



## Methane - Looking into efficient solutions for the monitoring of greenhouse gases

Methane leak monitoring for the biogas and natural gas industries - Far more sensitive, reliable and relevant solutions exist.

With the set up of Methane Alert and Response System (MARS), a satellite-based global methane detection system, the United Nations Organization has made a priority of methane emissions reduction, a greenhouse gas contributing to at least a quarter of today's climate warming. The initiative reinforces the long-standing commitment and efforts of companies such as [GAZOMAT](#), a pioneer in methane detection solutions using laser technology, at ground level. Christophe DURR, [GAZOMAT](#), Sales Manager, introduces us to the technology.



Christophe DURR,  
Sales Manager  
[GAZOMAT](#)

✂ The challenge is to know how to use methane to serve energy production without harming the environment. ✂

## Laser-based detection, can you tell us more about the technology, how it works, its specific features and applications

Composed of 81% to 97% methane, natural gas is used to produce light and heat but also to process products and raw materials across the industry, in glassworks and steelworks, in car and plastics manufacturing plants and more. An excellent fuel, natural gas is as valuable as it is hazardous. It needs to be monitored and controlled. And what could be better than tracking its main component, methane, to detect leaks and take appropriate remedial actions? The challenge is to know how to use the properties of methane to serve production activities without harming the environment. For over 30 years, GAZOMAT has specialised in methane detection using laser technology. When a laser beam passes through an atmospheric gas, each gas has its own characteristics for absorbing light radiation, and this defines a specific wavelength. During the detection process, concentration levels of the target gas are determined by the light intensity variations of the laser beam as it is absorbed by methane present in the atmospheric sample. The principle seems quite straightforward and yet its implementation requires real optical expertise. Selective laser technology detects methane only, with no cross-references from other compounds.

The laser cell is not affected by humidity, vibrations, temperature variations and other pollutants, and it can find methane traces reliably, down to 0.1 ppm. It is considered as safe, since unlike flame-ionisation technology, it has no hot point that could cause ignition or even an explosion in a hazardous atmosphere. Integrated into ultra-portable devices (e.g. GAZOSCAN), it has led to major advances such as long-range detection, at distances over 100 m, with virtually instant response time.

### What are the practical applications of your detectors?

With our clients and partners, GRDF or GRTgaz, the GAZOSCAN detector is used to inspect segments of the gas network that are not easy to access – river or motorway banks, bridge or railway crossings, tunnels, etc, places where on-foot surveys and the use of standard survey vehicles are not possible. At passenger public transport operators like KEOLIS, which are increasingly switching to alternative CNG and BioNGV fuels, buses are monitored with the GAZOSCAN to check the presence of leaks before they are allowed into the depots or maintenance workshops. In industries such as glassmaking and metallurgy, detecting leaks not only helps to limit gas consumption and the associated bills, but also, in the current climate crisis, contributes to reducing methane emissions into the atmosphere.







## INTERVIEW - Methane leak monitoring for the biogas and natural gas industries – Far more sensitive, reliable and relevant solutions exist

Fields of application are vast; we work with gas operators, fire brigades, soap factories or biomethanisation plants. Our solutions are fixed or hand-held, and they are available in many configurations. They can be integrated into drones, robots and sounding balloons. Thanks to ever lighter and smaller laser cells and to detection distances now over 300 m, we gain in mobility, speed and efficiency. And we still offer equipment of proven durability ; our VSRs (Network Survey Vehicles) inspect more than 45,000 km of gas network over 15 years of average operating life, representing 20,000 hours of operation. The INSPECTRA® detector, dedicated to on-foot surveys, clocks up more than 15,000 hours of operation over an average life span of 15 years.

**Methane now represents one fifth of total greenhouse gas emissions worldwide, leading both national and international organisations to find mitigation and prevention solutions. In May 2023, the European Parliament adopted its position in favour of a new law to reduce methane emissions in the energy sector by 80% by 2030 to reach the EU's climate goals and improve air quality**

The text will be subject to negotiations between the EU Council and the key players in the oil and gas sector.

The final text will likely not be validated before the end of the year, at best. We will not see real results until later. However, it is an important marker of a new organization within the industry for the promotion of systematic gas leak detection and quantifications as well as continuous automated monitoring of emissions. GAZOMAT stands ready to support industries in their efforts to detect gas leaks, secure their production sites and eliminate methane emission sources.

**Gas detection, continuous monitoring, connected data management, remote monitoring, what is GAZOMAT's next step in terms of products and solutions ?**

After more than 15 years of operation, our INSPECTRA® technology has acquired a reputation for excellence. We made it available in different formats to meet the gas industry's specific needs. We took it through data dematerialisation, 360° connectivity, providing automation, unfailing traceability and data analysis. And talking about the future, hydrogen will undoubtedly be GAZOMAT's next challenge, perhaps with a new detection technology. R&D-wise, we are currently considering a number of options. All I can say is that they will not go against our principles of reliability, durability and performance that are part of our DNA.

### INSPECTRA® SERIES: High Sensitivity Laser-based Methane Detectors ATEX Version (explosive atmospheres) and Non-ATEX Version



INSPECTRA® MAX – ATEX detector  
for indoor and outdoor applications



INSPECTRA® IECEx – ATEX detector  
for indoor and outdoor applications



INSPECTRA® – Non-ATEX detector  
for outdoor applications only



# GAZOMAT™

## METHANE: REDUCING EMISSIONS AND MANAGING INDUSTRIAL RISKS using 100% Methane Selective Laser-based Systems

### LONG-DISTANCE DETECTION GAZOSCAN™

- Over 100m detection range
- Instant response time
- 360° scanning of hazardous areas or difficult-to-access areas
- Delimitation of security perimeters
- Compatible with a mobile app for transmission of georeferenced data



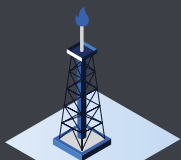
### CONTINUOUS STATIONARY MONITORING GAZPOD™

- POI and perimeter monitoring
- Real-time readings (down to 100 ppb)
- Automated notifications and alerts
- Automated report generation
- Remote monitoring of readings
- Connects with an enterprise data management system

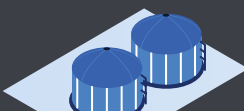


### WALKING LEAK SURVEY INSPECTRA® SERIES

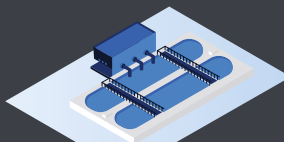
- Precise and accurate pinpointing and confirmation of methane leak indications
- Sensitivity down to 0.1 ppm
- 0ppm to 100% Vol. gas measurement range
- Compatible with survey software or with mobile app for fast and secure collection and transmission of georeferenced data



OIL & GAS



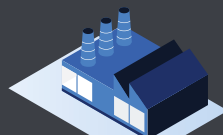
BIOGAS



LANDFILL &  
WASTEWATER



TRANSPORT (NGV)



PROCESS  
INDUSTRIES



SAFETY