORE)

Heraeus Materials Singapore Pte. Ltd.
639335 Singapore
Phone +65 6571 7888
pv.hmsl@heraeus.com

Visit us online:

www.heraeus-photovoltaics.com
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