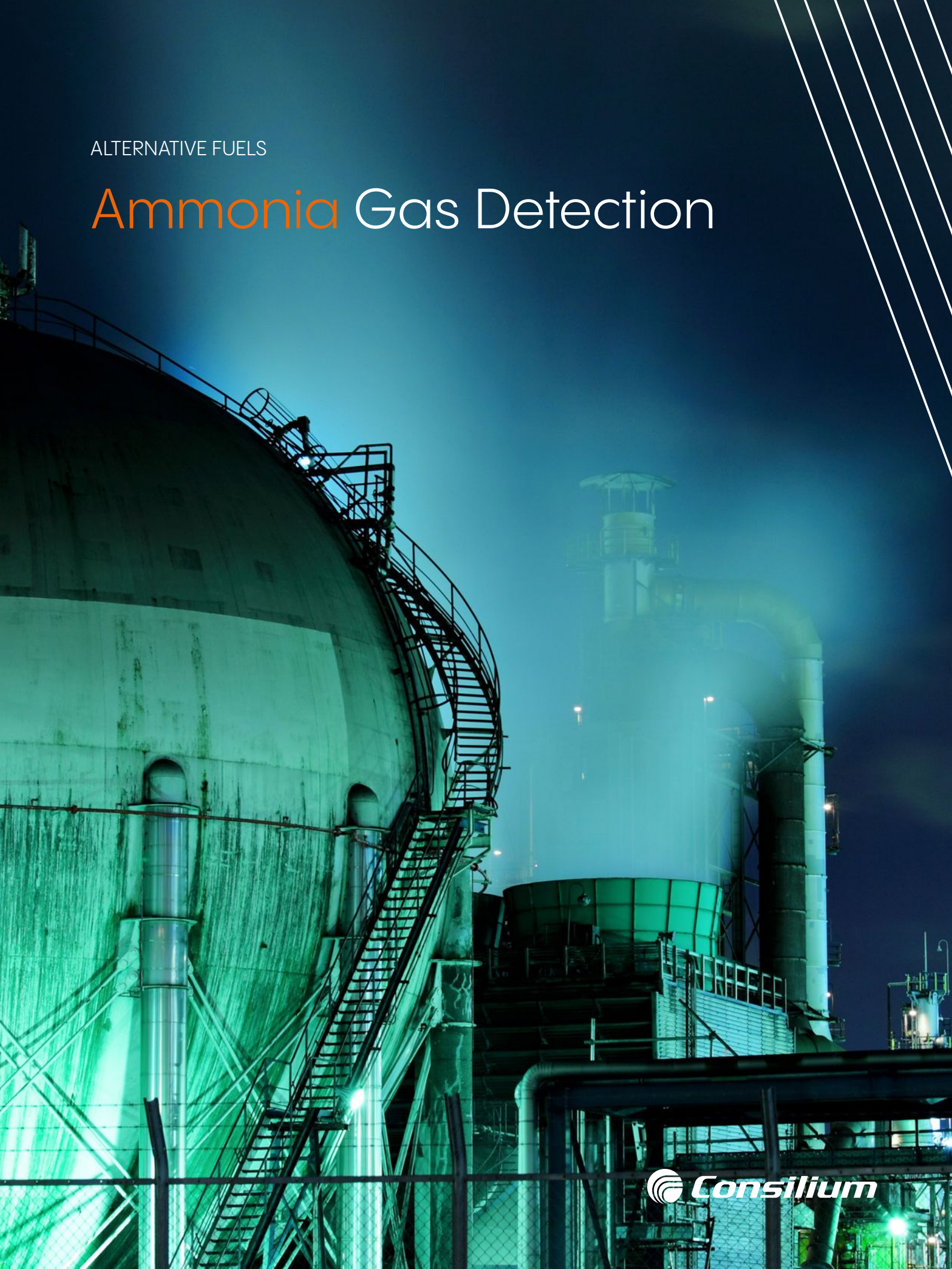
ALTERNATIVE FUELS

Ammonia Gas Detection



Consilium

Ammonia gas detection is a critical aspect of workplace safety and environmental protection, particularly in industries where ammonia is used or produced.

