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LOPE-C 2011, June 28 to 30, 2011, Forum Messe Frankfurt, Germany

Organic and Printed Electronics:

Conductive Films for Flexible Touch Display Sensors and Solar Cells

Stuttgart, Frankfurt, May 18, 2011: - *It works like a charm – easy, intuitive touch navigation within the screens of smart phones and tablets. Touch control, based on innovative large-area capacitive sensors, is enjoying exponential market growth. The new capacitive touch sensors are transparent and flexible. They are films of organic materials, functionally coated with nearly invisible conductive polymers or metallic grids in micrometer dimensions. LOPE-C 2011 in Frankfurt, Germany, will present the state of the art and the trends of touch.*

Displays With Touch Control

Large-area capacitive touch sensors, integrated in the screens of data appliances, are replacing the traditional buttons and switches. They are among the many conveniences that users have come to expect in their smart phones and tablet PCs. Just a slight touch or waving a finger in front of the screen will call up a function or select the desired content from a menu.

Enjoying the magic of intuitive touch control, few users will realize that there is a research-intensive, rapidly advancing technology behind the navigational elegance. Underneath the smart-screen surface there is a new kind of micro-electronics. It is based on organic and printed materials so thin and flexible that they smoothly fit any surface, rounded or sharply bent, of portable appliances or the cockpits and interiors of stylishly designed premium automobiles.

Organic and printed electronics offers one decisive advantage: It doesn't use the brittle silicon of today's processor and memory chips. Instead, it's based on semiconductors of functionalized plastic materials, which are cost-efficiently produced by mass-printing them roll-to-roll. Conductive polymers, such as PEDOT, are delivered in large quantities by manufacturers such as Heraeus Clevios or Agfa.

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They make reliable anti-static coatings. They are used in OLED and electroluminescence displays, and in organic photovoltaics (OPV). As PEDOT has reached a conductivity of 1,000 S/cm, it has become a material of choice for transparent electrodes in sensors and displays. Navigation devices and mobile phones with PEDOT touch sensors are entering the market right now.

Rapidly Growing Market Organic Electronics

Organic and printed electronics is one of the important growth areas of future high-tech industries. Europe, due to its broad-based research infrastructure, is excellently positioned in this technology segment. The annual conference and exhibition LOPE-C (Large Area, Organic and Printed Electronics Convention) in Frankfurt, Germany, is the worldwide meeting point of researchers, developers, producers and users of organic and printed electronics. From June 28 to 30, LOPE-C 2011 will show the latest progress in organic displays (OLED), organic photovoltaics (OPV), printed RFID tags and smart packaging, functionalized textiles and many other, futuristic applications.

The worldwide Organic and Printed Electronics Association (OE-A), official industrial sponsor of LOPE-C, sees organic and printed electronics shaping up as a huge market with a potential volume in the billions of dollars - complementing traditional electronics with innovative future applications.

Plastics with Conductive Surface Coatings

A rapidly expanding partial market of organic electronics is the functional surface treatment of plastic materials, covering them with extremely fine-grained, highly transparent particulates of conductive materials - metals, conductive polymers, or (still in the experimental stages) ultra-thin layers of carbon nanotubes.

For the conductive coating of plastic materials, there is an exciting new approach: metallic layers of silver or copper, structured as tiny grids with micrometer dimensions. Such extremely fine metallic grids are highly transparent and nearly invisible to the human eye. They make perfect coatings for large-area electrodes of capacitive or resistive touch sensors and displays.

Touch sensors are currently enjoying dynamic market growth. This year, in the estimate of Korean market researcher Displaybank, sales volume will almost double, from US\$ 6bn, to more than US\$10bn. By 2014, more than half of all mobile data appliances will offer touch functionality as a standard convenience.

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Functional coating of transparent films with conductive metallic grids or conductive polymers is an attractive alternative to the established technology of conductive ITO (indium tin oxide) layers. ITO tends to be brittle. It is best used on glass substrates, and is less well suited for light-weight and flexible touch displays and solar cells. Processing is rather complicated. Additionally, some market observers are foreseeing supply chain problems for indium, says Dr. Stephan Kirchmeyer of Heraeus Clevios, the leading producer of conductive polymers.

Application-specific Layout

The main applicative advantage of plastic films with conductive coatings is their individual layout and application-specific structuring. Additionally, conductivity can be tuned accurately to the intended use. Even applications such as window heaters in automobiles are feasible.

