

Hydrogen Sulfide Calibration Gas

Posted by Egas depot on Aug 17th 2018

Hydrogen Sulfide (H₂S)

With its colorless, highly flammable, and corrosive properties Hydrogen Sulfide (H₂S) is an extremely hazardous gas that is distinguishable by its "rotten egg" smell. Breathing this gas in is the primary way for exposure to occur, but the detection through the odor alone is not reliable. The presence of this gas occurs with the microbial breakdown of organic materials when oxygen is no longer present and with the breakdown of human/animal wastes. Hydrogen Sulfide is heavier than air, so it typically collects in low lying, enclosed, poorly ventilated regions such as manholes and sewer lines. The monitoring of and early detection of H₂S could save your life, so it is important to ensure you know the signs of both short term and long term exposure.

Also known as:

Dihydrogen monosulfide

Dihydrogen sulfide

H₂S

Hydrogen sulphide

Hydrosulfuric acid

Stink damp

Sour gas

Sulfur hydride

Hydrogene sulfure

Sewer gas

Is Hydrogen Sulfide Reactive?

Hydrogen Sulfide is a highly reactive gas and can become explosive with certain levels of exposure to rust, Oxygen, Metal Oxides, and Copper Powder among many other materials and chemicals that should be avoided.

Detection Of Hydrogen Sulfide: Choosing The Right Hydrogen Sulfide Gas Monitor

At concentrations above 100ppm a persons ability to smell H₂S gas can be lost immediately. Even with its infamous and noticeably foul odor, you should not rely on your sense of smell alone to detect Hydrogen Sulfide. The use of a gas detector is very important in ensuring safety anytime one is working around dangerous gases such as Hydrogen Sulfide. Using a gas monitor that has the capability to alert you in a moment's notice that gas levels are reaching a dangerous point can mean the difference of life and death. Monitoring Air quality is critical when working around any dangerous gas and knowing how to choose the correct gas monitor for your needs is important. A Gas Monitor equipped with an Alert System such as multiple alarms and warning lights can be highly effective with the necessary ongoing maintenance. You want to choose a monitor with rapid response times, sensitivity, and accuracy. The most practical way to go is to choose an electrochemical type of H₂S sensor detector because it responds in seconds to a gas exposure.

Look for a sensor with:

- a rapid response time of 15 seconds or less
- a lower detection limit (sensitivity) of at least 0.5 ppm; 0.1 ppm resolution which is the smallest detectable range and ideally an accuracy of $\pm 5\%$ over its calibrated range of at least 0-100 ppm.

- an accuracy of ± 0.05 ppm at 1 ppm ($\pm 5\%$) to meet the requirement of a reliable alarm at 1 ppm
- a built-in data logging function for analysis and data collection
- a safe design for use in areas where a combustible atmosphere is imminent at any given time.

Health Effects Of Hydrogen Sulfide

There are a wide range of health effects that can present themselves when a person has been exposed to Hydrogen Sulfide (H2S) and Asthmatics are more at risk. Effects differ depending on the amount of Hydrogen Sulfide gas that was breathed in and the amount of time exposure occurred.

Exposure Limits

Concentration (ppm)	Symptoms/Effects
0.00011-0.00033	Typical background concentrations
0.01-1.5	Odor threshold (when rotten egg smell is first noticeable to some). Odor becomes more offensive at 3-5 ppm. Above 30 ppm, odor described as sweet or sickeningly sweet.
2-5	Prolonged exposure may cause nausea, tearing of the eyes, headaches or loss of sleep.
20	Airway problems (bronchial constriction) in some asthma patients.
50-100	Possible fatigue, loss of appetite, headache, irritability, poor memory, dizziness.
100	Slight conjunctivitis ("gas eye") and respiratory tract irritation after 1 hour. May cause digestive upset and loss of appetite.
100-150	Coughing, eye irritation, loss of smell after 2-15 minutes (olfactory fatigue). Altered breathing, drowsiness after 15-30 minutes. Throat irritation after 1 hour. Gradual increase in severity of symptoms over several hours. Death may occur after 48 hours.
200-300	Loss of smell (olfactory fatigue or paralysis).
500-700	Marked conjunctivitis and respiratory tract irritation after 1 hour. Pulmonary edema may occur from prolonged exposure.
700-1000	Staggering, collapse in 5 minutes. Serious damage to the eyes in 30 minutes. Death after 30-60 minutes.
1000-2000	Rapid unconsciousness, "knockdown" or immediate collapse within 1 to 2 breaths, breathing stops, death within minutes.
	Nearly instant death

Handling & Storage of Hydrogen Sulfide Gas cylinders

With the exposure risk of compressed gases such as Hydrogen Sulfide, proper storage and handling procedures is essential in maintaining a safe work environment. Pressurized chemicals stored in cylinders are released in a gaseous form, therefore any small leak from any part of the system such as the regulator, can rapidly contaminate a large area. Aside from the risks of chemical leaks, Gas cylinders can be physically heavy and run the risk of falling over, breaking important items and causing injury if not secured properly.

1. Read Hazard labels and follow storage instructions that come with the gas cylinder.
2. Always secure gas cylinders upright to a flat surface such as a wall or cylinder rack.
3. Do not strap cylinders to other cylinders
4. Gas cylinders should always be tightly chained at, or slightly above the midpoint.
5. Working conditions should not allow exposure to corrosion, flames, sparks or any other source of ignition.
6. Store cylinders in a well-ventilated area with temperatures below 125 °F.

7. Never use compressed gas cylinders for any purposes other than the intended use
8. Pressure regulators with pressure relief devices should only be used.

Hydrogen Sulfide Gas Cylinder Sizes

Egas Depot offers a wide range of Calibration Gases including Hydrogen Sulfide (H₂S). With 10 different liter sizes and 15 different options for your ppm requirements available to you, we are a one-stop shop for all of your field calibration needs.

#hydrogen sulfide calibration gas #hazards of hydrogen sulfide #handling hydrogen sulfide gas
#exposure limits of hydrogen sulfide #osha hydrogen sulfide #occupational safety of hydrogen sulfide
#reactive calibration gas hydrogen sulfide #hydrogen sulfide 4 gas m