

# OXYPHEN® EV BATTERY SAFETY VENTS

Meet Venting & Degassing Requirements  
Using Innovative Track-Etched Membranes





Rechargeable lithium-ion batteries and battery packs are becoming increasingly demanded as the automotive industry continues its transition to electric mobility. To protect and ensure the safe use of these batteries, manufacturers must have a protective design and control features, as well as a last resort venting mechanism for each cell and battery pack – all while being exposed to environmental contaminants that can impede performance. Oxyphen's **Unique-Mem®** hydrophobic, track-etched membrane technology, which utilizes controlled pore sizes and pore densities, offers an all-in-one solution, protecting critical internal components from the ingress of liquid, dust, dirt, and other contaminants while also having the ability to burst at predefined overpressures to prevent potential explosions from taking place in the event of thermal runaway.

### Did you know?

Under extreme abuse conditions, damaged or malfunctioning battery-components, short circuits, or other events, it is possible to start a “thermal runaway” process that develops a rapidly rising pressure, leading to an explosive release of that pressure from a cell or battery pack. Burning and exploding electric vehicles are the nightmare scenario of electric mobility and can pose great risk to the end user as well as massive liability for the automobile manufacturer.

## Key Benefits

### Protection Against Harsh Environmental Conditions

- Acts as a barrier against liquids and other contaminants
- Still allows for airflow to take place
- Performs even in extreme temperatures (-40 to + 150°C)\*

\*up to 180°C for special applications

### Pressure Compensation & Degassing

- Maintains stable pressure levels as internal battery pressures rise and fall during normal operations
- Adjustable and defined burst pressures for emergency degassing during thermal runaway
- Less elastic than ePTFE – provides greater precision and a full-opening pop action