To meet IMO's target of net-zero greenhouse gas emissions by 2050, the shipping industry needs to move to cleaner fuels. Ammonia does not produce any CO2, sulphur or particulate emissions when combusted and can be produced by using renewable energy source.

Ammonia is a colorless gas with a strong, distinct odor that can dissolve in water, turning into liquid ammonia. When exposed to open air, liquid ammonia rapidly vaporizes.

Flammability Risk

Ammonia is generally considered non-flammable. However, within specific vapor concentration limits and with a strong ignition source, it can burn, with the fire hazard increasing in the presence of oil or combustible materials. Ammonia gas is lighter than air, it rises and dissipates upwards in open spaces. Consequently, in industrial settings, ammonia detectors are typically installed at or near the ceiling.

Health Risks

Inhalation of ammonia vapors, either in low concentrations over an extended period or in high concentrations over a short duration, can have adverse health effects. The severity of these effects depends on the exposure route, dose, and duration.

High concentrations of ammonia in the air can cause immediate burning sensations in the eyes, nose, throat, and respiratory tract, potentially leading to blindness, lung damage, or even fatality. Inhalation of lower concentrations can result in coughing and irritation of the nose and throat.

Swallowing ammonia can lead to burns in the mouth, throat, and stomach. Additionally, skin or eye contact with concentrated ammonia can cause irritation and burns. It's crucial to understand and manage these risks through effective ammonia gas detection and safety measures.

Application

Since Ammonia is highly toxic, that pose the biggest risk for the crew onboard the ship, therefore PPM detectors shall be used. But %LEL might be necessary in some cases where a PPM detector might be too sensitive.

Since ammonia can be diluted in water there might be needed other type of equipment that a gas detector, one application is for example the glycol water expansion tank where there will be challenging to detect ammonia gas since it will be absorbed in the water. Contact Consilium representative for further information.

Molecular formula:	NH3 or H3N
CAS:	7664-41-7
Flash point:	132 °C
Density kg/m³:	0,6 (lighter than air)
UEL:	28%
LEL:	15%
TWA (NIOSH):	25 ppm
STEL (NIOSH):	35 ppm
Low alarm ppm:	15 ppm
High alarm ppm:	25 ppm

Ammonia Gas Detection Installation

In areas where people typically don't work, gas detectors should be installed at elevated positions since ammonia is lighter than air and within the breathing zone in active workspaces.

Thorough analysis is essential for precise placement, considering potential leaks and ventilation, ensuring optimal gas detection and workplace safety.

Ammonia Gas Detection - Type of Detectors

ST480xi

The ST480xi is a ppm stationary gas detector which is developed to detect ammonia with a high reliability. Functionality and maintenance of this new generation of gas detector meets today's essential demands for reliability and accuracy.





ST650EX

The Consilium ST650EX LEL detector is available with or without a graphic display. The graphic display shows the measured value and various status notifications locally.

The capacitive key control gives you an experience similar to a touchscreen and does not require any additional tools, such as magnetic wands for instance.

Ammonia Gas Detection Systems

CGS500 Sequential gas sampling system* that automatically detects explosive and toxic gases. Meets IMO/SOLAS requirements and classification rules and can detect up to 64 sampling points. Perfect selection for detection in cofferdams around the fuel tanks.

