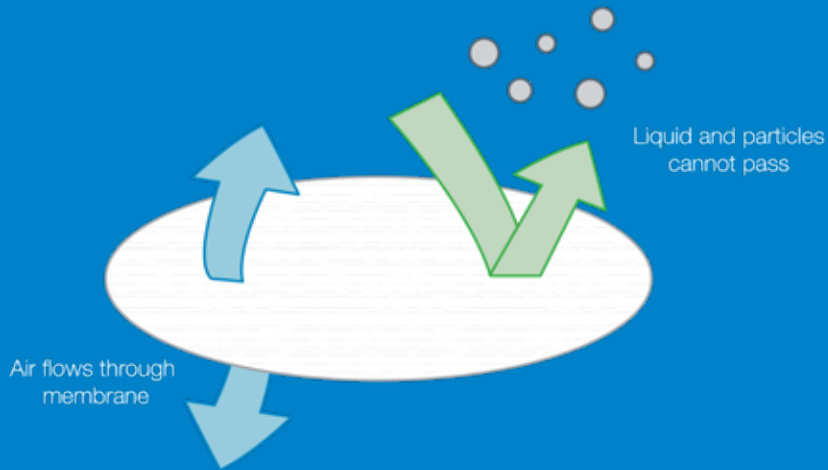

OXYPHEN VENTING SOLUTIONS

Track-Etched and Fiber-Based Membrane Vents Designed to Meet a Broad Set of Customer Specifications in the Automotive, Life Science, Medical, Electronic, and Consumer Markets.



oxyphen
Filtration Group

Venting Membranes Relieve Pressure While Protecting Enclosure Compartment From the External Environment



VENTING SOLUTIONS

Proper venting processes are essential for the optimal performance and longevity of a wide range of electronic devices, as well as other sealed or closed systems. Vents serve various purposes, such as pressure relief, cooling, and protection against external factors. Oxyphen offers high-quality track-etched membrane technology that can be tailored to meet the specific venting needs of different industries, including those that are common or unique. Additionally, it can be easily mounted using either ultrasonic welding or adhesive. Oxyphen material is 98% PFAS free.



Automotive Venting

In today's constantly evolving automotive market, safeguarding electronic components, sensors, and equipment from water, dirt, and other contaminants is crucial to prevent damage or even total failure. Oxyphen's membrane technologies provide an unparalleled level of protection and consistent airflow for manufacturers of various automotive parts, including battery packs, radar sensors, and lighting equipment in both traditional fuel and electric vehicles. Our team at Oxyphen has the expertise and experience to create customized track-etched membranes that meet your specific venting needs while complying with the latest regulations. We collaborate with you to develop a sustainable and cost-effective solution that you can rely on for years to come.



Medical Device Venting

Apart from delivering a consistent airflow and exceptional protection, Oxyphen's track-etched membranes are compatible with prevalent sterilization methods such as gamma and X-ray. Our membrane's pore size can be precisely controlled to cater to various healthcare applications, including patient-monitoring devices that require sterile venting and infusion pumps that need protection from blockage.



Industrial Venting

Oxyphen's track-etched membrane technologies are the go-to choice for numerous leading product manufacturers in various industries, including personal care devices, packaging vents, and electronic products. Our wide range of customizable options enables you to find the ideal level of protection, pressure equalization, or assembly method that ensures the uninterrupted and dependable operation of your device.

AUTOMOTIVE VENTING SOLUTIONS

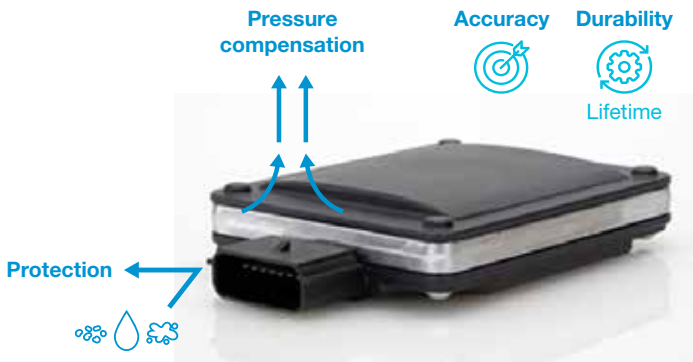
A close-up photograph of the front left corner of a car, showing the headlight, grille, and wheel. The image is overlaid with a semi-transparent blue filter. The text 'AUTOMOTIVE VENTING SOLUTIONS' is positioned in the upper left quadrant.

Radar Sensor & Electronics Protection

Electronic and Sensor Housing Protection

Small electronic housings, especially sensor housings, require utmost protection against water, dust, dirt, and other contaminants while maintaining adequate continuous airflow for temperature regulation. Radar sensors, in particular, have become a critical component of modern vehicles with autonomous driving assistance systems (ADAS). They play a crucial role in collision avoidance, providing real-time information for visual, haptic, or audible safety alerts, or even temporary control of braking, accelerating, or steering. Due to their high sensitivity, these sensors must have appropriate protection and airflow to ensure accuracy and reliability. Oxyphen's membrane technologies facilitate a uniform gas flow while optimizing protection against external media.

How the Product Works



Key Benefits

- 100% Free of PFOA: Compliant with (EC) 1907/2006 REACH / Regulation (EU) 2019/1021 POP
- Small tolerance range allows for dependable leakage tests at end of line using air flow
- Highly precise membrane characteristics for both air flow and water entry protection
- Customizable protection levels against water entry for optimal performance
- Exceptional chemical resistance performance
- Oxyphen hydrophobic membranes are 98% free of PFAS

Technical Specifications

Available Options	
Airflow	Up to 37 l / (bar cm ² min)
Water entry pressure (WEP)	Splash water protection up to 3 bar
Applicable temperature range	-40 to + 150 °C (up to 180° C for special application)
Standard dimensions	Outer dia. 5 – 14 mm
Oleophobic rating	According to AATCC 118: 8B
Certifications	IATF 16949

¹ Actual high temperature range dependent on adhesives, welding, and material used. For more customized solutions, we offer fiber-based membranes that can be used up to 180 °C

Material Options

Unique-Mem[®] PET track-etched membranes (unsupported)
 RoTrac[®] PET track-etched membrane with PET/PP non-woven material as laminated support material for higher robustness

Available Membrane Options



Rollstock Membrane



OxyDisc[®] Membrane Discs



OxyPad[®] Self-Adhesive Membrane Pads



OxySeal[®] Pressure Compensation Units

Automotive Lighting Vents

Choosing the appropriate venting material for your automotive lighting system can be a daunting task. Whether the lighting system is used in larger headlamps (headlights) or smaller ones such as fog lamps (fog lights) or brake lights, each requires a venting mechanism that offers well-regulated airflow, protection against contaminant ingress, and pressure equalization capabilities to prevent condensation and fogging. Since vehicles are frequently exposed to the most severe weather conditions, such as extreme temperature fluctuations, humidity, rain, and dust, among other environmental factors, it is critical to use only the finest venting materials when developing your solution. Oxyphen has a range of track-etched membrane solutions to tackle these concerns across different automotive lighting components.

How the Product Works



Key Benefits

- High airflow feature equalizes internal system pressures and helps prevent condensation
- Offers effective barrier protection against dust, debris, and splash water ingress
- Customizable adhesive seal designs facilitate easy integration with various systems
- Maintains watertight seal while ensuring uninterrupted airflow
- 100% Free of PFOA: Compliant with (EC) 1907/2006 REACH / Regulation (EU) 2019/1021 POP
- Oxyphen hydrophobic membranes are 98% free of PFAS

Technical Specifications

Available Options	
Airflow	Up to 3,000 l / (bar cm ² min)
Water entry pressure (WEP)	Splash water protection up to 30 mbar
Applicable temperature range	-40 to + 150 °C
Design	Rectangular or disc currently up to 55 mm

¹ Actual high temperature range dependent on adhesives, welding, and material used. For more customized solutions, we offer fiber-based membranes that can be used up to 180 °C

Material Options
RoTrac® PET fiber-based membranes
RoTrac® PP fiber-based membranes

