

ANSI/ASSP Z390.1-2024

Accepted Practices for Hydrogen Sulfide (H₂S)
Training Programs

PREVIEW ONLY



AMERICAN SOCIETY OF
SAFETY PROFESSIONALS



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American National Standard

**Accepted Practices for
Hydrogen Sulfide (H₂S) Training Programs**

Secretariat

American Society of Safety Professionals

520 N. Northwest Highway

Park Ridge, IL 60068

Approved May 13, 2024

American National Standards Institute

American National Standard

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Foreword (This Foreword is not a part of American National Standard Z390.1 – 2024.)

The American National Standard Z390.1 on Hydrogen Sulfide (H₂S) Training was first approved by the American National Standards Institute (ANSI) on May 26, 1995. This standard grew out of the recognition of a need for specialized training dealing with this toxic chemical, beyond conventional hazard communications training, due to numerous fatal accidents involving victims and their would-be rescuers succumbing to the effects of hydrogen sulfide.

Historically, H₂S training issues have been addressed by only a few industries, and the consistency of the training criteria varied from one organization to another. For these reasons, the standard addresses the individual training criteria that should be incorporated into a comprehensive training course. These criteria were developed by combining accepted practices in numerous affected industries. Most significantly, emphasis has been given to the qualifications and proficiency of individual H₂S safety instructors, as well as student performance-based competency and qualifications.

The guidelines presented in this document are designed to provide workers the fundamental knowledge to protect themselves from H₂S exposure. This document does not include the information necessary to satisfy the requirements of the ASTM F3387, *Standard Practice for Respiratory Protection*, and OSHA Respiratory Protection 29 CFR 1910.134. In addition, this document does not provide the site-specific information necessary to work at a particular facility.

Governmental regulations (see OSHA Hazard Communication 29 CFR 1910.1200) specify mandatory requirements for the training of personnel working with or around hazardous chemicals. As a voluntary consensus standard, this document complements those regulations. However, compliance with this standard does not assure compliance with governmental regulations, and vice versa.

Normative Requirements: This standard uses the single column format common to many international standards. The normative requirements appear aligned to the left margin. To meet the requirements of this standard, machinery, equipment and process suppliers and users must conform to these normative requirements. These requirements typically use the verb “shall.”

NOTE: The informative or explanatory notes in this standard appear indented, in italics, in a reduced font size, which is an effort to provide a visual signal to the reader that this is informative note, not normative text, and is not to be considered part of the requirements of this standard; this text is advisory in nature only. The suppliers and users are not required to conform to the informative note. The informative note is presented in this manner in an attempt to enhance readability and to provide explanation or guidance to the sections they follow.

Revisions: The Z390 Committee welcomes proposals for revisions to this standard. Revisions are made to the standard periodically (usually five years from the date of the standard) to incorporate changes that appear necessary or desirable, as demonstrated by experience gained from the application of the standard. Proposals should be as specific as possible, citing the relevant section number(s), the proposed wording and the reason for the proposal. Pertinent documentation would enable the Z390 Committee to process the changes in a more-timely manner.

Interpretations: Upon a request in writing to the Secretariat, the Z390 Committee will render an interpretation of any requirement of the standard. The request for interpretation should be clear, citing the relevant section number(s) and phrased as a request for a clarification of a specific requirement. Oral interpretations are not provided.

No one but the Z390 Committee (through the Z390 Secretariat) is authorized to provide any interpretation of this standard.

Approval: Neither the Z390 Committee nor American National Standards Institute (ANSI) approves, certifies, rates, or endorses any item, construction, proprietary device, or activity.

Appendices: Appendices are included in most standards to provide the user with additional information related to the subject of the standard. Appendices are not part of the approved standard.

Committee Meetings: The Z390 Committee meets periodically. Persons wishing to attend a meeting should contact the Secretariat for information.

Standard Approval: This standard was processed and approved for submittal to ANSI by the American National Standards Committee on Hydrogen Sulfide Training, Z390. Approval of the standard does not necessarily imply (nor is it required) that all committee members voted for its approval. At the time ANSI approved this standard, the Z390 committee had the following members:

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AMERICAN NATIONAL STANDARD Z390.1 ACCEPTED PRACTICES FOR HYDROGEN SULFIDE (H₂S) TRAINING PROGRAMS

1. Scope, Purpose, and Application

1.1 Scope

This standard sets forth accepted practices for hydrogen sulfide (H₂S) safety training and instruction of affected personnel to include, but not be limited to, the following:

- minimum informational content of the course;
- recommended exercises and drills;
- properties and characteristics of H₂S;
- sources of H₂S and areas of potential exposure;
- typical site-specific safe work practices associated with H₂S operations;
- detection methods for H₂S;
- engineering/mitigation controls;
- properties, characteristics, and safe work practices of sulfur dioxide (SO₂);
- selection, use, and care of personal protective equipment (PPE) appropriate for atmospheres containing H₂S concentrations above the applicable occupational exposure limit (OEL), rescue procedures and first aid for victims of H₂S exposure; and
- H₂S safety instructor qualifications.

1.2 Purpose

The purpose of this standard is to establish minimum requirements for H₂S safety training programs that will enhance safety in occupational settings where H₂S is present, or is recognized as being potentially present, above the applicable OEL.

1.3 Application

This standard is recommended for voluntary application in occupational settings where personnel have the potential to be exposed to concentrations of H₂S in excess of the applicable OEL. The applicable OEL is determined by the employer or facility referencing consensus standards, regulations, and health, safety, and environmental (HSE) professionals.

2. Definitions

Acute Exposure. Exposures to high concentrations over a short period of time.

Annual. Within 365 days but no longer than 30 calendar days from expiration date of the successful completion of the last training.

Chronic Exposure. Exposures to low concentrations over a long period of time.

Contingency Plan. A site-specific written document that provides an organized plan for alerting and protecting workers and the public within an area of exposure following the accidental release of a potentially hazardous atmospheric concentration of H₂S.

Designated Rescuer. An individual or individuals who are responsible for recovery and providing resuscitation and first aid to H₂S victims.

Emergency Action Plan. A part of a broader and more comprehensive contingency plan that outlines the immediate steps and actions that would be taken in the event of a major release of toxic material. The emergency action plan includes, but is not limited to, such items as: