# COAT-X

## Innovative Leakproof Multilayer

The first product offered by Coat-X is the multilayer encapsulation, which creates a physicochemical barrier between the component and the environment in which it has to be used.

The Multilayers offer a substantial competitive advantage due to cost-effective encapsulation based on parallel manufacturing processes.

Multilayer thin films prevent moisture from infiltrating sensitive electrical circuits. It provides a dense, conformal coating, which provides high protection while at the same time remaining flexible and lightweight. It can be applied to any device and substrate and multilayer encapsulation is cost-effective with cost reductions of up to a factor of twenty.

The unique selling proposition of the multilayer is 2000 times better tightness compared to the well-known and used Parylene-C coatings with a thickness of 10µm. The equivalent 10µm multilayer (which is one-fifth of a hair) has the same protection performance than an epoxy layer of 2cm or a silicone layer of 60cm.

## Innovative Fexible Sensor

The second product offered by Coat-X is the flexible sensor. Following the creation of the multilayer system the team conducted coatings on PCBs and took it one step further by making the coated PCBs flexible, this marks one of the most innovative breakthroughs for Coat-X.

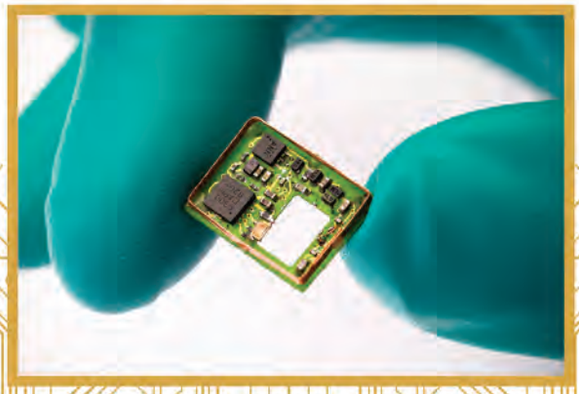
Electronics of a device can be directly assembled onto these super flexible substrates. This allows for the fabrication of significantly smaller medical devices using conventional electronic components, which can be shaped in a three-dimensional way to take minimal space. An external reader using passive telemetry will do communication to the flexible devices and energy transfer. It should be noted that PCBs coated with a multilayer can be bent at 180° while maintaining the high tightness.

Key Features:

Ultra tight
Flexible
Extra thin
Leak proof
Biocompatible
Cost effective

Fields :

Industry
Medical
Automotive
Aerospace
Chemical
Military
Pharmaceutical

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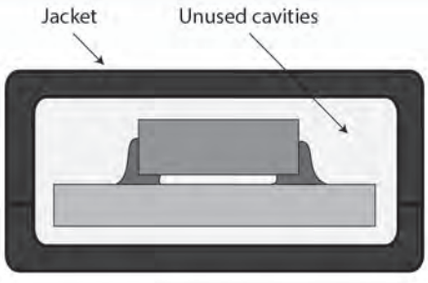
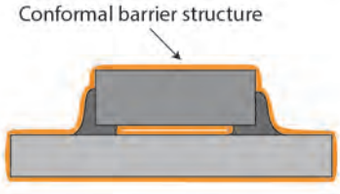
## Multilayer's technology

Coat-X provide a hermetic and biocompatible thin-film encapsulation based on alternating organic / inorganic coatings for further miniaturization of smart biomedical and other devices. The combination of dense silicon oxide and Parylene-C thin films creates a unique and new composite material, which is optimal for hermetic and biocompatible encapsulation

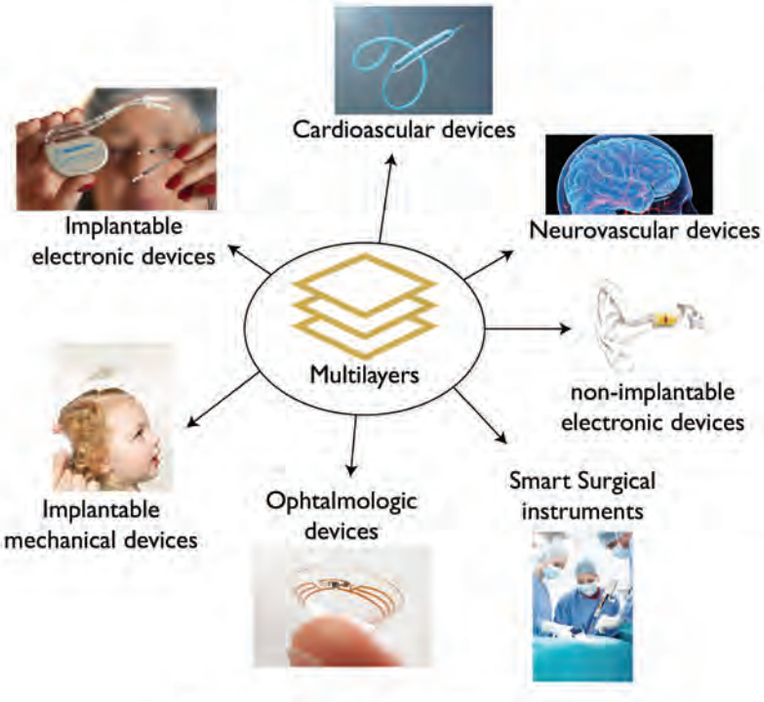
For the conformal 3D deposition of these thin films, a novel single-chamber deposition process was developed and built for the fabrication of these multilayer structures, using a modified chemical vapor deposition (CVD) process.



