

Automotive Venting Membrane Market – Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Product Type (PTFE & ePTFE Membrane, Polypropylene Membrane, Others) By Nature (Hydrophobic, Hydrophilic, Oleophobic) By Application (Electronic Control Units, Motors, Sensors, Others) By Region & Competition, 2021-2031F

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Abstracts

The Global Automotive Venting Membrane Market is projected to expand from USD 1.96 Billion in 2025 to USD 2.83 Billion by 2031, demonstrating a compound annual growth rate of 6.31%. These critical components are semi-permeable barriers, often crafted from microporous materials like expanded polytetrafluoroethylene, specifically engineered to equalize pressure within vehicle systems while effectively preventing the ingress of contaminants such as water and dust. Their application is vital across various automotive segments, including vehicle electronics, lighting, and high-voltage battery packs. A primary catalyst for this market expansion is the rapid electrification of the global automotive sector, which creates a critical demand for robust venting solutions to manage thermal pressure and outgassing in electric vehicle battery systems. For instance, in 2024, China's new energy vehicle production surged to 12.89 million units, marking a 34.4% year-on-year increase according to the China Association of Automobile Manufacturers, directly fueling the need for specialized membranes that ensure battery safety and longevity. Additionally, the increasing integration of advanced automotive electronics and sensor technologies further propels market growth, as sophisticated Electronic Control Units and Advanced Driver Assistance Systems require breathable protection against condensation and corrosion. This trend is reinforced by

strong demand for semiconductor components in the automotive sector, with a 23.2% year-over-year sales increase in Q3 2024, as reported by the Semiconductor Industry Association, alongside global motor vehicle production reaching 92.5 million units in 2024 according to OICA, underscoring the universal requirement for reliable venting solutions across both conventional and electric vehicle platforms.

Market Driver

The rapid expansion of electric vehicle (EV) battery systems stands as a primary catalyst for the automotive venting membrane market, creating an urgent need for advanced pressure management solutions. High-voltage battery packs generate substantial heat and internal pressure during both operation and charging, necessitating specialized venting membranes that can equalize pressure while effectively blocking contaminants. These components are crucial for safety, as they mitigate risks of deformation or explosion resulting from thermal runaway and battery outgassing. The scale of this demand is evident from industry projections; the International Energy Agency (IEA) estimated global electric car sales to reach approximately 17 million units in 2024. This significant surge in electrification compels manufacturers to integrate advanced venting technologies to ensure the integrity and longevity of battery packs under diverse environmental conditions. Simultaneously, the growing integration of sophisticated automotive electronics and sensor technologies provides a substantial boost to market growth. Modern vehicles increasingly rely on complex Electronic Control Units (ECUs) and Advanced Driver Assistance Systems (ADAS) sensors, which require breathable protective barriers to prevent condensation and corrosion. As vehicle architectures become more intricate, the increasing density of electronic components susceptible to moisture damage necessitates high-performance venting solutions. This trend is underscored by robust component demand, with the Semiconductor Industry Association (SIA) reporting a 23.2% year-over-year sales increase in the third quarter of 2024, significantly driven by the automotive sector. Furthermore, the overall volume of vehicle manufacturing, which reached 92.5 million units globally in 2024 according to the International Organisation of Motor Vehicle Manufacturers (OICA), reinforces the universal requirement for reliable venting solutions across both conventional and electric vehicle platforms.

Market Challenge

Despite robust market drivers, a significant impediment to the expansion of the automotive venting membrane market is the high manufacturing cost associated with producing durable, high-quality membranes. The complex engineering required to

consistently achieve strict standards for air permeability and water resistance demands substantial capital investment and specialized technical expertise. This results in elevated final product pricing, which primarily limits their integration to premium vehicle segments. Consequently, adoption is restricted in mass-market economy vehicles, where manufacturers aggressively prioritize cost reduction over the integration of advanced components. This price premium often leads automakers to deprioritize these advanced but expensive solutions in favor of more affordable alternatives, thereby directly reducing the total addressable market for these specialized components. This financial constraint is further intensified by broader industrial contractions that compel manufacturers to meticulously scrutinize every component expense. For example, European vehicle production contracted by 2.6% in the first half of 2025, as reported by the European Automobile Manufacturers' Association. Such declines in manufacturing output reflect the intense cost pressures and competitive challenges facing the industry, creating an environment where the high acquisition price of specialized venting membranes effectively hinders their penetration into the high-volume vehicle segments crucial for significant market growth.

