



HeraSol SOL 230 Lead-free Pure Silver Tabbing Conductor

Lead-free Pure Silver Tabbing Conductor – SOL 230



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The new Heraeus lead- and cadmium-free back side tabbing silver conductor SOL 230 is a robust paste that can be processed on textured or untextured mono- and multi-crystalline silicon wafers and allows the use of lead bearing or lead-free solder ribbons.

Benchmark testing against a commonly used tabbing silver paste showed several advantages for SOL 230 using a variety of conditions. The benefits included greatly improved adhesion and a significant reduction in paste consumption.

Adhesion

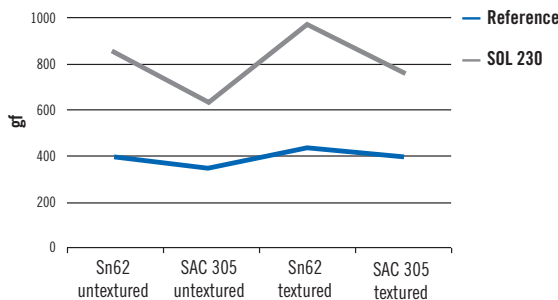
The increase in adhesion demonstrates a better quality solder joint. The effect of humidity or contaminants on the integrity of the solder joint is minimized giving reliable thermal cycling and lifetime testing results.

Test method

A force gauge, with a 1000 grams-force maximum, was used to measure the peak adhesion strength between solder ribbon and back contact metallization. Values were recorded for each 1.5 – 2 cm section along the 2 lengths of tabbing. The average of these values is reported.

Kester 951, low solids, no-clean flux was used.
Soldering iron temperature for Pb solder: 750 °F.
Soldering iron temperature for Pb-free solder: 850 °F.

180° Adhesion Testing



The recommended printing

- 200 st. st. mesh;
- 1.6 mil wire
- 22.5 or 30 degree angle
- Emulsion 0.5 mil
- Fired film thickness: 7 – 10 microns
- Printing speed: 100 – 250 mm/s
- Snap off: ~ 1.3 mm
- Pressure: 1.0 bar

Europe

W. C. Heraeus GmbH
Thick Film Materials Division
Heraeusstr. 12-14
63450 Hanau, Germany
Phone: +49 (0) 6181.35-5466
th-info@heraeus.com
www.heraeus-th.com

Americas

Heraeus Incorporated
Thick Film Materials Division
West Conshohocken
PA 19428, USA
Phone: +1 (610) 825.6050
techservice.hcd@heraeus.com
www.thickfilm.net/solar

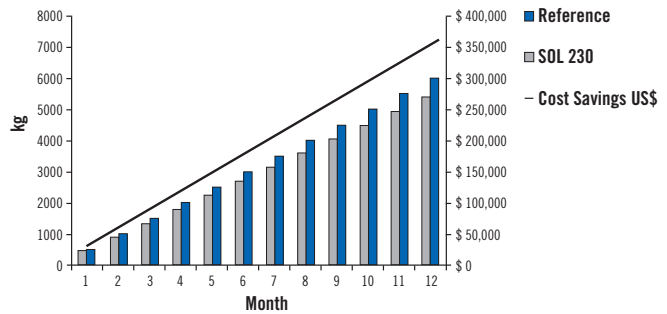
Coverage and Cost Savings

Increased paste coverage with superior results provides a high quality, cost effective solution to any solar cell manufacturer. With rising costs of precious metals, SOL 230 can provide savings with improved performance. Coverage with SOL 230 provides 95 cm²/gm* which is significantly better than competitor materials. Increased paste coverage translates into lower paste consumption.

Assuming a \$18.00** per troy ounce price for silver bullion and typical fabrication costs, manufacturers could save more than \$360,000 per year with the advantages provided by SOL 230 over commercially available materials. This model displays a 500 kg consumption per month for commercially available paste, whereas consumption for SOL 230 would be reduced to 450 kg per month.

*fired film thickness: 10 µm **USD

Typical Cost Savings



Key Benefits of SOL 230

- Excellent solderability and adhesion for Pb-bearing and Pb-free solders on both textured and untextured wafers
- Significantly reduced lay downs
- Excellent coverage and easy printability
- Co-fireable with back Al and front Ag pastes
- Pb- and Cd-free
- Cost savings through lower paste consumption

Asia

Heraeus Materials Technology Shanghai Ltd.
No. 1 Guang Zhong Road
Zhuanquiao Town, Minhang District
201108 Shanghai, P. R. China
Phone: +86 (21) 6442.6838
th.hmmts@heraeus.com
www.heraeus-th.com