

Getting best out of gas detectors

The current keen focus on tanker safety issues encompasses all aspects of tanker construction, operation and equipment, right down to gas detectors.

The current gas detection equipment rulebook covers aspects such as the gas ranges to measure, accessory equipment to use, operational requirements, training and ease of use, maintenance, calibration and recordkeeping. The penalty for non-compliance can be costly, e.g. refusal of a request for port entry or delays in loading and discharge.

In addition to the existing rules, new requirements need to be considered when specifying gas detectors for tankers. These include the new European Marine Equipment Directive governing the testing and production of such equipment and the new pumproom requirements for existing tankers introduced on July 1, 2002 through amendments to the Safety of Life at Sea (SOLAS) Convention.

Under the SOLAS amendments, all existing tankers must upgrade the safety of their pumprooms by fitting gas, temperature and bilge level monitoring and alarm devices at their first scheduled drydocking after July 1, 2002, and not later than July 1, 2005. Such equipment is already mandated for new tankers.

The rules require hydrocarbon gas sampling points or detector heads to be located in suitable positions and audible and visual alarms set for not more than 10 per cent of the lower explosive limit (LEL) to be fitted in the pumproom and cargo control room.

In addition to the pumproom system, tankers are provided with another fixed gas detector system covering ballast tanks and other spaces, including fore peak, paint store, engine room, cofferdams and accommodation ventilation intakes. Gas detectors onboard tankers rely on infrared or catalytic filament measurement technologies. Each sensor has its own flame trap, and the detectors are located at low and high elevations to detect gases which are heavier and lighter than air. In addition to permanent units, tankers carry a complement of portable gas detectors to assist in compliance with the mandated requirements. Some devices incorporate additional features, such as a built-in hydrogen sulphide (H₂S) gas detection capability as recommended by the Oil Companies International Marine Forum (OCIMF) for crew protection.

Glasgow-based Gas Measurement Instruments (GMI) Ltd is a supplier of gas detection equipment that believes there is room for improvement in the tanker industry's understanding of the role and use of gas detectors. A better understanding of the proper use and care of this equipment will, in turn, lead to a safer industry and improved standards of loss prevention.

"The poor reliability of older generations of gas detectors compared to that provided by modern equipment has resulted in an over-cautious approach in many quarters," states Stephen Herron, Asia Pacific territory manager for GMI Ltd.

"For example, many tanker masters insist on large numbers of single-range instruments. To comply with the applicable requirements they may have a minimum of five different portable instruments, i.e. two explosimeters for measuring LEL in air, two devices for measuring the volume of gas in inert gas or air and one oxygen meter.

"Yet such a complement is not necessary, nor has it been for several years. GMI, for example, supplies its customers with modern instruments which combine all three functions in one instrument, thereby reducing the cost of ownership and making recordkeeping, in compliance with ISM Code requirements, a much simpler task."