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Ultra-thin glass is up and coming

As one of the leading R&D partners in the development of surface technologies and organic electronics, the Fraunhofer Institute for Organic Electronics, Electron Beam and Plasma Technology FEP will be exhibiting its recent achievements in vacuum coating of ultra-thin glass at SVC TechCon 2016 (Booth 846), taking place in Indianapolis / USA from May 9–13.

Fraunhofer FEP is an experienced partner for technological developments, known for testing the limits of new materials and for optimization of those materials with respect to market demands. Currently, researchers are dedicating their efforts to investigations of ultra-thin glass. The focus of recent activities is sheet-to-sheet coatings on large-area ultra-thin glass.

Those activities can be divided into several phases. In the first phase, the researchers work out and adapt standard vacuum processes with regard to a demanding material – ultra-thin glass. The handling requirements and the machine set-up are developed in the next phase: After all, the glass should be treated through the in-line vacuum process without any damage or breakage. The machine design is also adjusted in order to safely coat large-area ultra-thin glass. The pre-treatment of glass also plays an important role in this process. An optimized pre-treatment enables a reliable processing of ultra-thin glass with superior coating properties.

With its experience and knowledge in the field of ultra-thin glass, Fraunhofer FEP is a leading research partner for sheet-to-sheet and roll-to-roll processes right through to application of this material in organic electronics.

“We have been collaborating with Corning Incorporated since 2012”, explains Manuela Junghänel, coordinator of ultra-thin glass development at Fraunhofer FEP. “The results of these activities will be presented in a joint talk at the conference and through exhibits at the SVC TECHCON booth.”

Ultra-thin glass can be used as a substrate as well as for encapsulation in many smart products such as Smartphones, curved displays, OLED light sources and photovoltaics. Especially appealing is to use ultra-thin glass in wearable electronics as well as in intelligent micro-optics and touch-sensors.

Ultra-thin glass offers outstanding possibilities for deposition of transparent, electrically conductive films that are indispensable for numerous applications in high-tech electro-

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tics. Moreover, ultra-thin glass has excellent surface properties that considerably exceed the ones of conventional plastic films.

Fraunhofer FEP will be exhibiting its current work on large-area ultra-thin glass during SVC TechCon 2016. Manuela Junghänel will also be presenting her recent research findings on ultra-thin glass in a tutorial course during the event.

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The Fraunhofer FEP at SVC TechCon 2016

Talks

Session Large Area Coatings

»High rate sputter deposition of Al_2O_3 films for electrical insulation applications on large area substrates«

Thomas Goschurny, D. Glöß, H. Bartzsch, P. Frach, A. Drescher, M. Gittner, P. Poetschick
Tuesday, May 10, 2016, 3.00 p.m.

Session Large Area Coatings

»Upscaling of Sheet-to-Sheet Processes for Large Area Coating on Flexible Glass«

Manuela Junghänel, S. Garner, R. Blüthner, T. Preussner, J. Westphalen
Wednesday, May 11, 2016, 9.20 a.m.

Session WebTech Roll-to-Roll Coatings for High-End Applications

»Hollow Cathode Activated PECVD for the High-Rate Deposition of Permeation Barrier Films«

Michiel Top, J. Fahlteich, S. Bunk, T. Kühnel, S. Straach, N. Schiller
Thursday, May 12, 2016, 9.20 a.m.

Session Coatings for Energy Conversion and Related Processes

»Effect of Deposition Temperature and Chlorine Activation on Microstructure of CdTe Thin Film Solar Cells«

Christoph Metzner, H. Morgner, O. Zywitzki, D. Hirsch, T. Modes
Thursday, May 12, 2016, 11.00 a.m.

Technology Forum Breakfast

»Gas/Moisture Permeation Barrier Layers«

John Fahlteich
Friday, May 13, 2016

Poster

»Preparation of a Gradient SiO₂ Antireflective Coating by a Co-Sputtering Method Using a Dual Rotatable Magnetron System«

T. Preussner, M. Junghähnel, U. Hartung, T. Kopte

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TechCon Education Program 2016

»Transparent Gas Permeation Barriers on Flexible Substrates«

Tutorial: John Fahlteich, Tuesday, May 10, 2016, 8.30 a.m. – 4.30 p.m.

»Processing on Flexible Glass – Challenges and Opportunities«

Tutorial: Manuela Junghähnel, Wednesday, May 11, 2016, 1.00 – 4.30 p.m.

**Coated flexible ultra-thin glass**

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Picture in printable resolution: www.fep.fraunhofer.de/press

The **Fraunhofer Institute for Organic Electronics, Electron Beam and Plasma Technology FEP** works on innovative solutions in the fields of vacuum coating, surface treatment as well as organic semiconductors. The core competences electron beam technology, sputtering and plasma-activated deposition, high-rate PECVD as well as technologies for the organic electronics and IC/system design provide a basis for these activities. Thus, Fraunhofer FEP offers a wide range of possibilities for research, development and pilot production, especially for the processing, sterilization, structuring and refining of surfaces as well as OLED microdisplays, organic and inorganic sensors, optical filters and flexible OLED lighting. Our aim is to seize the innovation potential of the electron beam, plasma technology and organic electronics for new production processes and devices and to make it available for our customers. COMEDD (Center for Organics, Materials and Electronic Devices Dresden) with all known activities in organic electronics is now acting as a new business unit at Fraunhofer FEP, Dresden, Germany.