



International Gas Detectors

Case Study
**Detectably Better
N2O Gas Detectors
for Maternity Wards**

INTRODUCTION

N2O DETECTION FOR MATERNITY WARDS

IGD recently provided detectably better N2O gas detectors to the NHS. Issues of high-level N2O leakage across the service led to concern among safety management, especially due to its prevalence across the NHS. They were looking for a reliable and high-quality N2O gas detector solution to prevent these leaks and found that IGD was best suited to provide this. Read below to find out more about this project.

DETECTOR PLACEMENTS

WHERE IS N2O USED IN THE NHS

N2O (or Entonox) is used widely across the NHS, being a part of everyday surgeries and medical procedures across almost all medical departments. In addition, it is widely used as pain relief in maternity wards and birthing suites. It provides a euphoric and anaesthetic effect by inhibiting nerve cells and thus inhibiting pain. This, coupled with its ability to be mostly managed safely, makes it an effective gas for its uses in dentistry, hospitals, and medical facilities. Due to its widespread usage, it is often stored in large quantities within these applications and has heavy usage onwards, thus, requiring N2O gas detectors.

HOW IS N2O DANGEROUS?

WHAT ARE THE LIMITS OF N2O EXPOSURE?

N2O may not be perceived as dangerous because of how frequently it is used. However, Nitrous Oxide has regulated workplace exposure levels. In the UK, the UK Health and Safety Executive, under COSHH, outlines that no person should be exposed to 100ppm or more of N2O over an 8-hour time-weighted average (TWA). In the USA, OSHA has much lower exposure levels at 25 ppm over an 8-hour time-weighted average. With no Short-Term Exposure, it makes N2O a highly dangerous substance if an uncontrollable leak occurs. N2O can cause short-term issues with mental performance, audiovisual ability, and manual dexterity. However, long-term exposure can also cause vitamin B12 deficiency, numbness, and reproductive side effects. The National Institute for Occupational Safety and Health (USA) recommends that “workers’ exposure to N2O should be controlled during the administration of anaesthetic gas in medical, dental, and veterinary operators.”



Workers’ exposure to Nitrous Oxide should be controlled and mitigated as much as possible. Those at risk of Nitrous Oxide are personnel who frequently administer or utilize nitrous oxide as part of their daily work routine. This includes midwives, nurses, dentists, veterinarians, researchers, and bottle-filling personnel. It is also worth mentioning that Nitrous Oxide is also a damaging greenhouse gas, with a Global warming potential of 310 times the impact of Carbon Dioxide. This means even small leaks can have a damaging impact on both the health of a person and the environment.

THE BRIEF

WHAT WERE THE CONCERNS OF THE NHS?

The exposure limit is very low for N₂O; thus, uncontrolled leaks can happen easily. In addition, nurses and midwives are potentially exposed to background levels of N₂O on maternity wards, where patients use Entonox. The major concern for the NHS was the long-term exposure of their staff on the wards and if leaks were to go unnoticed. This was a major concern for the NHS, wanting to detect leaks and ensure that their nurses don't breach the TWA threshold while personnel were working. Thus, they needed continuous monitoring in the wards for leak detection; as well as the ability to monitor individual nurses' exposure levels to ensure nurses and midwives did not breach the legislated occupational exposure levels.

THE INSTALL

IGD'S DETECTABLY BETTER SOLUTION FOR THE NHS

The NHS required a fixed and portable monitor solution that could detect low-level leaks and reliably measure nurses' Time Weighted Average. They chose IGD's N₂O gas detector solution, consisting of the TOC-750S and the POLI portable, which is ideal for the medical industry due to its wide range of features and benefits.

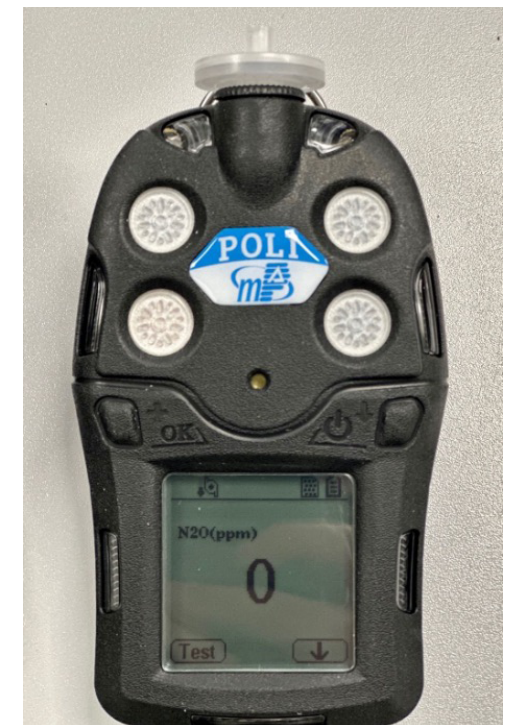
The TOC-750S is an aspirated N₂O gas detector that provides high-quality gas detection in areas that are difficult to reach or harsh for normal diffusion sensors. It is almost silent in operation and features virtually no moving parts, making it easy to clean and operate. The system provides real-time digital readings and event logs that health and safety personnel can download straight to a phone or laptop. The TOC-750S provides 1ppm resolution and extreme zero stability for nitrous oxide detection, which ensures gas is detected before it becomes hazardous to health. It is a unique solution designed and manufactured by IGD in the UK and is currently the world's only low-level, stable, fixed N₂O detector.



The POLI N₂O gas detector is a fully customizable multi-gas detector that is perfect for the medical industry. It is small, lightweight, and durable, making it easy for personnel to perform effective detection without being held back by a weighty device. It measures individual exposure levels and will automatically calculate the 8-hour time-weighted average. It has audible, visual, and vibration alarms that nurses can use to instantly know when they have breached the 8-hour permissible exposure levels. The POLI is USB rechargeable and does not require any bulky cradles or locked software. The easy-to-use interface on both the POLI and PC software means training and adoption into Safe Operating Procedures is seamless.

The combined approach of using fixed and portables meant the NHS had 24/7 coverage for Entonox leaks, and nurses could monitor their personal TWA using a POLI. The NHS received the solution positively, servicing, and support from IGD. IGD provided free owner-operator training to ensure site-designated personnel knew how to use the portables and incorporate the combined solution into safe operating procedures. Overall, the solution was a breakthrough for the NHS, enhancing their safety throughout their sites and maternity wards.

Contact IGD today to learn more about their detectably better N₂O gas detector solutions or any solutions from their range of over 700 gases and vapors backed by their 100+ years of gas detection experience. Check out their 750S sampler and POLI multi-gas product pages for more information.





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FURTHER INFORMATION

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