



M&A Safety Services

512 Viaulet Road
Youngsville, Louisiana 70592
Main: 337-451-4685
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www.masafetyservices.com

Hydrogen Sulfide/Respiratory Protection

Course Outline

Prerequisites: This course shall have no formal pre-requisite.

Course Length: 4 hours - Course length shall vary depending on the number of delegates. Total course time includes breaks.

Class Size: The maximum number of delegates that may be trained and tested per instructor shall be thirty-five (35) in the classroom session.

Course Objective

-) Provide delegates with the sources, hazards and effects of Hydrogen Sulfide.
-) Provide delegates with warning, monitoring and detection systems for H₂S.
-) Address Emergency Response Planning and H₂S.
-) Provide delegates with the information needed to successfully wear respirators.
-) Provide delegates knowledge about the requirements of a respiratory protection program.
-) Address different types of respirators and their use.
-) Address inspection, maintenance, and storage requirements.
-) Delegates should be able to demonstrate knowledge during written examination.

Course Design

-) Power Point© / Lecture / Audio Video / Visual Aids
-) Demonstrations

Successful Course Completion

-) Requires a minimum score of 75% or better.
-) Grades shall be calculated by dividing the number of questions answered correctly by the total number of exam questions.
-) Delegates will have no more than thirty (30) minutes to complete the exam.
-) Successful completion of all practical sessions is mandatory

Course Content Summary

-) Classroom
-) Practical

Breaks: 10 minutes (approximately every hour)

Lunch: 1 Hour (if applicable)



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About Hydrogen Sulfide (H₂S)

-) Regulations
-) Key Terms
 - o Auto Ignition
 - o Flammable Limits
 - o Permissible Exposure Limit (PEL)
 - o Threshold Limit Value (TLV)
 - o Short Term Exposure Limit (STEL)
 - o Ceiling
 - o Immediate Dangerous to Life and Health (IDLH)
 - o National Institute of Occupational Safety and Health (NIOSH)
 - o Parts Per Million (PPM)
-) What is H₂S?
-) H₂S vs. Other Notable Deadly Gases
-) H₂S Common Names
-) Characteristics
-) Disposal method
-) H₂S Limitations
-) Where is H₂S found?
-) H₂S Accumulation
-) H₂S Reactivity

Effects of Hydrogen Sulfide (H₂S)

-) Respiratory System Effects
-) Respiratory System
 - o Diaphragm
 - o Trachea
 - o Bronchi
 - o Alveoli

Hydrogen Sulfide (H₂S) Exposure Limits

-) H₂S Signs and Symptoms of Exposure
 - o 0-50 PPM
 - o 100-300 PPM
 - Olfactory Nerve Paralysis
 - o 300-600 PPM
 - o 600-1000 PPM
-) Phrenic Nerve Function



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) Variables Effecting Symptoms

Hydrogen Sulfide (H₂S) Detection

-) Methods of Detection (advantages/disadvantages)
 - o Colorimetric Tubes
 - o Personal Electronic Detectors
 - o Fixed Detectors

Respiratory Protection

-) Common Effects from Respirator Use
-) Why Wear a Respirator?
-) Breathing Air Composition
-) Employee Control Measures
 - o Engineering Controls
 - o Administrative Controls
 - o Personal Protective Equipment
-) Employer Responsibilities
-) Respiratory Protection Program Requirements
-) Employee Responsibilities
-) Types of Respirators
 - o Air Purifying
 - o Supplied Air
 - Self-Contained Breathing Apparatus (SCBA)
 - Atmospheric Supplied Air
 - Cascade Systems
 - Escape Packs
-) Fit Testing
 - o Quantitative
 - o Qualitative
 - o Medical Requirements
-) Respirator Usage
-) Respirator Inspection
-) Respirator Maintenance
-) Proper Donning/Doffing
-) Respirator Storage

Hydrogen Sulfide (H₂S) Safety

-) Arriving at a H₂S Location
-) Wind Direction Example
-) Affected Employee Requirements
-) When H₂S is Present



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-) Site Location Condition Flags
 - o Green – Possible Danger
 - o Yellow – Moderate Danger
 - o Red – Extreme Danger
-) Other Deadly Gases Associated with H₂S
 - o Carbon Dioxide (CO₂)
 - o Sulfur Dioxide (SO₂)
-) Regular Drills
-) Rescue

Practical Session

Practical shall verify that the delegate has acquired the following skills:

-) Demonstrate satisfactory operation of personal detection equipment
-) Demonstrate proper wearing of detector.
-) Explain how to respond to an alarm.
-) Select the proper respiratory protection equipment.
-) Perform inspection of respiratory protection equipment.
-) Explain the process for conducting a user seal check.
-) Properly store equipment and PPE.

Additionally, employers commonly include a Respirator Fit test or Pulmonary Function test as a preparatory step prior to deployment of a worker.

Training Center Provided Material

-) Course Materials

Delegate Requirements

-) None

Reference Material / Documents

BSEE 30 CFR 250.490
OSHA 29 CFR 1910.134
ANSI/ASSE Z390.1—2017 Standard