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ELECTRONIC TEXTILES

Moisture Transport & Control Made Easy with Active Oxyphen Track-Etched Membranes

CHALLENGE

Electronic textiles – also sometimes referred to as smart textiles - are engineered fabrics that provide added value to the user beyond their natural state. There are two types: passive smart textiles and active smart textiles. Passive textiles do provide added functionality; however, they do not use electronics, sensors, or wires. They also do not change as a result of the surrounding conditions or environment. Active textiles, on the other hand, can adjust to changing conditions of the wearer or user. Some can even connect to computer software or diagnostic equipment, allowing healthcare professionals to monitor heart rate and other patient specific measurements.

Oxmotex AG, a Swiss corporation founded in 2008, is a research and development company dedicated to electroosmotic vapour and fluid transport, having developed revolutionary proprietary technology for electronically controlled moisture transport in membranes and textiles. As they looked to create a new innovative technology which would provide active electronically driven moisture transport, they came to Oxyphen for a track-etched membrane solution that would address these three key areas:

Responsive to Climatic Conditions

The membrane material should transport moisture effectively when/if needed independent of external factors such as temperature, humidity gradients, etc.

Comfort

The membrane should be comfortable for the user.

Transport Capacity

The membrane should be able to transport a high amount of moisture – much greater than human sweat rates.



SOLUTION

Oxyphen's track-etched membranes were used in Oxmotex's breakthrough innovation HYDRO_BOT®. Due to their cylindrically shaped pores and homogeneity, the membrane was able to facilitate electronically driven and practically unlimited moisture transport capabilities at a fraction of the energy needed for evaporation. Although applicable in a variety of clothing, automotive, military, and climate protection applications among others, one of the most impactful use cases is its capability to both monitor and respond as part of an emerging anticipatory healthcare regime, relieving both patients and the healthcare systems through improved comfort, safety, and moisture control.

RESULTS

Once Oxyphen's track-etched membrane solutions was implemented, Oxmotex was able to develop the highly innovative HYDRO_BOT®. Some of the key results included:

Elimination of micro climate impacts even during high levels of activity

On-demand moisture control which can be programmed to take inputs from sensors

Working independently of external factors including ventilation, liquid saturation, and outside conditions

Extreme moisture transport capabilities (more than 100 liter/m2h possible)

Improved overall comfort for the user

About Track-Etched Membrane Technologies

For nearly 70 years, Oxyphen has specialized in the production of microporous track-etched membranes and membrane products, serving customers around the globe with 60 employees located between two manufacturing facilities in Switzerland and Germany.

Oxyphen has two core competencies: Developing and producing track-etched membranes and processing and assembling complete membrane devices through large volume production. Our wide network of qualified suppliers, particularly those with injection molding expertise, and highly qualified team work together to build a dedicated enterprise that is focused on delivering an unmatched level of service and performance to our customers.



Oxyphen has two manufacturing facilities – one in Germany and another in Switzerland. Both are ISO 9001:2008 and ISO TS 16 949:2008 certified and have full clean-room capability.



Medical Solutions

As the healthcare industry evolves, so too does Oxyphen's ability to tailor its solutions. Using highly defined pore structures, along with adjustable pore sizes and flow parameters, we can offer a safe and reliable solution for whatever your medical filtration or venting application may be. This includes infusion filters, drug delivery devices, and active textile applications for wound care, hospital bed covers, patient garments and more.

Oxyphen technologies and products comply to existing and upcoming regulations without compromising performance needs. With decades of experience in highly tailored solutions, we like to be your partner for sustainable and cost-effective solutions that you can trust for years.

Getting Started with Oxyphen

As you think about your design project, consider the below questions and then reach out to us for a design consultation with one of our engineers. It's easy to reach someone at www.oxyphen.com/about-oxyphen/contact-us or click this QR code.

