NEW DIMENSIONS IN PRINTED ELECTRONICS
DUPONT ADVANCED MATERIALS

Product Overview
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**Introduction**

DuPont has been a major supplier to the printed electronics industry for more than 50 years, becoming a global leader in low temperature curing inks for flexible substrates. A science-based company with a broad technology base and global presence, DuPont enables advanced printed electronics applications with an expanding range of new, innovative products. Here are some examples of applications made possible by the range of low temperature curing inks and pastes for flexible substrates produced by DuPont Advanced Materials.

**In-Mold Electronics**

A new range of conductive and dielectric inks that are designed to survive the intense stretching and heat of the thermoforming and injection molding processes. These can be used to construct true 3D circuits with capacitive switches and LED lighting for applications such as controls in automobiles and domestic appliances. By removing bulky physical switches, significant cost and weight savings can be achieved.

**Smart Packaging**

Low temperature curing (60°C – 100°C) silver and carbon inks for printing conductive tracks and features on functional packages. The low temperature performance enables the use of substrates with lower temperature tolerances such as PVC and polyolefins.

**RFID**

High-conductivity silver compositions for printing HF and UHF antennae. New copper and alloy compositions have been introduced that display excellent conductivity after lamination and/or photonic curing, ensuring a cost effective solution.

**OLED Lighting**

New nano-Ag screen and ink-jet compositions suitable for OLED lighting bus and grid lines. These inks combine very high conductivity with the low surface roughness and print height necessary for subsequent deposition of active layers.

**Wearables**

A complete suite of stretchable, washable electronic ink materials enabling a manufacturing-ready approach to deliver superior comfort and functionality for smart clothing and other wearable electronics. These inks are designed for exceptional stretch performance and endurance through multiple wash cycles.

**Photovoltaics**

Silver grid and bus bar materials for current collection in flexible thin film, organic and perovskite photovoltaic cells. Key properties are high conductivity, fine line resolution and low contact resistance on transparent conductive oxides.

**Membrane Switches and Interconnects**

For general purpose conducting lines and contacts in all printed electronics applications. A wide range of inks are available from very high conductivity pure silver to low cost carbon and copper conductors. A new range of cost effective silver alloys and silver coated copper materials are available with equivalent performance to inks with much higher silver content.

**Electroluminescent Lamps**

Silver, dielectric, carbon, phosphor and overprint screen printable EL system of inks (DuPont™ Luxprint®).

**Biomedical Sensors**

Silver/silver chloride and carbon screen formulations for highly stable electrode systems for applications such as blood glucose sensors and ECG patches. Low temperature curing gold ink for highly inert electrode surfaces for immunodiagnostic sensors. Highly active platinum and platinized carbon compositions are also available.

**Touch Panels**

Fine line, high resolution screen and ink-jet silver compositions for grid lines and bus bars with good adhesion to ITO.

**Flexible Heaters**

New DuPont™ Kapton™ inks for high temperature heater applications and Positive Temperature Coefficient (PTC) carbon resistors plus silver for self-limiting heater applications.

**LED Lighting**

A range of inks are available for fabricating LED circuits on both flexible and rigid substrates including a silver for LED interconnect, a solderable low temperature curing conductor and a flexible reflective dielectric capable of withstanding solder reflow.
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