GORE® Performance Membranes
Electrochemical (EC) Gas Sensors

OPTIMIZE EC GAS SENSOR ACCURACY, AND ENHANCE YIELDS AND SERVICE LIFE

Optimize electrochemical (EC) gas sensor development, yields and reliability with the consistent product quality of GORE Performance Membranes, backed by Gore's comprehensive technical support.

Our broad portfolio supports diverse functional applications within the sensor cell, and our engineered-for-longevity membranes support long-term sensor accuracy and reliability.



Performance Advantages

Predictable low and consistent shrinkage:
Allows high manufacturing efficiency during electrode printing and curing process.

High water- & liquid-entry-pressure resistance with good gas permeability:
A broad portfolio of well-balanced membranes designed to optimize gas detection and reliably protect from electrode spilling.

Excellent temperature stability:
Our portfolio offers electrode carrier membranes designed for processing temperatures up to 290°C — ideal for withstanding electrode printing processes.

High chemical resistance:
Our microporous membranes are chemically inert, and are designed to withstand repeated exposure to harsh environmental gases like sulfur dioxide or chlorines, and aggressive processing and functional liquids like sulfuric acid.

Applications

For EC gas sensors used in analytical monitoring and safety in applications such as:

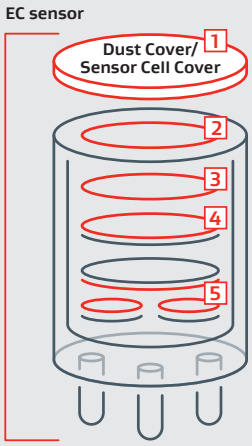
- Oil & gas
- Chemical plants
- Petrochemical facilities
- Power generation
- Water treatment
- Military



Together, improving life

GORE® Performance Membranes: Multiple Paths to More Reliable Gas Sensors

Fiveways our membranes can boost the reliability of EC sensor functions:



1. **Dust cover –** Prevents ingress of dust and liquid, but allows for gas to go through. Provides mechanical protection for exterior of sensor cell**.**
2. **Flow or diffusion control –** Reduces pressure peaks due to rapid change of outside pressure or controls the diffusion of defined gases to measure higher concentrations.
3. **Sealing ring –** Used as an additional seal within the sensor stack.
4. **Membrane at working electrode –** Barrier prevents electrolyte from escaping and allows for gas to go through. Lets gases diffuse at the desired rate and balances pressure differences. Carries the catalyst of the electrode. Chemical resistance required.
5. **Membrane at reference and counter electrode –** Carries the catalyst of the electrode. Chemical resistance required.

Product Characteristics and Configurations

Our GORE Performance Membranes portfolio is designed to accommodate a wide range of sensor application requirements. Sold as roll goods, our membranes are available as Short rolls (50 m in length) or Large rolls of varying lengths up to 550 meters – contact us for the full specification.

Part Number		Avg. Airflow (ml/min/cm² @ 70 mbar)	Avg. Gurley (s)	Avg. Thickness (µm)	Avg. Width (mm)	WEP (bar)	Largest Pore Size (µm)	Shrinkage (%)	Used As
Large Roll	Short Roll								
GPM5600422-L	GPM5600422-S	1.1	4,650	396	140	> 4	n. a.	n. a.	2
GPM4500274-L	GPM4500274-S	1.6	3,500	257	137	> 8	0.03	< 7	4, 5
GPM3000165-L	GPM3000165-S	2.6	2,300	156	150	> 3	0.08	< 8	4, 5
GPM2400165-L	GPM2400165-S	2.9	1,960	157	156	> 4	0.06	< 10	4, 5
GPM2200117-L	GPM2200117-S	4.6	1,450	107	180	> 2	0.12	< 7	3
GPM0070229-L	GPM0070229-S	134	40	191	210	> 1	1.98	< 6	4, 5

GORE Membranes for External Cell Protection are designed for use as sensor cell covers / dust covers. These high-flow, hydrophobic membranes effectively block ingress of damaging liquids and particulates. Sold as roll goods — contact us for all available dimensions.

Part Number	Typical Airflow (ml/min/cm² @ 70 mbar)	Membrane Type/ Characteristic	Membrane Color	IP Rating	Product Form	Thickness (mm)	Description	Used As
GDC001	4,310	ePTFE Laminate/ hydrophobic	White	IP6X	Roll goods	n.a.	High-flow membrane	Dust Cover/ Sensor Cell Cover
GDC003	> 4,000	ePTFE Laminate/ hydrophobic	White	IP6X	Roll goods	0.26	High-flow membrane with grid backer	Dust Cover/ Sensor Cell Cover

To improve ingress protection of — and pressure equalization within — device housings, review our portfolio of protective adhesive vents.



Why Gore?

We can work in partnership with you to simplify and accelerate your sensor development processes.

Application Leadership
Gore is a pioneer in sensor protection based on our market, material and manufacturing expertise.

Reliable Product Performance
OEMs and their suppliers worldwide know they can rely on our highly consistent, high-quality membrane material sets.

Supply Chain Security
With global R&D and manufacturing resources, we can customize to your specs, and scale to meet the demands and deadlines of high-volume, fast-ramp programs.

Global Support
Our local sales and global technical support enable fast and customized sampling, and effective consultations on materials selection, sensor design and manufacturing integration.

Contact Us

Our knowledgeable team of sensor application experts is standing by to assist you throughout the product selection and integration process. Whether you're evaluating materials, configuring dimensions, or optimizing performance for your specific application, we provide personalized guidance to help you make informed decisions.

Contact us to discuss your requirements and learn how we can support your project with expert technical insight.

Gore Performance Solutions Division

Gore's Performance Solutions Division address complex product and process challenges in a variety of markets, including aerospace & defense, automotive, industrial, electronics, semiconductor and more. By focusing on collaboration and innovation, Gore partners with customers to design their products and processes to be safer, cleaner, more productive, reliable, durable and efficient across a wide range of demanding environments.

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GORE® Performance Membranes for Sensors are manufactured under the generic industrial ISO 9001 quality system and the ISO 14001 environmental management system. No other certifications can be provided by Gore for these products. All technical information given is based on Gore's previous experiences and/or test results. Gore gives this information to the best of its knowledge, but assumes no legal responsibility. Customers are asked to check the suitability and usability in the specific application, since the performance of the product can only be judged when all necessary operating data are available. The above information is subject to change and is not to be used for specification purposes. Gore's terms and conditions of sale apply to the sale of the products by Gore.

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