

VERIFORCE TRAINING

H2S Clear

Course Summary

This course provides an overview of hydrogen sulfide (H₂S) safety, explaining why H₂S is one of the most dangerous workplace hazards due to its extreme toxicity, flammability, and ability to accumulate in low-lying or confined spaces without reliable odor warning. It reviews common sources of H₂S, applicable regulations and standards, and the shared responsibilities of employers and workers to prevent exposure.

The course explains exposure limits, IDLH conditions, and the acute and chronic health effects associated with H₂S, as well as the secondary hazards of sulfur dioxide (SO₂) produced during combustion. It emphasizes hazard control through the hierarchy of controls, proper detection and monitoring, use of respiratory protection, and safe-work practices.

Emergency response, rescue limitations, and post-exposure medical evaluation are also addressed, reinforcing that training, monitoring, and preparedness are critical to preventing serious injury or death.

Certifications

Upon successful completion of this course, students receive their PEC ID card. The back of the card reflects all PEC training the student has completed. Employers may also verify student training by visiting PECCard.com online.

Course Evaluation

Students will receive exams to verify competency in the instruction provided in H₂S Clear.

Course Structure

Introduction

- Industry overview of hydrogen sulfide (H₂S)
- Why H₂S is called “The Silent Killer” Overview of course purpose and scope

Regulations, standards, and responsibilities

- Applicable OSHA, NIOSH, ACGIH, ANSI, API, EPA, and other regulatory standards
- Company responsibilities for H₂S safety and training
- Worker responsibilities in preventing H₂S exposure
- Shared accountability and Stop Work Authority

Introduction to hydrogen sulfide

- Natural and industrial sources of H₂S
- Sour environments and sour crude definitions
- Industries and work activities where H₂S may be encountered



Physical and chemical properties of H₂S

- Common names and identification of hydrogen sulfide
- Physical characteristics (colorless, heavier than air, flammable)
- Chemical properties and reactivity
- Corrosion, sulfide stress cracking, and equipment failure risks

Exposure and limits of exposure

- Routes of exposure (inhalation, skin, and eye contact)
- Understanding parts per million (ppm)
- OSHA, NIOSH, and ACGIH exposure limits
- Immediately Dangerous to Life or Health (IDLH) atmospheres

Health effects of hydrogen sulfide

- How H₂S affects the eyes, nose, brain, lungs, and nervous system
- Acute health effects by concentration level
- Chronic health effects from repeated low-level exposure
- Individual factors that influence sensitivity to H₂S

Controlling the hazards

- Hierarchy of controls
- Engineering controls used to control H₂S
- Safety equipment and ignition source control
- Burning and flaring operations
- Sulfur dioxide (SO₂) hazards and exposure limits

Reducing the hazards

- Administrative controls and safe work practices
- Warning signs, alarms, and API H₂S conditions
- Job Safety Analyses (JSAs) and work permits
- Confined space hazards and controls
- Observing wind conditions
- The buddy system

Protecting workers: detection and monitoring

- Differences between gas detectors and gas monitors
- Fixed, portable, and personal monitoring devices
- Proper placement in the breathing zone
- Using a gas monitor correctly
- Bump testing and calibration requirements

Protecting workers: respiratory protection

- When respiratory protection is required
- Elements of a respiratory protection program
- Medical evaluations and fit testing
- Types of respirators (SARs, SCBAs, escape packs)
- Respirator inspection, use, limitations, and maintenance
- Respiratory protection in IDLH atmospheres



Emergency response

- H₂S contingency and emergency action plans
- Evacuation, assembly points, and communication
- Rescue procedures and first aid (for trained personnel only)
- Post-exposure medical evaluation requirements

Emerging technology and continuous improvement

- Role of new technology in H₂S safety
- Importance of ongoing training
- Worker responsibility to stay current with new safety tools