



## Case Study: GORE® Performance Membrane for Gas Detectors

# Gore and NevadaNano's Collaboration for Innovation

### ? CHALLENGE

In the face of growing environmental concerns and more stringent regulations, the detection of greenhouse gases like methane has become a valuable asset in fighting climate challenges. As an innovative leader in gas sensor technology, NevadaNano understands the importance of providing accurate and reliable performance in methane gas detection, a major contributor to global warming.

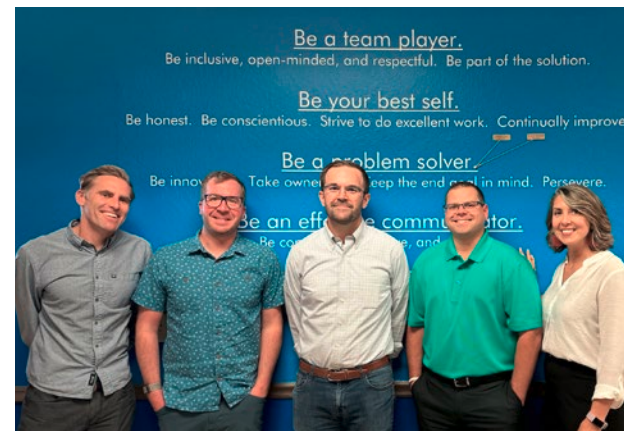
"When Gore described how they could solve the particular problem we had, I was excited to hear that there was interest to help—and to learn more about our application.

Their detailed questions made us comfortable that Gore was trying to truly understand what exactly we needed."

**Ben Rogers, Director of Sensor Engineering at NevadaNano**



For their next generation sensor, they aimed to not only provide excellent gas detection, but also the additional benefit of a longer lifespan, up to 15 years, with little to no maintenance. To do this, they required a membrane solution that would both protect the sensitive sensor in harsh outdoor conditions from environmental hazards and enable reliable performance over an extended lifetime. Always ready for a challenge, Gore's team jumped at the chance to help NevadaNano develop a solution.





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### SOLUTION

Gore's **expertise in waterproof yet breathable protective membranes** proved to be the perfect match for NevadaNano's requirements. They previously relied on an off-the-shelf protective cover which had to be re-engineered to fit the sensor enclosure. However, it was still not a perfect solution and did not fully meet their performance expectations. After discussing NevadaNano's design challenges, Gore's engineers suggested a **custom design, specifically tailored to the gas sensor housing**.

Backed with a non-woven support layer and incorporating a robust, pressure-sensitive adhesive, Gore's membrane solution provides **top-notch protection**

**against particles and contaminants.** Even better: the product is provided in a form that can seamlessly integrate into NevadaNano's automated assembly process for increased manufacturing throughput.

In addition to ensuring the membrane's fit, Gore's engineers also optimized the membrane's durability. After all, methane gas detectors are used outdoors, with constant exposure to harsh conditions, and are expected to consistently perform for 15 years. To ensure their reliability, Gore subjected membrane test samples in extensive testing scenarios—including **high temperatures, high humidity and UV exposure.**

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#### THE TECHNOLOGIES BEHIND THE SOLUTION: GORE® PERFORMANCE MEM- BRANES FOR GAS SENSORS

Gore's solution leveraged their advanced membrane technology, known for its durability and effective ingress protection in the most challenging environments. For specifications and more detailed information, please visit [gore.com/sensor-membranes](https://www.gore.com/sensor-membranes).

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"Manufacturability was of key importance in this project. We were able to integrate a design feature for seamless assembly, allowing NevadaNano easy orientation of the parts in the production process."



**Matthew R. Gessner,**  
Application Engineer  
at Gore

"Even as we considered the product done and moved on with the launch of our sensors, Gore has continued to stress-test the membrane, providing more and more assurances that the membrane will meet the long life-time requirements and withstand harsh conditions. They truly went above and beyond our expectations."