Market Trends

The automotive venting membrane market is experiencing a critical trend towards PFOA-free and eco-friendly manufacturing, propelled by stringent global environmental regulations and the automotive industry's decarbonization mandates. Manufacturers are actively transitioning away from hazardous per- and polyfluoroalkyl substances (PFAS) to adopt sustainable production processes, ensuring compliance with evolving standards like EU REACH while maintaining high filtration performance. This shift compels suppliers to prioritize carbon neutrality and minimize hazardous waste in their operations. For instance, Donaldson Company reported an 18% reduction in its Scope 1 and 2 greenhouse gas emissions by fiscal year 2024 compared to its 2021 baseline, highlighting the sector's rapid pivot toward environmentally responsible manufacturing frameworks. Simultaneously, the market is witnessing a rapid expansion of acoustic venting solutions specifically designed for in-cabin voice recognition and smart cockpit systems. As vehicles increasingly integrate sophisticated voice assistants and immersive audio technologies, there is a distinct need for specialized membranes that offer low acoustic loss while effectively protecting sensitive microphones and speakers from liquid and particle ingress. This demand correlates with the adoption of high-performance computing platforms that underpin modern infotainment architectures. This trajectory is underscored by key technology enablers, with NVIDIA Corporation reporting that its automotive revenue reached \$567 million in the first quarter of fiscal 2026, representing a 72% increase from the previous year, reflecting the accelerated

deployment of intelligent cockpit platforms requiring these advanced acoustic components.

Key Market Players

W. L. Gore & Associates, Inc.

Saint-Gobain Performance Plastics

Donaldson Company, Inc.

Porex Corporation

Nitto Denko Corporation

Parker Hannifin Corporation

Freudenberg Filtration Technologies

Advantec MFS, Inc.

Merck KGaA

Rogers Corporation

Report Scope

In this report, the Global Automotive Venting Membrane Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Automotive Venting Membrane Market, By Product Type

PTFE & ePTFE Membrane

Polypropylene Membrane

Others

Automotive Venting Membrane Market, By Nature

Hydrophobic

Hydrophilic

Oleophobic

Automotive Venting Membrane Market, By Application

Electronic Control Units

Motors

Sensors

Others

Automotive Venting Membrane Market, By Region

North America

United States

Canada

Mexico

Europe

France

United Kingdom

Italy

Germany

Spain

Asia Pacific

China

India

Japan

Australia

South Korea

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Automotive Venting Membrane Market.

Available Customizations:

Global Automotive Venting Membrane Market report with the given market data,

Automotive Venting Membrane Market – Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented...

TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

Contents

1. PRODUCT OVERVIEW

- 1.1. Market Definition
- 1.2. Scope of the Market
 - 1.2.1. Markets Covered
 - 1.2.2. Years Considered for Study
 - 1.2.3. Key Market Segmentations

2. RESEARCH METHODOLOGY

- 2.1. Objective of the Study
- 2.2. Baseline Methodology
- 2.3. Key Industry Partners
- 2.4. Major Association and Secondary Sources
- 2.5. Forecasting Methodology
- 2.6. Data Triangulation & Validation
- 2.7. Assumptions and Limitations

3. EXECUTIVE SUMMARY

- 3.1. Overview of the Market
- 3.2. Overview of Key Market Segmentations
- 3.3. Overview of Key Market Players
- 3.4. Overview of Key Regions/Countries
- 3.5. Overview of Market Drivers, Challenges, Trends

4. VOICE OF CUSTOMER

5. GLOBAL AUTOMOTIVE VENTING MEMBRANE MARKET OUTLOOK

- 5.1. Market Size & Forecast
 - 5.1.1. By Value
- 5.2. Market Share & Forecast
 - 5.2.1. By Product Type (PTFE & ePTFE Membrane, Polypropylene Membrane, Others)
 - 5.2.2. By Nature (Hydrophobic, Hydrophilic, Oleophobic)
 - 5.2.3. By Application (Electronic Control Units, Motors, Sensors, Others)

- 5.2.4. By Region
- 5.2.5. By Company (2025)
- 5.3. Market Map

6. NORTH AMERICA AUTOMOTIVE VENTING MEMBRANE MARKET OUTLOOK

- 6.1. Market Size & Forecast
 - 6.1.1. By Value
- 6.2. Market Share & Forecast
 - 6.2.1. By Product Type
 - 6.2.2. By Nature
 - 6.2.3. By Application
 - 6.2.4. By Country
- 6.3. North America: Country Analysis
 - 6.3.1. United States Automotive Venting Membrane Market Outlook
 - 6.3.1.1. Market Size & Forecast
 - 6.3.1.1.1. By Value
 - 6.3.1.2. Market Share & Forecast
 - 6.3.1.2.1. By Product Type
 - 6.3.1.2.2. By Nature
 - 6.3.1.2.3. By Application
 - 6.3.2. Canada Automotive Venting Membrane Market Outlook
 - 6.3.2.1. Market Size & Forecast
 - 6.3.2.1.1. By Value
 - 6.3.2.2. Market Share & Forecast
 - 6.3.2.2.1. By Product Type
 - 6.3.2.2.2. By Nature
 - 6.3.2.2.3. By Application
 - 6.3.3. Mexico Automotive Venting Membrane Market Outlook
 - 6.3.3.1. Market Size & Forecast
 - 6.3.3.1.1. By Value
 - 6.3.3.2. Market Share & Forecast
 - 6.3.3.2.1. By Product Type
 - 6.3.3.2.2. By Nature
 - 6.3.3.2.3. By Application

