

# ECL – IT'S THE PLACE TO BE!

Evatec's new laboratory is not only a showcase for our products but also a competence space. But what does "competence" mean? We understand "competence" as a combination of know-how, skills and capabilities. Evatec's Competence Laboratory (ECL) will also be a place for know-how transfer, networking and teamwork. In this way the ECL team can better support customer samplings and process development at Evatec. ECL Manager **Dominik Jaeger** gives us a run down on the new facility.

## **ECL – The right thing for a growing company**

A rapidly growing company like ours need a development facility that's fit for the future. We are bringing equipment and people together in an environment that's optimised for the best sample production, networking, information exchange and creative thinking. Move in to the laboratory will started at the end of 2018.

## **ECL – Measurement techniques and skills**

Housed within the ECL in the clean room (minimum ISO 6) will be the Evatec Measurement Laboratory (EML) containing a broad variety of measurement instruments. Its central location will reduce transport distances and risk of additional particle generation on the substrate, allowing for more precise and elaborate analysis, and ultimately faster development of processes. The EML will be a centre for experts in metrology housing tools as simple as mechanical steppers through to high-end nanotechnology tools such as X-Ray Diffraction (XRD, D8 discovery, Bruker), Atomic Force Microscopy (AFM, NP20X, Park), Scanning Electron Microscopy (SEM, Jeol) including Energy Dispersive X-ray Spectroscopy for element analysis. The AFM gives us information concerning surface topography with a resolution in the sub-nanometer range whilst XRD gives us insight into crystalline grains within a film, allowing determination of crystal structure, lattice distance, grain width, crystal quality and crystal orientation. Using X-Ray Reflectometry we are able to determine film thicknesses (from a few nm up to 150nm typically) and roughness, including the thickness of multilayer systems and their buried interface roughness. In addition we are able to measure instrument pole figures and reciprocal space maps for even more sophisticated analysis of our film structures. The EML will also provide technical and scientific support on any measurement tool enabling efficient sampling and R&D.

## **ECL – A shared space for networking**

Areas like EML will be accessible to all business units (BUs) and create a great area of know-how exchange and ideas creation. Regular meetings "powwows" gathering invited experts in specific fields will encourage even greater knowledge transfer on specific topics to a broad audience within Evatec.

## **ECL – A laboratory with wide deposition capability**

The laboratory will be home to over 30 deposition tools with more than 150 deposition and etch sources available giving access to processing of well over 100 different basic material types (targets and evaporation materials). Running reactive gas processes for the formation of oxide and nitride films will of course add many times over to the numbers of possibilities at our fingertips.

## **ECL – Tracking data at a glance**

Custom software for the ECL will allow for proper substrate tracking, data recording of all processes, predictive maintenance, and evaluation of big data that is collected on a centralised server at Evatec, but all with peace of mind of enhanced security and no outside connection.

## **ECL – Closer to a production environment**

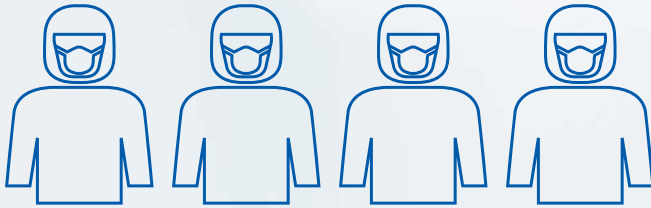
Particles will be measured online in the clean room and also with the latest particle measurement technology on the substrates so that their origin can be identified and their numbers reduced if an issue is detected. A new clean centralised storage concept and tool arrangement in ballroom configuration will be closer to that used by many of our customers.

**ECL** | EVATEC  
COMPETENCE  
LABORATORY

# ECL BY NUMBERS



**SAMPLE TRACKING SOFTWARE**



**CLEAN ROOM QUALITY: DOWN TO ISO4**

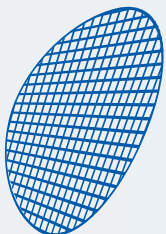
An environment closer to our customers' real production facilities helps fast track development.



**MEASUREMENT TECHNIQUES: >20**

**≈30 PROCESS TOOLS:**  
Etch, evaporation, sputter  
and PECVD capability.

**>150 DEPOSITION  
SOURCES**



**Substrate  
sizes: up to  
500 mm  
x 500 mm**



**Clean room  
area: >900m<sup>2</sup>**

**Total lab  
space  
> 2700m<sup>2</sup>**

