

ENHANCING SAFETY IN HYDROGEN TRANSPORTATION

CASE STUDY

Effective and precise gas detection for hydrogen is crucial. This odourless gas is highly flammable which, combined with its invisible flame, makes the early detection of leaks paramount in ensuring the safety of those around it. Crowcon were able to provide cutting-edge hydrogen-detection technology to a leading hydrogen refuelling company, to safeguard their personnel and clients for a safer, greener future for all...

Leading the way in the design of cutting-edge hydrogen refuelling products, accelerating hydrogen transportation and mobility across the UK and Europe.



ENSURING THE SAFETY OF THE HRS, HOWEVER, REQUIRED AN ELITE HYDROGEN-DETECTION SYSTEM. THIS IS WHERE CROWCON CAME IN.

The Need for Enhanced Safety in Hydrogen Dispensing

With their groundbreaking Hydrogen Refuelling Station (HRS) this mobile, self-contained refuelling solution provides a cost-effective means of delivering transportation-grade hydrogen directly to the point of use in vehicles rapidly and efficiently. Ensuring the safety of the HRS, however, required an elite hydrogen-detection system. This is where Crowcon came in.

Hydrogen leaks carry their own unique set of risks. With a flammability range starting at a concentration of just 4% in the air, risks of fires and explosions around hydrogen are severe, particularly in the presence of ignition sources. Also, as hydrogen is lighter than air, it can displace oxygen in enclosed spaces leading to an asphyxiation risk. Identifying leaks as soon as possible, before they have a chance to reach dangerous levels, is of utmost importance.



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Hydrogen's invisible flame makes it difficult to visually identify fires, which amplifies the danger of explosion and emphasises the importance of reliable detection systems to identify and stop leaks as early as possible. By leveraging the distinctive molecular properties of hydrogen, Crowcon's Molecular Property Spectrometer™ (MPS™) technology can swiftly identify the presence of the gas before it reaches dangerous levels. This early detection capability is crucial for ensuring the team are able to detect hydrogen leaks "far before we get anywhere near the dangerous limit", explains the company's Marketing and Sales Director, so people are able to take preventative action and prevent the worst from happening.

'Safety is at the core of absolutely everything we do and obviously leak detection is a huge, huge part of that. Hydrogen is pretty leaky stuff, so we obviously want to make sure that we are very quick to respond to the event of any leaks, both on the side of our equipment, but also on the side of other people's equipment that we're interfacing with.'

Marketing and Sales Director



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The Solution from Crowcon

The rapid dispersion of the gas into the atmosphere makes hydrogen leak detection challenging- but not for Crowcon, thanks to their groundbreaking Xgard Bright with MPS™ technology:

About MPS™ Technology

- The Molecular Property Spectrometer™ (MPS™) sensor accurately detects and identifies over 15 different flammable gases automatically in real time.
- The MPS™ sensor is tailor-made for hydrogen detection, resists contamination and prevents sensor poisoning.
- Only two MPS™ devices are needed, helping to save space without compromising on safety.
- It doesn't require calibration, reducing interaction with the detector resulting in a lower total cost of ownership over the sensor life cycle.
- Scheduled maintenance is no longer needed through self-monitoring and auto-reporting functions.

Crowcon's Xgard Bright with MPS™ sensor was tailor-made for hydrogen detection. Integrated with the company's HRS, we have improved field safety

while eliminating the need for scheduled maintenance, enhancing efficiency and reducing costs through self-monitoring. Without interrupting operations, the MPS™ sensor automatically reports any problems, both saving time and providing peace of mind for the team.

These automated safety functions are crucial for the HRS as it is distributed to other companies, and therefore will not always be operated by the team. That's where Crowcon's MPS™ technology has proved invaluable: by detecting leaks automatically. If a leak or fault is detected, the valves are shut and safety is secured until a technicians' arrival, ensuring the safety of our customers, property and personnel. "We're relying on the system to detect any hydrogen leaks. And we've got confidence in it that it will", explains the company's Control Engineer.

OUR TECHNICAL TEAM UNDERSTAND THE SAFETY RISKS THAT CAN ARISE WHEN WORKING WITH HYDROGEN AND HOW CRITICAL IT IS TO HAVE A GAS DETECTION SYSTEM IN PLACE THAT YOU CAN RELY ON.

Thanks to Crowcon, the team have:

Mitigated the significant hazards attached to the storage and transportation of hydrogen, ensuring the safety of their personnel, customers, and customers' equipment.

Led the way in establishing a new safety standard in hydrogen transportation.

Accelerated the use of hydrogen for transportation across the UK and Europe.

Facilitate the transition to net zero emissions and create a more sustainable future for all.

For more information, to learn more about how we can protect your hydrogen infrastructure, or to speak to a hydrogen expert, [contact](#) our team.

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