7. EUROPE AUTOMOTIVE VENTING MEMBRANE MARKET OUTLOOK

- 7.1. Market Size & Forecast

- 7.1.1. By Value
- 7.2. Market Share & Forecast
 - 7.2.1. By Product Type
 - 7.2.2. By Nature
 - 7.2.3. By Application
 - 7.2.4. By Country
- 7.3. Europe: Country Analysis
 - 7.3.1. Germany Automotive Venting Membrane Market Outlook
 - 7.3.1.1. Market Size & Forecast
 - 7.3.1.1.1. By Value
 - 7.3.1.2. Market Share & Forecast
 - 7.3.1.2.1. By Product Type
 - 7.3.1.2.2. By Nature
 - 7.3.1.2.3. By Application
 - 7.3.2. France Automotive Venting Membrane Market Outlook
 - 7.3.2.1. Market Size & Forecast
 - 7.3.2.1.1. By Value
 - 7.3.2.2. Market Share & Forecast
 - 7.3.2.2.1. By Product Type
 - 7.3.2.2.2. By Nature
 - 7.3.2.2.3. By Application
 - 7.3.3. United Kingdom Automotive Venting Membrane Market Outlook
 - 7.3.3.1. Market Size & Forecast
 - 7.3.3.1.1. By Value
 - 7.3.3.2. Market Share & Forecast
 - 7.3.3.2.1. By Product Type
 - 7.3.3.2.2. By Nature
 - 7.3.3.2.3. By Application
 - 7.3.4. Italy Automotive Venting Membrane Market Outlook
 - 7.3.4.1. Market Size & Forecast
 - 7.3.4.1.1. By Value
 - 7.3.4.2. Market Share & Forecast
 - 7.3.4.2.1. By Product Type
 - 7.3.4.2.2. By Nature
 - 7.3.4.2.3. By Application
 - 7.3.5. Spain Automotive Venting Membrane Market Outlook
 - 7.3.5.1. Market Size & Forecast
 - 7.3.5.1.1. By Value
 - 7.3.5.2. Market Share & Forecast

- 7.3.5.2.1. By Product Type
- 7.3.5.2.2. By Nature
- 7.3.5.2.3. By Application

8. ASIA PACIFIC AUTOMOTIVE VENTING MEMBRANE MARKET OUTLOOK

- 8.1. Market Size & Forecast
 - 8.1.1. By Value
- 8.2. Market Share & Forecast
 - 8.2.1. By Product Type
 - 8.2.2. By Nature
 - 8.2.3. By Application
 - 8.2.4. By Country
- 8.3. Asia Pacific: Country Analysis
 - 8.3.1. China Automotive Venting Membrane Market Outlook
 - 8.3.1.1. Market Size & Forecast
 - 8.3.1.1.1. By Value
 - 8.3.1.2. Market Share & Forecast
 - 8.3.1.2.1. By Product Type
 - 8.3.1.2.2. By Nature
 - 8.3.1.2.3. By Application
 - 8.3.2. India Automotive Venting Membrane Market Outlook
 - 8.3.2.1. Market Size & Forecast
 - 8.3.2.1.1. By Value
 - 8.3.2.2. Market Share & Forecast
 - 8.3.2.2.1. By Product Type
 - 8.3.2.2.2. By Nature
 - 8.3.2.2.3. By Application
 - 8.3.3. Japan Automotive Venting Membrane Market Outlook
 - 8.3.3.1. Market Size & Forecast
 - 8.3.3.1.1. By Value
 - 8.3.3.2. Market Share & Forecast
 - 8.3.3.2.1. By Product Type
 - 8.3.3.2.2. By Nature
 - 8.3.3.2.3. By Application
 - 8.3.4. South Korea Automotive Venting Membrane Market Outlook
 - 8.3.4.1. Market Size & Forecast
 - 8.3.4.1.1. By Value
 - 8.3.4.2. Market Share & Forecast