The large numbers of companies participating in the development of conductive surface coating, says Dr. Wolfgang Clemens of PolyIC, shows that organic and printed electronics is up to the specific requirements of current and future users. "Conductive coatings are what today's market demands. The industry is moving ahead at full speed. Our longer-term goals are being energetically pursued as well." Conductive polymers as coating materials are showing similar progress, especially in the etching of surface structures. Until recently, conductive polymers would show as slight color variations. A new etching technology, developed at Heraeus Clevios, deactivates the conductive polymer rather than removing it. This creates invisible structures – an important feature of capacitive touch sensors.

LOPE-C 2011, the worldwide get-together of the industry, held June 28 to 30, 2011, at Frankfurt, Germany, will broadly feature the new conductive coatings for touch displays and solar cells. At the exhibition, they will be shown as marketable products. The conference will highlight the state of the art and discuss the market trends.

For more information on LOPE-C and to register please visit: www.lope-c.com

The latest OE-A Video 'Printed Electronics - Ready to Go!' gives an insight into the fascinating world of organic and printed electronics:

<http://www.vdma-webbox.tv/english/filmdatabase/printed-electronics-ready-to-go.html>

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About LOPE-C

LOPE-C (Large-area, Organic & Printed Electronics Convention) is the leading, fully industry-sponsored annual conferences and exhibition of organic and printed electronics. LOPE-C presents the economic trends and the scope of scientific achievements in the field. The convention focuses on the production and application of organic and printed electronics. LOPE-C is jointly organized by the Organic and Printed Electronics Association (OE-A) and Mesago Messe Frankfurt GmbH. www.lope-c.com

About OE-A

Formed in 2004 as a Working Group within VDMA (German Engineering Federation), the OE-A (Organic and Printed Electronics Association) is the foremost professional body representing the worldwide organic and printed electronics industry. With more than 170 members throughout Europe, North America, Asia and Australia, OE-A represents the entire industrial value chain. www.oe-a.org

About Mesago Messe Frankfurt

Mesago, founded in 1982 and based in Stuttgart, is one of the world's leading organisers of special interest exhibitions, conferences and seminars. The company belongs to the Messe Frankfurt international network, employs 60 staff and annually organises exhibitions and conferences all over the world attracting over 2,500 exhibitors and 100,000 trade visitors www.mesago.de.

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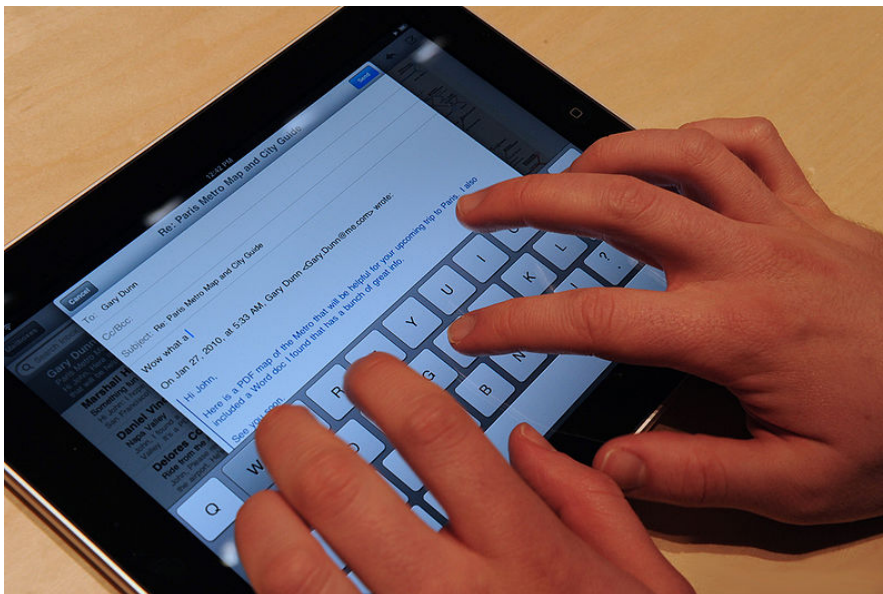
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Caption:
Conductive and transparent plastic film with metallic grid patterns for flexible touch display sensors

Source: PolyIC



Transparent conductive films enable interactive touch screens
Source: with courtesy of Apple

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