** Available for marine applications only*



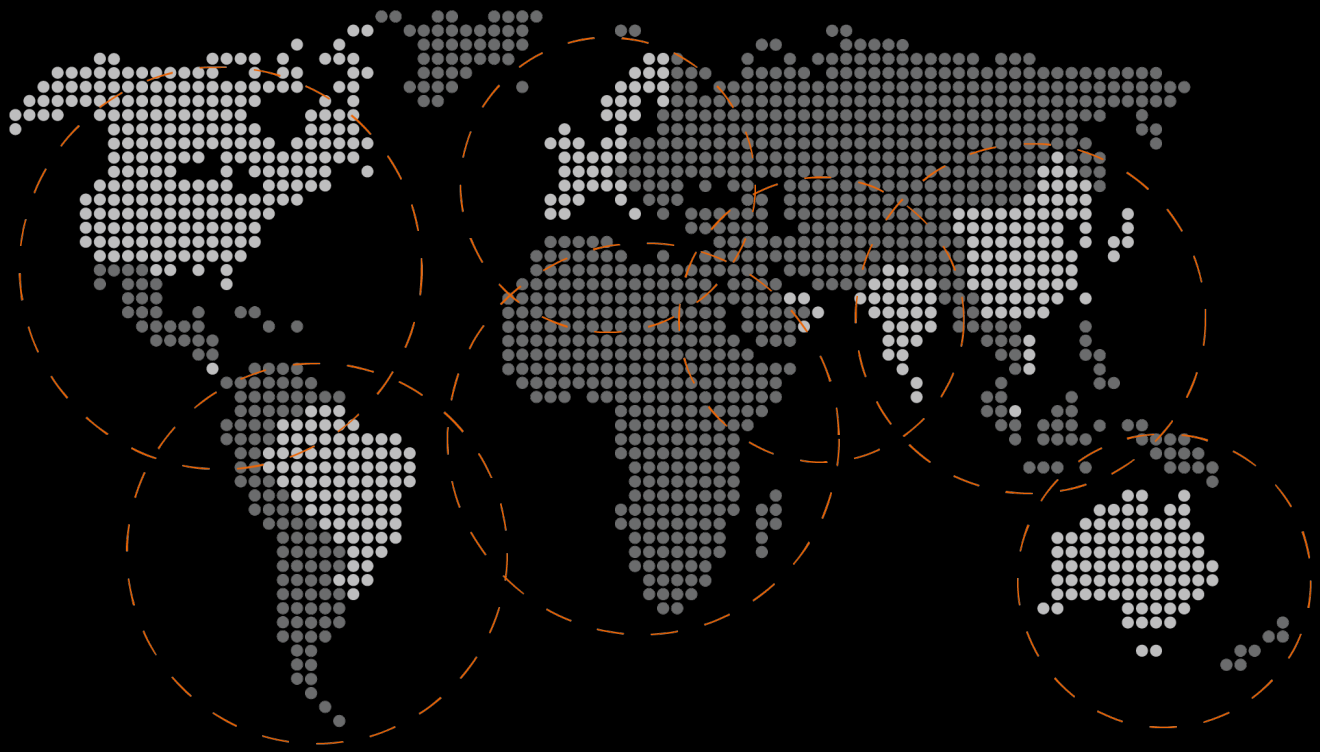


The CGD50/500 gas detection system is a state-of-the-art, control and supervision system designed to meet marine and industrial requirements. It consists of different modules and software together with a number of Gas detectors. The modules from the CCP Platform are used to build supervision systems and the software determines how the system will react in case of a gas indication from gas detectors or from an input that can generate alarms. The software continually supervises the system and will alert in case of any malfunction. Perfect selection for point detection in accommodation and around the fuel gas system.

Our products are approved in accordance with ATEX, IECEx, cCSAus (incl UL & FM) and have most marine approvals (IMO/ SOLAS).

Global support with local expertise

Consilium offers fast and accessible support no matter where you are in the world. Nothing beats local expertise in your language. With a global service network and a strong local presence, we ensure accessibility wherever you operate.



As much as we are proud of our success, our commitment is to ensure safety. We have pledged to protect the lives of mothers and fathers, sisters and brothers, colleagues and friends. Our work never ends. That is why we keep innovating.

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