



Filter



Vent

EV BATTERY SAFETY VENTS

Protecting Lithium Batteries Against Contaminants & Overpressures

CHALLENGE

The market for lithium-ion batteries and battery packs has grown substantially in the automotive market – particularly as the demand for electric mobility has risen. To adequately protect these batteries from the ingress of water and dust as well as against the dangers of overpressures, each must be equipped with a venting component specifically tailored to the device's application.

Knowing Oxyphen's expertise in the track-etched membrane space, the customer, a manufacturer of electric vehicle (EV) lithium batteries, reached out to us to develop and design a hydrophobic membrane that would meet their specifications as it relates to temperature stability, air flow, water entry pressure, and constant and reliable expansion properties. Of the most importance, they wanted a membrane which would provide a precise, full-opening pop action to ensure the battery's safety in the event of overpressures and thermal runaway.

The technical challenge brought to Oxyphen was to develop a single venting component that would solve four key design membrane challenges.

Protection

The membrane should protect against water, dust, oil, and other contaminants.

Adequate Air Flow

The membrane should maintain adequate pressure compensation during normal operating conditions.

Membrane Burst Control

The membrane shall have an adjustable, predefined burst pressure as determined by Oxyphen and the customer in the event of overpressures caused by thermal runaway. In addition, the popping action should create a full-opening of membrane to allow for rapid degassing.

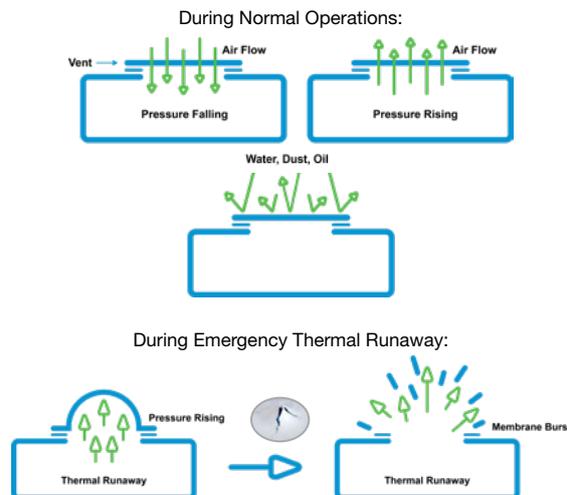
Ease of Assembly & Durability

The membrane should be highly durable and easy to attach.

SOLUTION

Our Oxyphen hydrophobic membrane fulfills the requirements regarding temperature, air flow and water entry pressure to protect the battery pack from ingress of dust and water and to allow pressure compensation under normal operating conditions. In rare but dangerous conditions where overpressure and thermal runaway occur, the membrane also serves as a safety component, utilizing reliable and repeatable expansion and burst characteristics. Unlike ePTFE, Oxyphen's Unique-Mem® track-etched membrane offers a precise, and full opening pop action once pressure builds to a pre-determined point. Because it has a higher elasticity, ePTFE membrane may only create a partial opening and delay the degassing process.

HOW PRODUCT WORKS



RESULTS

Precise
Emergency Degassing

Continuous
Pressure Compensation

Highly Automated
Production Process

Great Protection
Against Water, Dust, & Dirt

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.



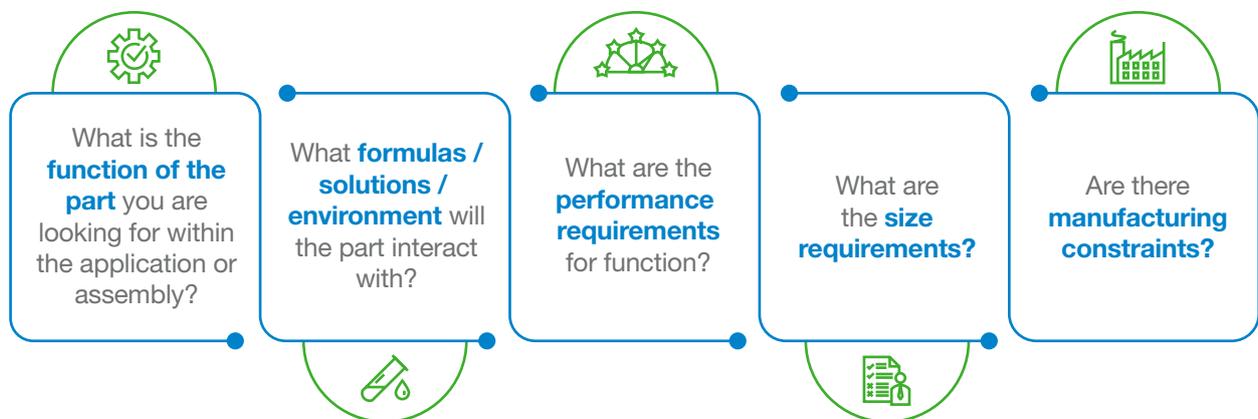
Automotive Solutions

In the challenging automotive environment, protection against liquids and dirt as well as reliable pressure compensations are critical to avoid damage to sensitive electronic and lighting components throughout the vehicle's lifetime. Oxyphen's automotive membrane products are designed to ensure continuous functionality of critical components such as battery packs, radar systems, and lighting equipment being used in next generation automotive designs.

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



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