



Hydrogen Sulfide

Hydrogen sulfide (H_2S) is a colorless, hazardous gas with a “rotten egg” smell. It is both flammable and toxic. It occurs naturally and is produced by decomposing organic material to include human and animal wastes. Industries that may expose employees to hydrogen sulfide include those working at waste water treatment plants, gas refining or oil drilling operations, farms with manure storage or livestock confinement, coke ovens, tanneries, kraft paper mills, and rayon textile plants.

Heavier than air, H_2S can travel along the ground and collect in low-lying, enclosed or poorly ventilated areas such as basements, manholes, sewer lines, underground telephone vaults and manure pits.

This gas can be smelled at low levels. At continuous or higher levels the “rotten egg” odor is lost to humans, so don’t depend on your sense of smell to determine the presence of hydrogen sulfide. The gas also can be in a liquid compressed form.

Should H_2S catch fire, the burning gas produces toxic vapors and gases such as sulfur dioxide.

Symptoms of H_2S Exposure

- **At low levels** – irritation of eyes, nose, throat or respiratory system. Effects may be delayed, sometimes for several hours or days.
- **At moderate levels** – more severe eye and respiratory symptoms (difficulty breathing), headache, dizziness, nausea, coughing and vomiting.
- **At high levels** – shock, convulsions, inability to breathe, coma, death. Effects can transpire rapidly within a few breaths.
- **Contact with liquid (H_2S) causes frostbite.** If clothing becomes wet with (H_2S), avoid ignition sources, remove the clothing and isolate it in a safe area to allow the liquid to evaporate.

Before Entering Areas with Possible H₂S

- A qualified person must test the air for the presence and concentration of the gas by using test equipment. If H₂S is present, the area should be ventilated.
- If gas cannot be removed, use necessary respiratory, personal protective, rescue and communication equipment.
- A level of (H₂S) gas at/above 100 ppm, according to OSHA, is immediately dangerous to life and health (IDLH). Entry into an IDLH atmosphere can be made only when using:
 - » a full-face piece pressure demand self-contained breathing apparatus (SCBA) with a minimum service life of 30 minutes
 - » a combination full-face piece pressure demand supplied-air respirator with an auxiliary self-contained air supply.

NEVER attempt a rescue in an area that may contain hydrogen sulfide without using appropriate respiratory protection and without being trained to perform such a rescue.

Source: OSHA Fact Sheet, Hydrogen Sulfide (H₂S)

Safety tips developed based on generally accepted safety standards believed to be reliable at the date of publication. Information is for general guidance only and should not be relied upon for legal compliance purposes.

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