**PRESS RELEASE**

MSA minimises the risk of industrial gas leaks with its ultrasonic detector

***09 July, 2013:*** *Gas leaks can be more efficiently detected with ultrasonic technology available in the local market through the African division of MSA - a global leader in the development, manufacture and supply of sophisticated products that protect people's health and safety.*

MSA Africa marketing manager for gas detection products **Robbie Taitz** explains that the company's ultrasonic Gas leak detector (UGLD) provides an effective means of establishing the presence of gas leaks that are common in applications including; chemical, power generation and oil and gas plants.

"The MSA UGLD, which is unaffected by audible noise, features a rapid response rate and is ideally suited for use in open, ventilated areas where other methods of gas detection may not be independent of ventilation. The MSA UGLD responds to the source of the leak, rather than the gas itself, making it complementary to sensors that measure gas concentration," he notes.

Taitz reveals that gas leaks at pressure generate friction, which in turn creates ultrasonic waves that cannot be heard by the human ear. "Ultrasounds are recognised as sounds that cannot be heard by humans, with a frequency of more than 20 kHz. The MSA UGLD is designed to ignore audible and lower ultrasonic frequencies and only sense ultrasonic frequencies in the range of 25 kHz to 70 kHz."

Unlike a conventional gas detector, the MSA UGLD does not require a gas concentration to accumulate before detecting the leak, thereby preventing the build-up of a potentially explosive and fatal cloud. "Fixed gas detection in open ventilated offshore or onshore oil and gas facilities is generally considered problematic, as the gas easily dilutes and drifts away from conventional gas sensors. Ultrasonic gas leak detectors solve this problem by immediately detecting the airborne acoustic ultrasound generated when pressurised gas escapes from a leak."

Due to the fact that sound pressure levels decrease over distance at a predictable rate, Taitz notes that operators and engineers can establish detection coverage before the MSA UGLD is installed. "For the purposes of sensor allocation, plant environments can be divided into three types, namely; high noise, low noise, and very low noise."

**LEL vs. leak rate**

Conventional gas detectors measure gas concentrations as a percentage of the lower explosive limit (LEL) or in parts per million (ppm). The term LEL is used for combustible gases and is measured as a percentage. When the concentration of combustible gas in air reaches 100 percent LEL, an ignition of the gas causes an explosion.

The term leak rate describes the amount of gas escaping from a leak per unit of time. Taitz adds: "A leak can be considered large, for instance, if a large quantity of gas escapes every hour or every second. Conversely, a leak can be said to be small if a small amount of gas jets out from the pressurised system over a given period."

The leak rate, which defines how fast a potentially dangerous gas cloud accumulates, can be divided into three categories according to hazard severity. These are;

Minor gas leak: < 0,1 kg/s,   
Significant gas leak: 0,1 kg/s to 1 kg/s   
Major gas leak: > 1 kg/s

Taitz highlights the fact that the leak rate is used to set the performance criteria, and to define which leaks the MSA UGLD must pick up. "The UGLD provides a measure of the ultrasonic sound measured in decibels (dB). When there is a gas leak with a leak rate of 0,1 kg/s inside the detector’s coverage area, the sound level will exceed the trigger level of the UGLD and activate an alarm. As a result, the UGLD must detect methane leaks of at least 0,1 kg/s in order to prevent injury or loss of life."

According to Taitz, the most important aspect to understand is that a leak rate can derive from an infinite number of combinations of leak sizes and gas pressures. "As the hole becomes larger, the leak rate increases. However, with extremely large leaks it becomes increasingly difficult to sustain the system’s pressure. When the system pressure starts dropping, it causes a reduction of the leak rate and thereby decreases the ultrasonic sound level."

Taitz points out that there is theoretically no limitation to the rule when the leak becomes small. He does, however, indicate that the system’s pressure should be approximately 3 000 bar to achieve the commonly used leak rate for methane of 0,1 kg/s for a leak with a small hole size of 0,5 mm. "Pinhole leaks increase in size over time and become easier to detect, while pipe ruptures can be identified by the pressure drop. Instead of considering specific hole sizes or pressures, the MSA UGLD should rather be related to the leak rate."

Numerous studies have revealed that the majority of gas leaks in African industrial operations are a direct result of poor maintenance of gas supply lines. Bearing this in mind, Taitz concludes by adding that leak detection should be carried out at least twice per year, in order to identify and address the leaks that have been caused as a result of prolonged exposure to degradation and wear-and-tear .

***Ends***

**Notes to the Editor**There are numerous photographs specific to this press release. Please visit <http://media.ngage.co.za> and click the MSA Africa link.

**About MSA**MSA been the world's leading manufacturer of high-quality safety products since 1914. MSA products may be simple to use and maintain, but they’re also highly-sophisticated devices and protective gear - the result of countless R&D hours, relentless testing, and an unwavering commitment to quality that saves lives and protects thousands of men and women each and every day. Many of MSA's most popular products integrate multiple combinations of electronics, mechanical systems, and advanced materials to ensure that users around the world remain protected in even the most hazardous of situations. MSA's dedication to safety has been the key to its impressive year-over-year growth. In eight of the past ten years, MSA has achieved record growth numbers, with annual revenues of more than US$1 billion.

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