- 8.3.4.2.1. By Product Type
- 8.3.4.2.2. By Nature
- 8.3.4.2.3. By Application
- 8.3.5. Australia Automotive Venting Membrane Market Outlook
 - 8.3.5.1. Market Size & Forecast
 - 8.3.5.1.1. By Value
 - 8.3.5.2. Market Share & Forecast
 - 8.3.5.2.1. By Product Type
 - 8.3.5.2.2. By Nature
 - 8.3.5.2.3. By Application

9. MIDDLE EAST & AFRICA AUTOMOTIVE VENTING MEMBRANE MARKET OUTLOOK

- 9.1. Market Size & Forecast
 - 9.1.1. By Value
- 9.2. Market Share & Forecast
 - 9.2.1. By Product Type
 - 9.2.2. By Nature
 - 9.2.3. By Application
 - 9.2.4. By Country
- 9.3. Middle East & Africa: Country Analysis
 - 9.3.1. Saudi Arabia Automotive Venting Membrane Market Outlook
 - 9.3.1.1. Market Size & Forecast
 - 9.3.1.1.1. By Value
 - 9.3.1.2. Market Share & Forecast
 - 9.3.1.2.1. By Product Type
 - 9.3.1.2.2. By Nature
 - 9.3.1.2.3. By Application
 - 9.3.2. UAE Automotive Venting Membrane Market Outlook
 - 9.3.2.1. Market Size & Forecast
 - 9.3.2.1.1. By Value
 - 9.3.2.2. Market Share & Forecast
 - 9.3.2.2.1. By Product Type
 - 9.3.2.2.2. By Nature
 - 9.3.2.2.3. By Application
 - 9.3.3. South Africa Automotive Venting Membrane Market Outlook
 - 9.3.3.1. Market Size & Forecast
 - 9.3.3.1.1. By Value

- 9.3.3.2. Market Share & Forecast
 - 9.3.3.2.1. By Product Type
 - 9.3.3.2.2. By Nature
 - 9.3.3.2.3. By Application

10. SOUTH AMERICA AUTOMOTIVE VENTING MEMBRANE MARKET OUTLOOK

- 10.1. Market Size & Forecast
 - 10.1.1. By Value
- 10.2. Market Share & Forecast
 - 10.2.1. By Product Type
 - 10.2.2. By Nature
 - 10.2.3. By Application
 - 10.2.4. By Country
- 10.3. South America: Country Analysis
 - 10.3.1. Brazil Automotive Venting Membrane Market Outlook
 - 10.3.1.1. Market Size & Forecast
 - 10.3.1.1.1. By Value
 - 10.3.1.2. Market Share & Forecast
 - 10.3.1.2.1. By Product Type
 - 10.3.1.2.2. By Nature
 - 10.3.1.2.3. By Application
 - 10.3.2. Colombia Automotive Venting Membrane Market Outlook
 - 10.3.2.1. Market Size & Forecast
 - 10.3.2.1.1. By Value
 - 10.3.2.2. Market Share & Forecast
 - 10.3.2.2.1. By Product Type
 - 10.3.2.2.2. By Nature
 - 10.3.2.2.3. By Application
 - 10.3.3. Argentina Automotive Venting Membrane Market Outlook
 - 10.3.3.1. Market Size & Forecast
 - 10.3.3.1.1. By Value
 - 10.3.3.2. Market Share & Forecast
 - 10.3.3.2.1. By Product Type
 - 10.3.3.2.2. By Nature
 - 10.3.3.2.3. By Application

11. MARKET DYNAMICS

- 11.1. Drivers
- 11.2. Challenges

12. MARKET TRENDS & DEVELOPMENTS

- 12.1. Merger & Acquisition (If Any)
- 12.2. Product Launches (If Any)
- 12.3. Recent Developments

13. GLOBAL AUTOMOTIVE VENTING MEMBRANE MARKET: SWOT ANALYSIS

14. PORTER'S FIVE FORCES ANALYSIS

- 14.1. Competition in the Industry
- 14.2. Potential of New Entrants
- 14.3. Power of Suppliers
- 14.4. Power of Customers
- 14.5. Threat of Substitute Products

15. COMPETITIVE LANDSCAPE

- 15.1. W. L. Gore & Associates, Inc.
 - 15.1.1. Business Overview
 - 15.1.2. Products & Services
 - 15.1.3. Recent Developments
 - 15.1.4. Key Personnel
 - 15.1.5. SWOT Analysis
- 15.2. Saint-Gobain Performance Plastics
- 15.3. Donaldson Company, Inc.
- 15.4. Porex Corporation
- 15.5. Nitto Denko Corporation
- 15.6. Parker Hannifin Corporation
- 15.7. Freudenberg Filtration Technologies
- 15.8. Advantec MFS, Inc.
- 15.9. Merck KGaA
- 15.10. Rogers Corporation

16. STRATEGIC RECOMMENDATIONS

17. ABOUT US & DISCLAIMER

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