Related Products



Rollstock Membrane



OxyDisc® Membrane Discs



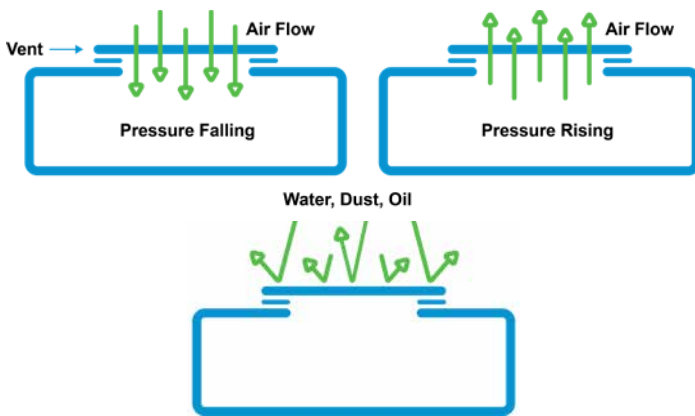
OxyPad® Self-Adhesive Membrane Pads

Electric Battery Venting

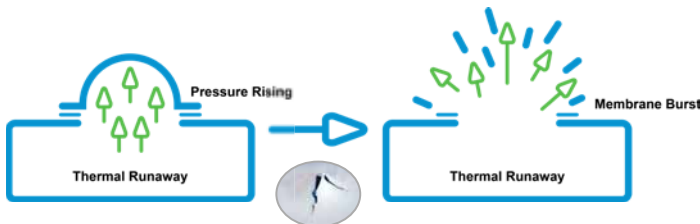
Ensuring proper venting and protection for battery technology and battery packs is crucial in the current automotive industry. The challenge of addressing these applications can be resolved effectively with Oxyphen's hydrophobic membranes. It is essential to have a combination of pressure balancing and water tightness for both large and small scale battery pack systems. Additionally, incorporating safety features like blow-by function in case of cell defect into a venting system can enhance protection measures.

How the Product Works

Normal Operations:



During Emergency Thermal Runaway:



Key Benefits

- 100% Free of PFOA: Compliant with (EC) 1907/2006 REACH / Regulation (EU) 2019/1021 POP
- Acts as a barrier against liquids and other contaminants while still allowing continuous airflow
- Maintains stable pressure levels as internal battery pressures rises or falls
- Can be bonded directly to customer's battery solution via ultrasonic welding, laser welding, or insert-molding
- Adjustable emergency venting function
- Oxyphen hydrophobic membranes are 98% free of PFAS

Technical Specifications

Available Options

Airflow	Up to 1'700 l / (bar cm ² min)
Water entry pressure (WEP)	Splash water protection up to 3 bar
Standard dimensions	Outer diameter up to 55 mm
Adjustable burst pressure for emergency venting	From 0.2 – 5.0 bar
Applicable temperature range	-40 to + 150 °C (up to 180 °C for special application)

¹ Actual high temperature range dependent on adhesives, welding, and material used. For more customized solutions, we offer fiber-based membranes that can be used up to 180 °C

Material Options

- Unique-Mem® PET track-etched membranes unlaminated
- RoTrac® PET track-etched membranes laminated with PET/ PP non-woven
- RoTrac® PET fiber-based membranes

Related Products



Rollstock Membrane



OxyPad * Self-Adhesive Membrane Pads



OxySeal * Pressure Compensation Units

HEALTHCARE VENTING SOLUTIONS



Medical Device Venting and Venting for Life Sciences



IV Venting

Sterile Venting for IV Solution

The use of a sterile venting solution is crucial for maintaining the safety and effectiveness of IV solutions. Oxyphen's 0.2 micron pore size membrane provides reliable venting and sterility control. The membrane is easy to mount to the application using ultrasonic welding, which allows for rollstock application. The complete assembly can be sterilized easily and reliably using Gamma or X-Ray irradiation, as the solution is stable under these conditions. Additionally, the membrane is 100% free of PFOA and compliant with (EC) 1907/2006 REACH / Regulation (EU) 2019/1021 POP, ensuring its safety and environmental friendliness.

Key Benefits

- Reliable venting and sterility control
- Easy mounting with ultrasonic welding by rollstock application
- Gamma- and X-ray stable solution for easy and reliable sterilization
- 100% Free of PFOA: Compliant with (EC) 1907/2006 REACH / Regulation (EU) 2019/1021 POP
- Oxyphen hydrophobic membranes are 98% free of PFAS

Technical Specifications

Available Options	
Airflow	> 2.5 l / (bar cm ² min)
Water entry pressure (WEP)	Splash water protection > 2.8 bar
Applicable temperature range	-40 to +150 °C (not critical)
Dimensions	Customized membrane width using Rollstock product

¹ Actual high temperature range dependent on adhesives, welding, and material used. For more customized solutions, we offer fiber-based membranes that can be used up to 180 °C

Material Options
Unique-Mem® PET track-etched membrane un laminated
RoTrac® PET track-etched-membrane laminated with PP/PET non-woven support

Venting Caps for Cell Culture Flasks

These venting caps for cell culture flasks offer several benefits, including protection against external contaminants such as water, dust, small particles, and bacteria, while still allowing for continuous air exchange. The sterile venting membrane used in these caps has a pore size of 0.2 microns and can be mounted using either heat sealing or ultrasonic welding. The final growth chamber can be sterilized using Gamma or X-ray irradiation, and the caps are compliant with (EC) 1907/2006 REACH/Regulation (EU) 2019/1021 POP and are 100% free of PFOA.

