



News

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PPG, Powercast announce partnership to develop ultra-thin, wirelessly powered printed electronics

Applications include illuminated consumer product packaging, smart identification cards

PITTSBURGH, Nov. 12, 2018 – PPG (NYSE: PPG) and [Powercast Corporation](#) today announced a joint development agreement to produce ultra-thin and wirelessly powered printed electronics products. The advanced solutions combine [PPG TESLIN® substrate](#), PPG conductive inks and Powercast's POWERHARVESTER® receiver technology for delivering over-the-air wireless power.

Powercast and PPG will introduce LED-based wireless illumination solutions for smart consumer packaging and smart identification (ID) cards, which enable enhanced security. With this technology, smart consumer packaging lights up to showcase products on a shelf. Smart ID cards also illuminate to permit or deny access to restricted areas or to verify user credentials.

The companies' combined technologies allow developers to seal electronics into packaging and cards via lamination to provide indefinite illumination without wires, batteries, charging ports or direct contact with a power source.

"Powercast is excited to partner with PPG to deliver differentiation to the product packaging and secure credential markets," said Charles Greene, Ph.D., chief operating and technology officer, Powercast. "PPG *Teslin* substrate and the company's conductive inks have great radio frequency (RF) characteristics, which complement Powercast's long-range wireless power technology."

The illuminated products are created by printing graphics or information on one side of PPG *Teslin* substrate using conventional or digital print technologies. The electronic circuitry is printed directly onto the opposite side of the substrate using PPG's conductive inks. The ultra-thin (1 millimeter or less) *Powerharvester* wireless power receiver chip and other components are then attached to the substrate using conductive epoxy, and the label is laminated to seal in the electronic circuitry.

Powercast's embedded *Powerharvester* receiver chips harness RF energy wirelessly from a Powercast POWERSPOT® transmitter or other RF source. The harnessed RF is turned into useable direct current (DC) energy to power embedded electronics and LEDs.

The two companies will showcase wireless illumination applications for smart packaging and ID cards at the IDTechEx Show, Nov. 14-15 at the Santa Clara Convention Center in California. PPG will be in booth P27, and Powercast will be in booth A24.

The first showcased application, a PPG *Teslin* label affixed to the front of a six-pack of beer (courtesy of Straub Brewing, Inc., St. Mary's, Pennsylvania), will illuminate the package and draw attention to the Straub brand. The second application is a smart ID card that authenticates a user based on proximity to an ID reader.

"A smart illumination solution using Powercast technology is a perfect complement to PPG's current offering for secure credentials and label and packaging applications," said Greg Terchick, PPG business director, *Teslin* substrate products. "The products we are developing with Powercast will enable our customers in these segments to create highly differentiated, value-added solutions for their customers."

"The technology sharing between PPG and Powercast is an excellent example of the type of collaboration that continues to strengthen PPG," said John Yundt, PPG global market manager, electronic and conductive materials. "We see this partnership as an ideal way to use the unique synergies of our broad portfolio of coatings and materials technologies to help our customers find solutions."

Durable, flexible and water-resistant, PPG *Teslin* substrate is a microporous synthetic paper with the unique ability to cushion printed electronic circuitry while withstanding the handling and abuse typically associated with credential and packaging applications. PPG *Teslin* substrate provides an ideal surface material for enhancing the functionality and extending the service lives of illuminated and smart consumer packaging and identification cards.

PPG's state-of-the-art polymer thick film conductive inks are uniquely formulated to meet a wide range of printed electronic circuitry applications, including printed radio-frequency identification (RFID) and mobile antennas, membrane switch and capacitive touch panels, flexible OPV solar panels, printed sensors and medical biosensors.

EDITOR'S NOTE: Visuals are available at <http://www.powercastco.com/PPGTeslinDemo>

About Powercast

Powercast, established in 2003, is the leading provider of RF-based wireless power technologies that provide power-over-distance, eliminate or reduce the need for batteries, and power or charge devices without wires and connectors. Founded with the vision of enabling untethered devices powered over the air, Powercast continues to create the most efficient, safe and highest power-harvesting technology achievable while complying with the Federal Communications Commission (FCC) and other global standards. Powercast's intellectual property portfolio includes 46 patents worldwide (21 in the U.S.) and 30 patents pending. To learn more, visit www.powercastco.com.

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At PPG (NYSE:PPG), we work every day to develop and deliver the paints, coatings and materials that our customers have trusted for 135 years. Through dedication and creativity, we solve our customers' biggest challenges, collaborating closely to find the right path forward. With headquarters in Pittsburgh, we operate and innovate in more than 70 countries and reported net sales of \$14.7 billion in 2017. We serve customers in construction, consumer products, industrial and transportation markets and aftermarkets. To learn more, visit www.ppg.com.

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