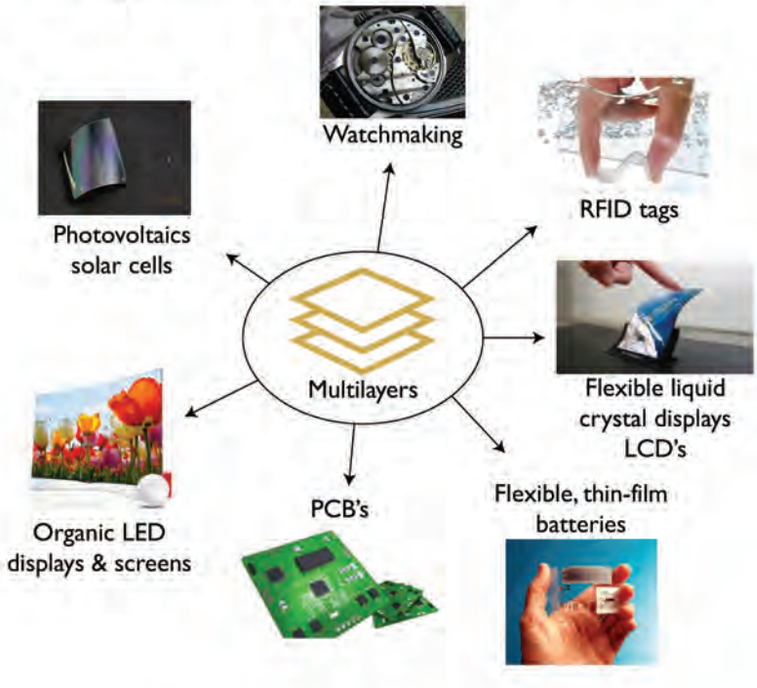




## Multilayer's applications

The Coat-X multilayer solution can protect electronics, wearable devices, implants and all devices that have to resist to harsh environmental conditions and aggressive solvents.




Encapsulation for medical devices




Encapsulation for non-medical devices

## Multilayer's main advantages

✓ Multilayer thin films prevent moisture from attacking sensitive electrical circuits. The hermeticity of Coat-X Multilayers is by a factor of about:

10'000 better compared to bulk polymeric encapsulation methods.
2'000 better compared to conventional thin film protection coating Parylene-C.

✓ Multilayers provide a dense, conformal coating which provides a highly effective protection while remaining flexible and lightweight.

✓ Using the Multilayer encapsulation, the volume of the device can be reduced up to 80% of the original size.

✓ Multilayers can be applied to any device and substrate including electronic PCBs, metals, ceramics and polymers for various long life applications.

✓ Multilayer encapsulation is cost-effective as a due to the parallel batch process. Cost reductions of up to a factor of 20 can be reached.

✓ The single chamber reactor system allows a fast deposition times (< 3h).

✓ Multilayers are cost-effective components for flexible electronic circuits, sensors, thin film batteries, photovoltaics and thin film displays (OLED).

✓ Multilayers are compatible with complex 3D substrates.

✓ Multilayers are deposited with a low temperature process (< 50°C) which is compatible with conventional electronics.

## The company

Coat-X is the leading solution provider for critical permeability issues.

Founded in 2016, Coat-X, is a Swiss company specializing in ultrathin multilayer hermetic and biocompatible coating for multiple applications. Coat-X is a result of a collaborative project between Haute Ecole ARC and Johnson & Johnson and has been awarded with the Neode Prize 2015.

Coat-X's headquarters and production facility are located in the Technology Park Neode in La Chaux-de-Fonds (NE), Switzerland.

Coat-X is comprised of a highly specialized team trained to engineer new products, give top quality advising, and provide encapsulation solutions and troubleshooting.

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