Key Benefits

- Protect against water and dust, small particles and bacteria from outside
- Enables continuous air exchange
- Sterilization of the final growth chamber is possible with Gamma and /or X-ray irradiation
- 100% Free of PFOA: Compliant with (EC) 1907/2006 REACH / Regulation (EU) 2019/1021 POP
- Oxyphen hydrophobic membranes are 98% free of PFAS

Technical Specifications

Available Options	
Airflow	> 2.5 l / (bar cm ² min)
Water entry pressure (WEP)	Splash water protection > 2.8 bar
Applicable temperature range	-40 to +150 °C (not critical)
Dimensions	Customized membrane width with Rollstock product
Membrane type	hydrophobic membrane

¹ Actual high temperature range dependent on adhesives, welding, and material used. For more customized solutions, we offer fiber-based membranes that can be used up to 180 °C

Material Options
RoTrac® PET track-etched membrane laminated with PP/PET non-woven support



Vents for Cell Culture Flasks



Oxyphen Flask Vents

Venting Membranes for Ostomy Bag / Waste Bags

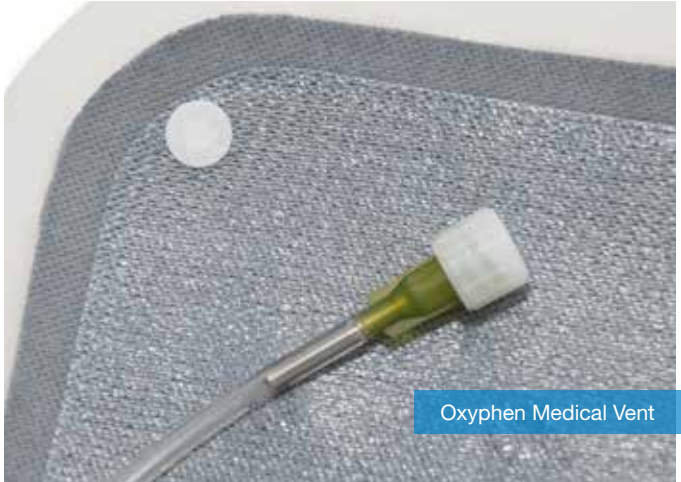
can provide a solution for short peaks of over-pressure during the transport of high gas volumes to the outside, while still keeping waste from leaving the bag. The use of venting membranes in ostomy bags or waste bags can offer several benefits, including high protection against media leakage, maximum and fast gas exchange, and good performance with waste gas. Additionally, venting membranes are easy to assemble using ultrasonic welding or heat staking processes. Furthermore, the venting membranes used in these bags are 100% free of PFOA, ensuring compliance with regulations.

Key Benefits

- 100% Free of PFOA: Compliant with (EC) 1907/2006 REACH / Regulation (EU) 2019/1021 POP
- High protection against media leakage
- Maximum and fast gas exchange
- Good performance with waste gas
- Easy to assemble for ultrasonic welding & heat staking processes
- Oxyphen hydrophobic membranes are 98% free of PFAS

Technical Specifications

Available Options	
Airflow	Up to 18 l / (bar cm ² min)
Water entry pressure (WEP)	Splash water protection up to 3 bar
Applicable temperature range	-40 to + 150 °C
Standard Dimensions	Outer diameter up to 28 mm



Oxyphen Medical Vent



Ostomy Bag

Related Products

- Rollstock membrane
- OxyDisc membrane discs
- OxyPad self-adhesive membrane pads

Related Technologies

- Track-etched membranes

¹ Actual high temperature range dependent on adhesives, welding, and material used. For more customized solutions, we offer fiber-based membranes that can be used up to 180 °C

Material Options
RoTrac® PET track-etched membranes unlined
RoTrac® track-etched membranes laminated with PET/PP non-woven support

INDUSTRIAL VENTING SOLUTIONS



Consumer & Electronic Venting

Cleaning Agent Packaging / Spray Nozzles

In order to enable continuous usage of spray bottles and different types of cleaning agent storage, pressure compensation is required. To ensure that the spray or release function of a bottle is secured, an Oxyphen pressure compensation membrane can be used at the spray nozzle. The membrane facilitates precise air exchange, enabling the correct amount of chemical or detergent to be used every time, while also preventing leakage and spillage of the contents. This ensures that the contents are safely stored and can be used reliably over an extended period of time.