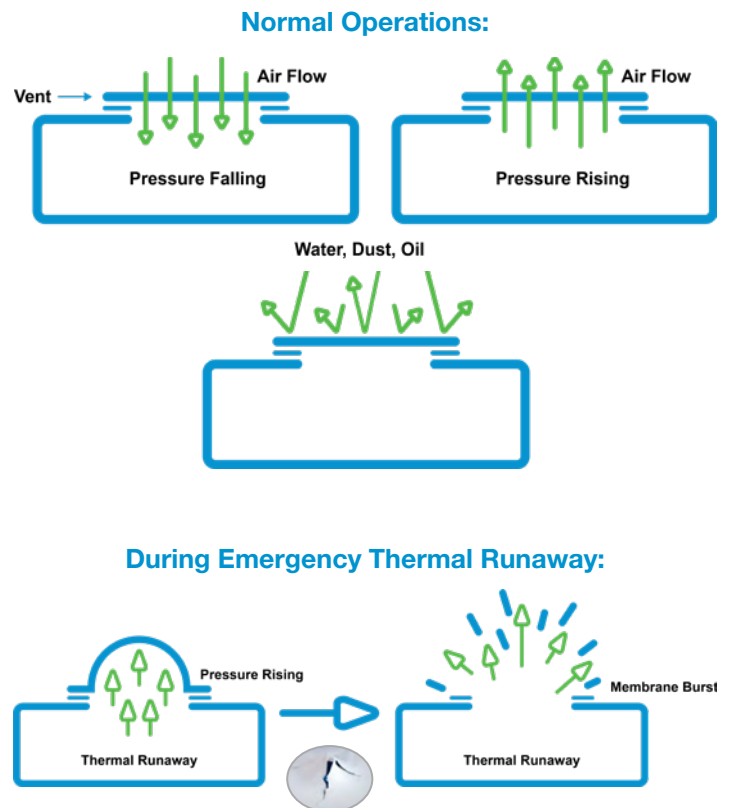
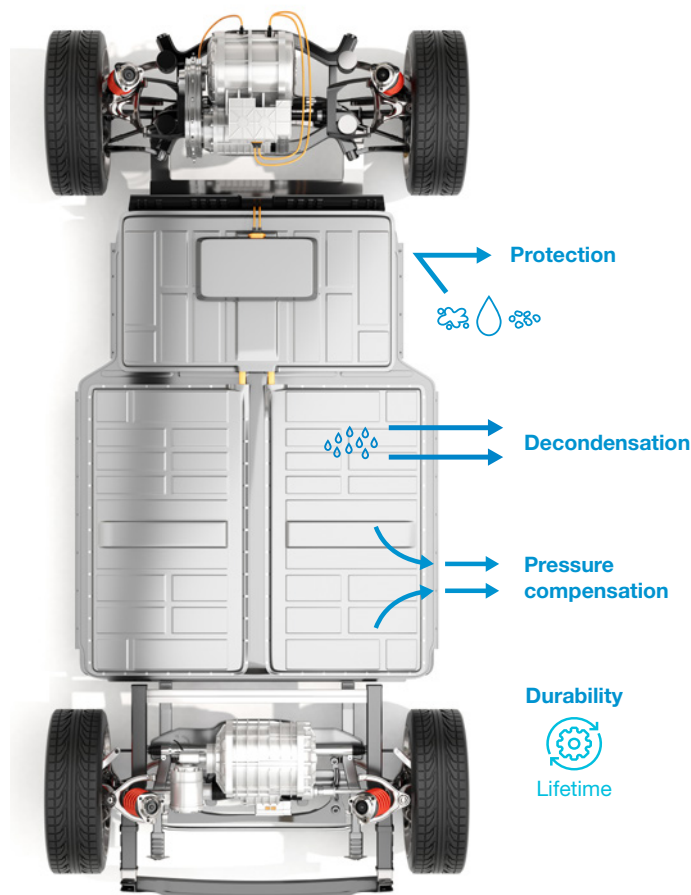
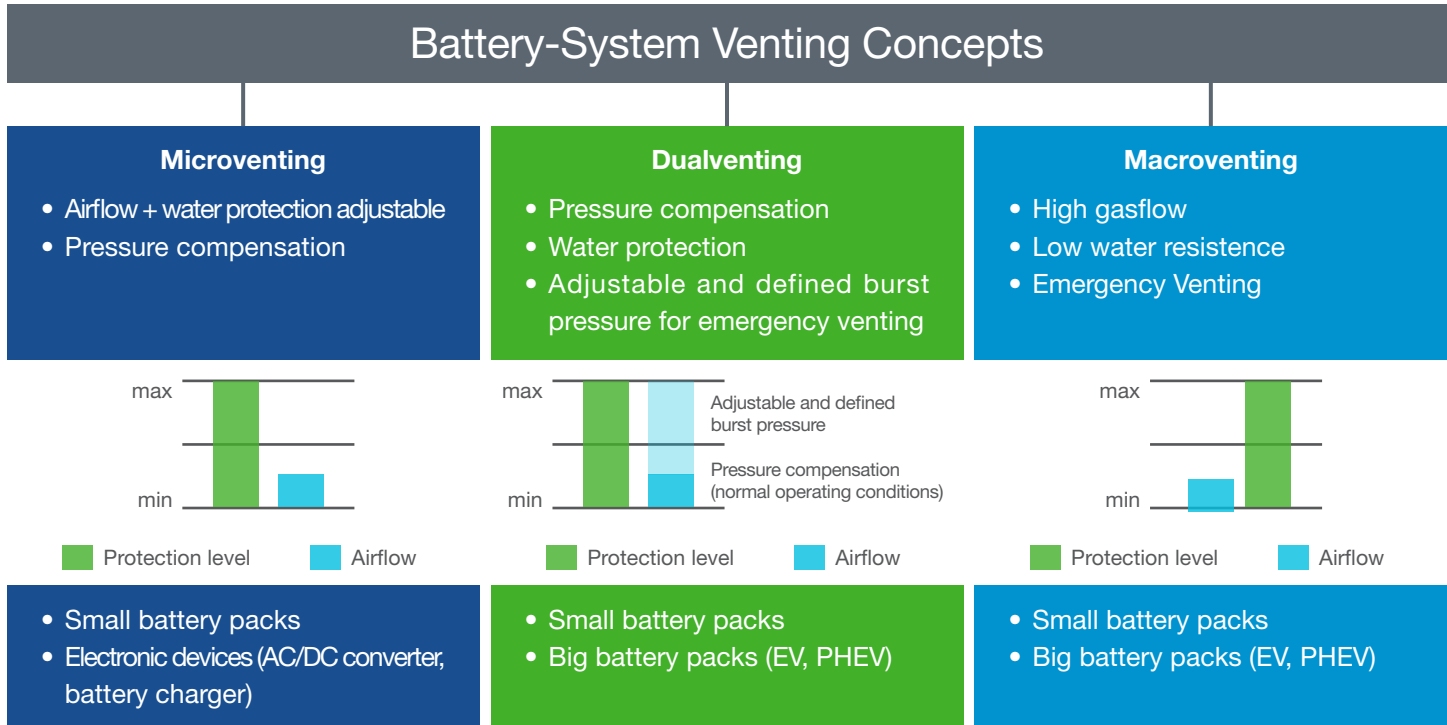
### Ease of Assembly

