

# Orgatronics: Facilitating the flexible future



**Orgatronics provides facilities for the various parties involved in the market for the development of new Organic Electronics products.**

**An advanced Research and Development platform is available for manufacturing a limited run of products under optimum conditions.**

**From experiment to production: Orgatronics makes it all possible.**

**Orga**TRONICS

# Facilitating the flexible future

Organic Electronics is at the beginning of a worldwide breakthrough. The application of Organic Electronics shows many advantages compared to the traditional semi conductor technology. The first successful example is the Organic Light Emitting Diode (OLED). An OLED is an electronic device made by placing a series of organic thin films between two conductors. When electrical current is applied, a bright light is emitted. OLED's are simple, low weight, thin, flexible and can be easily integrated in the final product. It combines absolute freedom of form and size with high light emission and contrast, low energy use and broad color gamut.

The technology is based on well known low cost production methods such as inkjet printing and thin film vacuum coating. Organic Electronics can be applied in a broad range of products and technologies such as: Diodes, Sensors, Transistors, Solar Cells, Signage, Lighting and Display. Organic Electronics will revolutionize the way in which the world thinks about electronic applications.

Orgatronics provides the research and development facilities and services needed for the development of Organic Electronics products and OLED's in particular. Orgatronics is bridging the need for technology platforms for the assessment of materials and equipment and provides access to research results allowing it's customers to accelerate the development process and time to market.

## What we offer

Orgatronics assist you from the first conceptual design to the delivery of the first product demonstrators and offers R&D support such as the evaluation and optimization of materials and processes needed for the efficient production of Organic Electronics. Orgatronics offers access to an advanced R&D line, the Orgatron, which incorporates the latest developed processes needed to produce complete devices from substrate in to finished product out. The Orgatronics facility provides added value for all who are or want to be involved in the application or development of this emerging technology.

### THE ORGATRON

The Orgatron is an advanced research and development line based on OTB's inline production system allowing easy transfer from R&D to full production of Organic Electronics and OLED's. The Orgatron uses advanced inkjet printing, vacuum deposition and thin film encapsulation processes. The Orgatron is able to handle substrates up to 14" square, which can be loaded automatically or manual and is designed for maximum flexibility meaning that each process can be used in random order.

#### Inkjet Printing

The Orgatron is based on the integral approach for finding inkjet printing solutions, which means that all the elements, such as substrate treatment, ink formulation, print head, print software & algorithms, ink supply and maintenance system in combination with the motion platform and the drying process have to be tuned for the specific application.

The Orgatron incorporates the latest developed printing systems for the printing of functional polymers which combines the inkjet printing function with the required substrate handling and drying/baking function.

#### Vacuum Deposition

To meet the production requirements OTB developed unique PECVD and Evaporation processes for the deposition of cathode and thin film encapsulation materials. The Orgatron incorporates plasma etching, plasma deposition and wire evaporation process stations.



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### **Thin Film Encapsulation**

The Orgatron is able to protect the highly sensitive polymers and cathode materials by using a unique stack of thin film barrier layers in combination with an organic intermediate layer. The organic intermediate layer is deposited with the same inkjet printing technology as used for the polymer printing and is an integral part of the vacuum system. Other ways of encapsulation can be done in the integrated glove-box system.



### **R&D SUPPORT**

Orgatronics together with its partners provides you with assistance at every process step from the very first design and the development of a prototype up to the first pre-production run.



### **One-stop-shop**

Orgatronics offers services such as, product development, product and material qualification, process optimization and pre-production support. Our one-stop-shop method means that you will be able to develop your product and begin to produce it in the shortest possible time.

### **Professionals**

The Orgatronics team and network consists of highly skilled staff with years of experiences in the field of Organic Electronics and OLED's.

### **Reliable**

Together with its customers, Orgatronics will develop new applications, processes and/or products in a highly demanding market. Therefore we guarantee the highest quality and professionalism but above all confidentiality.



### **DEMONSTRATORS**

There is a strong need for Organic Electronic and OLED demonstrators, for the validation of new technologies, materials and products and to support new business development and marketing and sales activities.

Orgatronics is able to offer test samples and demonstrator products in smaller quantities to support this need. These demonstrators will be tailored to your needs.



# About Orgatronics

Orgatronics is a joint venture of TNO Technostarters B.V. and OTB Group B.V. Orgatronics is established in the main building of TNO Science and Industry in Eindhoven. The unique combination of skills and facilities makes Orgatronics a reliable partner with access to the necessary critical mass. The combined facilities and knowledge which we have available allows your product to be developed considerably faster than it might otherwise have been.

## OTB Group B.V.

OTB Group develops and implements advanced inline production machines and the associated processes for the Solar, Display, Ophthalmic and Automotive markets. OTB is the supplier of the first fully integrated production line for polymer based OLED's, integrating such technologies as inkjet printing, thin film encapsulation and vacuum transport. The Orgatron is a one to one copy of this production line.



## TNO Science and Industry

TNO Science and Industry increases the competitive strength of businesses by assisting them with product development, with the development of production processes and methods and with the development of materials and product research. Research at TNO Science and Industry includes fundamental research into the practical applications of Organic Electronics and OLED's.



## Dutch Polymer Institute (DPI)

The DPI is one of the world's leading research institutes in the field of polymers. Various knowledge institutes, universities, industry and the Dutch Ministry of Economic Affairs all participate in the DPI.



## Contact

**Would you like to know more  
about Orgatronics?**

**Are you intrigued as to what  
we could mean to you?**

**Then please contact us at:**

De Rondon 1

PO Box 6235 • NL-5600 HE Eindhoven

**T** +31 (0)40 265 0875 • **F** +31 (0)40 265 0877

**E** [info@orgatronics.com](mailto:info@orgatronics.com) • **W** [www.orgatronics.com](http://www.orgatronics.com)

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