Cleaning Spray Nozzle

Key Benefits

- 100% Free of PFOA: Compliant with (EC) 1907/2006 REACH / Regulation (EU) 2019/1021 POP
- High protection against leakage
- Defined air flow for pressure exchange
- Usable in very small dimensions, yet still providing very reliable performance
- Oxyphen hydrophobic membranes are 98% free of PFAS

Technical Specifications

Available Options	
Airflow	Up to 18 l / (bar cm ² min)
Water entry pressure (WEP)	Splash water protection up to 3 bar
Applicable temperature range	-40 to +150 °C (< 180 °C for special application)
Standard dimensions	Outer diameter up to 14 mm
Certifications	Chemical resistance: According LV124/ ISO 16750-5 (in progress)

¹ Actual high temperature range dependent on adhesives, welding, and material used. For more customized solutions, we offer fiber-based membranes that can be used up to 180 °C

Material Options

- Unique-Mem[®] track-etched membrane unlaminated
- RoTrac[®] track-etched membranes laminated with PET/ PP non-woven material

Personal Care Devices

To protect the inside electronics and motors of electronic beauty devices, such as shavers and electronic toothbrushes, from water and other media in humid or wet environments, a membrane is required. Oxyphen track-etched membranes are commonly used in these types of devices to provide the necessary protection.

Key Benefits

- 100% Free of PFOA: Compliant with (EC) 1907/2006 REACH / Regulation (EU) 2019/1021 POP
- High protection and pressure compensation at the same time
- Self cleaning effect through the smooth surface
- Good chemical resistance
- Oxyphen hydrophobic membranes are 98% free of PFAS

Technical Specifications

Available Options	
Airflow	Up to 18 l / (bar cm ² min)
Water entry pressure (WEP)	Splash water protection up to 3 bar
Applicable temperature range	-40 to + 150 °C
Standard dimensions	Outer diameter up to 14 mm
Certifications	Chemical resistance: According LV124/ ISO 16750-5 (in progress)

¹ Actual high temperature range dependent on adhesives, welding, and material used. For more customized solutions, we offer fiber-based membranes that can be used up to 180 °C

Material Options

- Unique-Mem[®] track-etched membrane unlaminated
- RoTrac[®] track-etched membranes laminated with PET/ PP non-woven



Electric Facial Cleanser

Related Products

- Rollstock membrane
- OxyDisc membrane discs
- OxyPad self-adhesive membrane pads
- Assemblies & modules

Related Technologies

- Track-etched membranes



Rollstock Membranes

Electronic and Sensor Housing Protection

To protect small to medium electronic housings and sensor housings from water and dust/dirt, a reliable solution is needed while ensuring minimal gas flow to prevent the transport of water molecules. The tracketched membrane technology is an ideal solution that offers uniform gas flow with maximum protection against outer media. This technology can be customized to meet specific customer requirements for all types of industrial applications.



Carbon Monoxide Alarm

Key Benefits

- 100% Free of PFOA: Compliant with (EC) 1907/2006 REACH / Regulation (EU) 2019/1021 POP
- Small tolerance range for reliable leakage tests for end of line (by air flow)
- Precise membrane characteristics regarding air flow and water entry protection
- Tunable protection level against water entry
- Best chemical resistance performance
- Oxyphen hydrophobic membranes are 98% free of PFAS

Technical Specifications

Available Options	
Airflow	Up to 37 l / (bar cm ² min)
Water entry pressure (WEP)	Splash water protection up to 3 bar
Applicable temperature range	-40 to + 150 °C (< 180° C for special application)
Standard dimensions	Outer dia. 5 – 14 mm
Oleophobic rating	Grade up to 7.5, according to AATCC 118
Certifications	Chemical resistance: According LV124/ ISO 16750-5 (in progress)

¹ Actual high temperature range dependent on adhesives, welding, and material used. For more customized solutions, we offer fiber-based membranes that can be used up to 180 °C

Material Options
Unique-Mem® PET track-etched membrane unlaminated
RoTrac® track-etched membrane laminated with PP/PET non-woven for increased robustness

Related Products

- Rollstock membrane
- OxyDisc membrane discs
- OxyPad self-adhesive membrane pads
- OxySeal pressure compensation units
- Assemblies & Modules

Related Technologies

- Track-etched membranes

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