



DuPont™ Solamet® photovoltaic metallization pastes deliver record levels of power

DuPont and Solartech Energy Corp. work together to maximize PERC efficiency with new Solamet® PV76x front side silver pastes.



New power output record set in production at Solartech



Solamet® paste system achieves 19.6% total efficiency with multi-crystalline PERC solar cells



Solartech sees new business opportunities for its high-efficiency ‘Sapphire’ solar panels



First front side silver pastes developed for PERC technology

SUMMARY

Increasing the power output of solar energy systems is a key focus across the solar industry. A collaboration between solar cell and panel manufacturer Solartech and DuPont on the development of new Solamet® pastes for their leading-edge passivated emitter rear cell (PERC) technology has optimized the efficiency of Solartech’s solar cells, and has helped set a new power output record for Solartech panels.

“The collaboration between Solartech and DuPont has helped to open up new opportunities for us in the market and enables our customers to achieve higher financial returns.”

Challenge

For Solartech, a Taiwan-based leader in the global solar industry, increasing the efficiency with which solar cells and panels convert sunlight to electricity is an ongoing focus. Customers expect high-quality, reliable solar solutions, based on the latest technologies – like passivated emitter rear cell (PERC) designs – to help drive the continued success of solar. Solartech wanted to improve the efficiency of solar cells that utilize PERC technology, which incorporate an extra dielectric layer that captures more light and increases energy yield, in order to reach new levels of power output and open up new business opportunities.

Solution

DuPont and Solartech have worked together to optimize the efficiency of Solamet® pastes in Solartech’s innovative solar cell designs since 2005. The focus for this latest endeavor was to improve the efficiency of PERC cells, using the new DuPont™ Solamet® PV76x series of front side silver pastes. PERC is increasingly regarded as a promising and fast-growing technology to increase power output as solar energy systems continue to evolve.

Solamet® PV76x photovoltaic metallizations are a new series of front side silver pastes that have been shown to increase the efficiency of PERC solar cells by more than 0.15 percent. These new pastes mark an industry milestone: DuPont is the first to develop front side silver pastes specifically for PERC technology that have been demonstrated in production to deliver significant efficiency gains for both multi- and mono-crystalline silicon PERC solar cells.

For this project, Solartech incorporated Solamet® PV76x front side silver paste as part of a complete system, together with Solamet® PV36x aluminum paste and PV56x tabbing silver.

Results

In tests conducted by Solartech, they were able to achieve 19.6 percent total efficiency with multi-crystalline PERC solar cells made using the Solamet® system of pastes.

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The high cell efficiency, together with a four bus-bar design and low light induced degradation (LID) levels, have enabled the development of Solartech’s 60-cell ‘Sapphire’ solar panel with power of 286 watts – the highest power output reported for this type of solar panel.

For Solartech, these efficiency gains represent significant business potential. “The collaboration between Solartech and DuPont has helped maximize the power output of our high-powered Sapphire solar panels, which opens up new opportunities for us in the market and enables our customers to achieve higher financial returns,” said Kong-Hsin Liu, chairman of Solartech Energy Corp.

The introduction of Solamet® PV76x pastes is the latest in a series of precedents for DuPont innovation with PERC technology. DuPont was the first in the industry to introduce local back surface field aluminum pastes and rear-side tabbing pastes for industrial PERC solar cells with Solamet® PV36x series aluminum pastes, and Solamet® PV56x series rear-side tabbing pastes, respectively.

PROJECT LOCATION

Taiwan



PROJECT DETAILS

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| Project | Optimize power output from PERC solar cells |
| Milestone reached | Enabled record-setting 19.6% conversion efficiency for multi-crystalline PERC cells |
| Benefits | Boosted power output, new business opportunities, and increased ROI for system owners |
| Material specified | New DuPont™ Solamet® PV76x metallization pastes |