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ENZYRE

Development Universal Modules Microfluidic Production line

Lab-on-a-chip applications are growing in the western world, due to technological developments. Examples are the development in microfluidics as well as the availability of very sensitive micro-sensors that can measure signals in very low volumes. Both Enzyre and Surfix develop sensor-integrated microfluidic systems for the measurement of biomarkers in complex fluids. An important step forward is the development of a pilot production line that allows robust development of lab-on-a-chip applications.

In this project projectpartners Enzyre (secretary), Surfix and Micronit develop different innovative, universal modules that will be applied in the assembly of lab-on-a-chip tests. The modules that will be used in multiple lab-on-chip applications, will be tested in a pilot production line based on the Smart Machine Base of Demcon Industrial Systems Enschede (Demcon ISE).

The SMB system is very suitable for initial industrialisation of miniature lab-on-a-chip tests. The modular setup of this system will assure development of process steps that are broadly applicable and will accelerate innovation. The modules that are developed are a Quality Control inspection module (Micronit), a coating/spotting module (Enzyre), a pick-and-place module (Surfix) and a lamination module with a blister and a filter for microfluidic cartridges (Demcon ISE). At the moment, these modules are not available and different techniques are applied manually. The goal of the pilot production line is to produce a sufficient amount of lab-on-a-chip products for multicenter clinical validation studies.

The collaboration between the partners will boost the lab-on-a-chip technology and lead to more autonomous production in Europe, and more specifically in the East of the Netherlands. This will result in regional centralisation of knowledge regarding sensor-integrated microfluidic systems and will lead to a lower dependence of long supply lines and complicated logistical chains within Europe.

SURFIX micronit DEMCON