

Hydrogen Sulfide - Health Effects, Detection and Exposure Prevention

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Hydrogen sulfide is an extremely toxic and irritating gas. Early recognition and detection is crucial to protect employees from deadly exposures. Employees working in areas that contain or have the potential to contain hydrogen sulfide should learn to recognize the signs and symptoms of hydrogen sulfide exposure, how to monitor for hydrogen sulfide, and know how to take measures to protect themselves. Instrumentation is available to continuously monitor the atmosphere in confined spaces for hydrogen sulfide and other gases as well as oxygen deficiencies.

Hydrogen sulfide is regulated by OSHA and has a permissible exposure limit of 20 parts per million (ppm) ceiling concentration and a peak exposure limit of 50 (ppm) for no more than 10 minutes if no other measurable exposure occurs. Inhalation of concentrations of 500-1000 (ppm) will cause rapid unconsciousness and death through respiratory paralysis and asphyxiation.

Hydrogen sulfide can affect the body if it is inhaled or it comes in contact with the eyes, skin, nose or throat. It can also affect the body if it is swallowed. Inhalation of low concentrations may cause headache, dizziness and upset stomach. At higher concentrations hydrogen sulfide may cause loss of consciousness and death. Hydrogen sulfide has a strong odor of rotten eggs at low concentrations and a sweetish odor at higher locations. Odor should not be used as a warning of exposure since at concentrations of (20-30 parts per million) hydrogen sulfide may deaden the sense of smell by paralyzing the respiratory center of the brain and olfactory nerve.

There are two types of respiratory protection acceptable for protection from hydrogen sulfide gas, SCBA or Supplied airline respirator. Respiratory protection should only be used if engineering controls are not feasible to control exposure to hydrogen sulfide gas.

There are many incidents of on the job fatalities caused by hydrogen sulfide gas but with proper training, and monitoring equipment and safety and health procedures for entering confined spaces, employees can work safely without incident when encountering hydrogen sulfide gas at reservoirs and dams and other locations.