**Adam McBrady,**  
Vice President of Sensor  
Engineering at NevadaNano

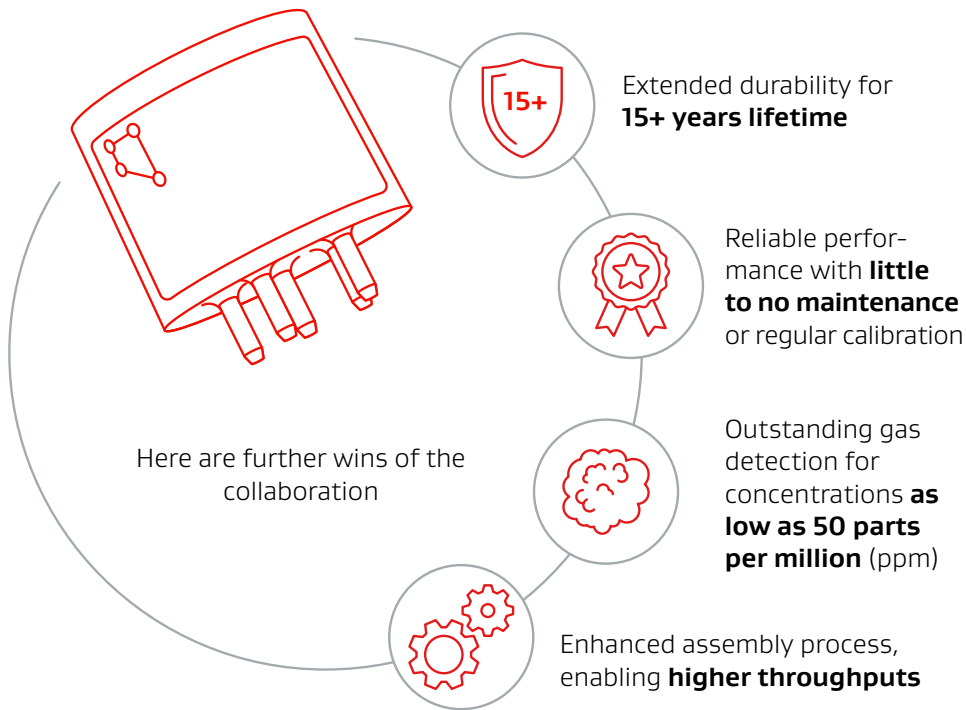


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### ★ RESULTS

The collaboration between Gore and NevadaNano resulted in a methane gas detector that exceeded all expectations. Nurtured from shared values like innovation, trust and protecting the environment, this project turned into a visionary partnership. By choosing the GORE® Performance Membranes for Gas Sensors, NevadaNano gained:



#### WANT TO KNOW MORE?

To learn more, visit our website: [gore.com/protectivevents](https://gore.com/protectivevents)

Or check out more of our case studies: [gore.com/oestories](https://gore.com/oestories)

"Detecting gas leaks is one of the best ways to fight global warming. That said, the Gore solution plays a major role in helping mitigate the impacts of climate change."



**Ben Rogers,**  
Director of Sensor Engineering at NevadaNano



# Why Choose GORE® Portable Electronic Vents for Your Electronic Devices?

Leading OEMs have purchased over 10 billion GORE® Portable Electronic Vents because they know our products and services can help accelerate their development of innovative and differentiated devices in fast-paced, highly competitive markets.

## PRODUCT AND APPLICATION LEADERSHIP

Grounded in a deep understanding of material science and acoustics, Gore can provide the optimum venting solution. We balance trade-offs between diverse problems such as adverse operating environments, immersion events and acoustic performance.

## RELIABLE PERFORMANCE

To ensure products are “fit for use”, every Gore product must adhere to the highest standards of quality, performance and reliability. Through a comprehensive understanding of end-use applications and requirements, our products do what they say they will do.

## FAST DEVELOPMENT

The mobile electronics industry develops and releases new products quickly. Our fast response to customer requests during the development process sets us apart. Gore supports this need for quickness with designs and prototypes to ensure engineering teams can meet their project timelines and their application requirements.

## SUPPLY SECURITY

Leading OEMs specify Gore because we have consistently proven our ability to quickly ramp up to supply vents for projects of over 10 million devices per year and to continue to supply high quality products on-time without disruption.

## MATERIAL SCIENCE

Gore is a global materials science company dedicated to transforming industries and improving lives. Gore develops materials with microporous structures that provide desirable attributes and performance characteristics to engineer vents and other products used in a variety of markets and industries.

## GLOBAL SUPPORT

Our global teams of sales associates, application engineers, manufacturing engineers, and research personnel enable us to provide agile and robust support to customers around the world.

## Interested in Testing Our Products or Talking to Our Experts?

For additional assistance, please contact a Gore representative.

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