- Can be bonded directly to customer's battery solution via ultrasonic welding, laser welding, or insert-molding
- Highly automated production process possible

**100% Free of PFOA: Compliant with (EC) 1907/2006 REACH / Regulation (EU) 2019/1021 POP**

# How the Product Works

Depending on the application, we recommend three different venting concepts.

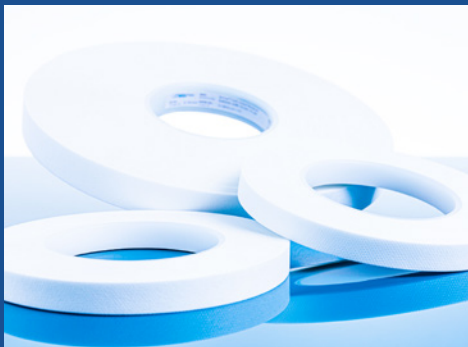


# Technical Specifications

Available Options	
<b>Airflow</b>	Up to 1'700 l / (bar cm <sup>2</sup> min)
<b>Water Entry Pressure (WEP)</b>	Splash water protection up to 3 bar
<b>Standard dimension</b>	Outer diameter up to 55 mm
<b>Adjustable burst pressure for emergency venting</b>	From 0.2 – 5.0 bar
<b>Applicable Temperature Range</b>	-40 to + 150°C (up to 180 °C for special application)

Material Options
PET Track-Etched unlaminated
PET Track-Etched laminated with PET/ PP non-woven
PET fiber bonded membranes

## Oxyphen Product — Standards for Battery Venting Concepts



Rollstock and Disks



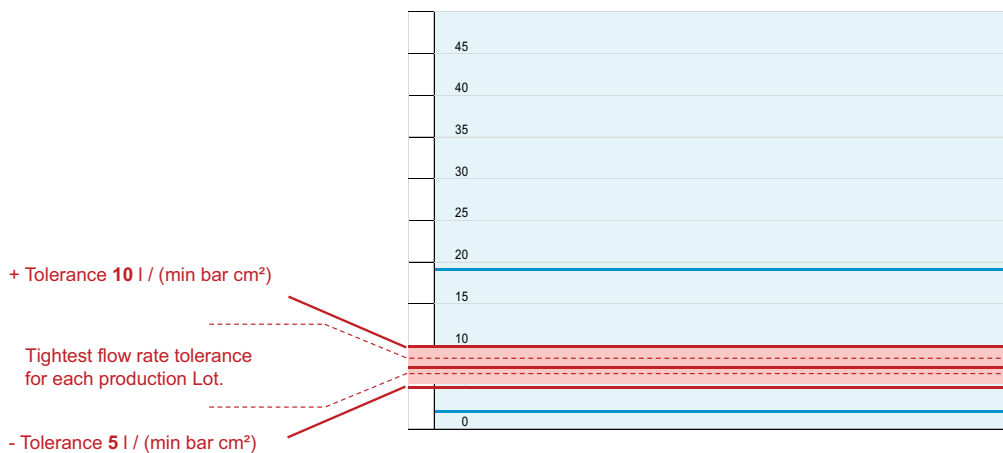
OxyPad® Self-Adhesive Membranes



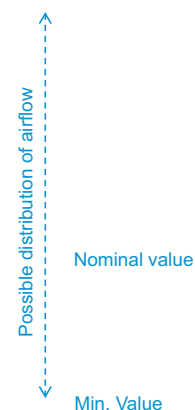
OxySeal® Injection Molded Units

## Track-Etched Membrane Airflow vs. PTFE

Airflow distribution of TEM Membrane



Airflow distribution of PTFE Membrane



Overview on airflow distribution track-etched membrane technology vs. PTFE technology