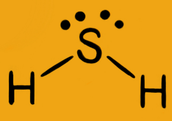
Workplace Safety 101: Hydrogen Sulfide (H2S)

What is H2S?

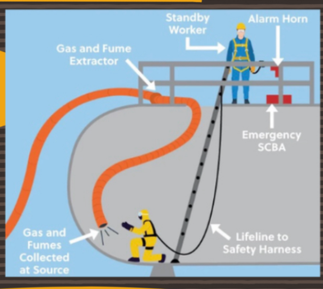
- Hydrogen Sulfide is a colorless, flammable gas, and it is highly toxic.
- By-product of decaying organic matter as well as certain industrial processes.[1]

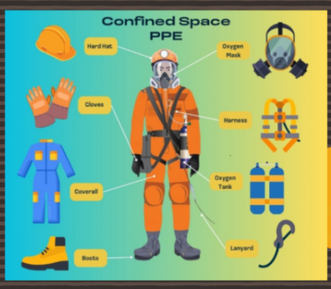


- Found in petroleum refineries, petrochemical plants, food processing plants, mining, wastewater treatment, textile manufacturing, and marshy areas.[1, 2]

Safety Precautions:

Proper air flow - Hydrogen Sulfide is heavier than air, so it is more concentrated in low and confined spaces.[3]



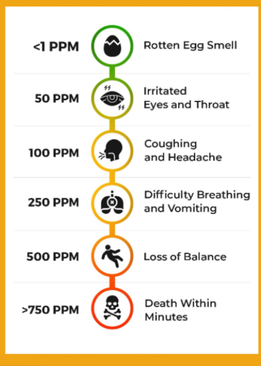


Personal protective equipment such as respirators, self sustained air supply's, and protective suits will prevent respiratory and skin contact with H2S.[3]

Emergency plans with evacuation procedures, shutdown protocols, rescue and safety training, and educational presentations. It is the workers' rights to know their environment and any potential risks![3, 6]

Exposure:

- Most commonly exposed through inhalation and prolonged skin contact.
- Long-term, low air concentration of H2S—symptoms include eye, nose, and/or throat irritation, respiratory problems, headache, delirium, nausea, and vomiting.[5]



- Short-term, high air concentration of H2S—symptoms include loss of balance and consciousness.[4,5]
- Extremely high concentrations of H2S can lead to death.[4]

*PPM= parts per million

Exposure Mitigation:

If acute symptoms are present, the victim should first be removed from the hot zone (area of exposure) to safety zone. The victim should be decontaminated by removing and bagging clothing and flushing eyes and skin. The victim should then be immediately transported to medical facility [1].

If chronic symptoms are present, the victim should be immediately brought to safety zone and transported to a medical facility. High oxygen therapy is a commonly used treatment. [1]

It is important for areas with Hydrogen Sulfide contamination to be monitored frequently and properly ventilated. Knowing the source of H2S in the workplace can help maintain control of the gas as well.[6]

Sources

[1] Agency for Toxic Substances and Disease Registry . (2014, October 21). Hydrogen Sulfide | Medical Management Guidelines | Toxic Substance Portal | ATSDR. Wwwn.cdc.gov. https://wwwn.cdc.gov/TSP/MMG/MMGDetails.aspx?mmgid=385&toxid=67

[2] RELEVANCE TO PUBLIC HEALTH. (2016, November). Nih.gov; Agency for Toxic Substances and Disease Registry (US). https://www.ncbi.nlm.nih.gov/books/NBK591600/#ch2.s1

[3] Occupational Safety and Health Administration. (n.d.). Hydrogen Sulfide - Evaluating and Controlling Exposure | Occupational Safety and Health Administration. Www.osha.gov. https://www.osha.gov/hydrogen-sulfide/evaluating-controlling-exposure

[4] HEALTH EFFECTS. (2016, November). Nih.gov; Agency for Toxic Substances and Disease Registry (US). https://www.ncbi.nlm.nih.gov/books/NBK591602/

[5] Occupational Safety and Health Administration. (2024). Hydrogen Sulfide - Hazards | Occupational Safety and Health Administration. Www.osha.gov. https://www.osha.gov/hydrogen-sulfide/hazards

[6] Protecting oil and gas workers from hydrogen sulfide. (2025). Texas Department of Insurance. https://www.tdi.texas.gov/tips/safety/hydrogen-sulfide.html