

Scientific Services Enviromics

Screen Printing and UV Curing Services

To offer Screen Printing Services, we make use of a variety of state-of-the-art infrastructure. For scientific services, we focus on designing, printing and testing screen-printed electrodes for sensing applications.



Meet the team

— The **Screen Printing experts** belong to the [A-Sense Lab](#), one of the research groups of Enviromics and part of the Bioscience Engineering Department (Faculty of Sciences, University of Antwerp). The acronym “A-Sense Lab” stands for “Antwerp Electrochemical and Analytical Sciences Lab”. The team has built up **expertise** in the field of screen printing and electrochemical analyses for more than 10 years and can benefit from state-of-the-art screen printing equipment.

— Our screen printing equipment and expertise allows you to pioneer in the field of electronics, sensors and photocatalysis and design parts of IoT modules with more flexibility. Typical activities include manufacturing screen-printed

devices, optimization of printing and curing parameters and designing, printing and testing screen-printed electrodes for sensing applications. Whether you are a small start-up or a large enterprise, you can count on a personalized service with support during the entire process from idea to final product.

— In addition to the screen printing facilities listed below, the team has also developed strong expertise in **electrochemical analyses** including electrochemical fingerprinting and sensing, spectro-electrochemistry and bio-electrochemistry. Do you have a specific question or would you like to receive a quote? Our [Valorisation Managers](#) will be happy to help you and will look for the best solution to your problem together with our technical experts.



Screen printing facilities

Screen printing is the most popular and matured printing technology as it has been practiced in the electronics industry for quite some time. Screen printing uses a screen to transfer ink to a substrate. The screen has a mesh in which a pattern is drawn. There are parts that allow the passage of ink (mesh image) and others that

are impermeable (mesh emulsion). Moving a squeegee across the screen transfers the ink from the screen to the substrate according to the pattern on the mesh. Multiple layers can be printed on the same substrate using different screens. After printing, the ink has to be cured by temperature or UV light.



APPLICATION

Our screen printing facilities enable pioneering in the field of electronics, sensors and photocatalysis by printing (semi)conducting materials on substrates and designing parts of IoT modules with more flexibility and more dynamically. Screen printing can be used for diverse applications in printed electronics from screen-printed electrodes for sensing applications to antennas, printed circuit boards and wearables. It is faster and more versatile, affordable and reproducible than other printing technologies. This enables us to manufacture several printed devices for a wide range of application areas:

- Health and environmental monitoring
- Wearable electronics (e.g. printed batteries, energy harvesting devices, solar cells)
- Smart packaging (e.g. RFID tags)
- Electronic devices
- ...

PRODUCT

Printed electronics can be produced by screen printing using various inks and pastes, ranging from conductive materials (e.g. carbon, silver, gold) to dielectric and organic materials of suitable viscosity to allow the printing process. The machine allows printing in A4 substrates that can be flexible (e.g. polyester films, fabrics, paper) or rigid (e.g. PCB boards). Typical examples of printed products are:

- Screen-printed electrodes
- Solar cells
- Printed circuit boards
- ...

KEY EQUIPMENT

DEK NeoHorizon 01iX screen printer

- Alignment capability of $\pm 12.5 \mu\text{m}$ @ $> 2 \text{ Cmk}$ ($\pm 6 \text{ Sigma}$)
- Print capability of $\pm 20 \mu\text{m}$ @ $> 2.0 \text{ Cpk}$, ($\pm 6 \text{ Sigma}$)
- AVS-certified
- Maximum printing surface of $510 \text{ mm} \times 508.5 \text{ mm}$, which allow a very high throughput and high flexibility
- User-friendly interface through a touchscreen

DIMA Spectro UV-500 curing Unit

- A modular build compact oven that can handle products up to $495 \times 500 \text{ mm}$
- The standard radiation width of the light bulbs is 150 mm (6")
- Ultraviolet lamps can be configured to meet specific application requirements
- For both top and bottom curing, a maximum of 3 light bulbs can be installed (3x top & 3x bottom)

Cleaning bench and airflow cabinet.

