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Hydrogen Sulfide

General Description

Synonyms: Sulfuretted hydrogen; Hydrosulfuric acid; Hepatic gas; H₂S

OSHA IMIS Code Number: 1480

Chemical Abstracts Service (CAS) Registry Number: 7783-06-4

NIOSH, Registry of Toxic Effects (RTECS) Identification Number: [MX1225000](#)

Department of Transportation Regulation Number (49 CFR 172.101) and Guide: 1053 [117](#)

NIOSH Pocket Guide to Chemical Hazards, [Hydrogen Sulfide](#): chemical description, physical properties, potentially hazardous incompatibilities, and more.

Exposure Limits

OSHA Permissible Exposure Limit (PEL):

General Industry: [29 CFR 1910.1000 Z-2 Table](#) -- Exposures shall not exceed 20 ppm (ceiling) with the following exception: if no other measurable exposure occurs during the 8-hour work shift, exposures may exceed 20 ppm, but not more than 50 ppm (peak), for a single time period up to 10 minutes.

Construction Industry: [29 CFR 1926.55 Appendix A](#) -- 10 ppm, 15 mg/m³ TWA

Maritime: [29 CFR 1915.1000 Table Z-Shipyards](#) -- 10 ppm, 15 mg/m³ TWA

American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV): 1 ppm, 1.4 mg/m³ TWA; 5 ppm, 7.0 mg/m³ STEL

National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL): 10 ppm, 15 mg/m³ Ceiling (10 Minutes)

Health Factors

NIOSH Immediately Dangerous To Life or Health Concentration (IDLH): [100 ppm](#)

Potential symptoms: Apnea; coma; convulsions; irritated eyes, conjunctivitis pain, lacrimation, photophobia, corneal vesication; respiratory system irritation; dizziness; headaches; fatigue; insomnia; GI disturbances

Health Effects: Acute systemic toxicity (HE4); CNS effects (HE7) Irritation-Eye, (Conjunctivitis), Lungs---Moderate (HE15)

Affected organs: Respiratory system, eyes

Monitoring Methods used by OSHA

Laboratory Sampling/Analytical Method:

- **sampling media:** Special sampling tube containing an uncoated glass fiber filter, followed by a Na₂CO₃ coated glass fiber filter, followed by two beds of AgNC coated silica gel (200/200 mg)
 - maximum volume:** 12 Liters
 - maximum flow rate:** 0.05 L/min TWA
 - maximum volume:** 7.5 Liters
 - maximum flow rate:** 0.5 L/min Ceiling
 - maximum volume:** 5 Liters
 - maximum flow rate:** 0.5 L/min Peak
- current analytical method:** Ion Chromatography; IC/Cond
- method reference:** OSHA Analytical Method ([OSHA 1008](#))
- method classification:** Fully Validated
- note:** The sampling pump must be capable of maintaining a constant flow of 0.5 L/min with a back pressure of approximately 20 inches of water.
- note:** OSHA personnel can obtain samplers from SLTC.

On-Site Sampling Techniques/Methods:

- **device:** Detector Tube
manufacturer: Dräger
model/type: Hydrogen Sulphide 1/d, order no. 81 01831
sampling information: 1/10 strokes
upper measurement limit: 200 ppm
detection limit: Approximately 0.5 ppm
overall uncertainty: Approximately 25%
method reference: On-site air secondary ([SEI Certified](#))

- **device:** Detector Tube
manufacturer: Gastec
model/type: 4LL
sampling information: 0.5 to 10 strokes
upper measurement limit: 120 ppm
detection limit: 0.1 ppm
overall uncertainty: 8% for 2.5 to 60 ppm
method reference: On-site air secondary ([SEI Certified](#))

- **device:** Detector Tube
manufacturer: Matheson-Kitagawa
model/type: 8014-120SD
sampling information: 0.5/1 strokes
upper measurement limit: 60 ppm
detection limit: Approximately 0.5 ppm
overall uncertainty: Unknown
method reference: On-site air secondary ([SEI Certified](#))

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