



AMERICAN NATIONAL STANDARD

ANSI/ASSE Z390.1-2006 (R2010)
Accepted Practices for
Hydrogen Sulfide (H₂S)
Training Programs

ANSI/ASSE Z390.1-2006 (R2010)



AMERICAN SOCIETY OF
SAFETY ENGINEERS

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ANSI/ASSE Z390.1 – 2006 (R2010)

American National Standard

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

Secretariat

American Society of Safety Engineers
1800 East Oakton Street
Des Plaines, Illinois 60018-2187

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Foreword (This Foreword is not part of American National Standard Z390.1-2006 (R2010).)

The charter of the American National Standards Committee Z390 on Hydrogen Sulfide (H₂S) Training was accredited by the American National Standards Institute (ANSI) on January 1, 1993. This standard grew out of the recognition of a need for specialized training dealing with this toxic chemical, above and 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, hydrogen sulfide training issues have been addressed by only a few industries, and the consistency of the training criteria varied greatly 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 Hydrogen Sulfide Safety Instructors, as well as student performance-based competency and qualifications.

Governmental regulations (see 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.

The Z390 Committee solicits public input that may suggest revisions to the standard. Such input should be sent to the Secretariat, American Society of Safety Engineers, 1800 E. Oakton Street, Des Plaines, IL 60018-2187.

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.

Only 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 on a regular basis. Persons wishing to attend a meeting should contact the Secretariat for information.

Standard Approval: This standard was developed and approved for submittal to ANSI by the American National Standards Committee on Hydrogen Sulfide Training, Z390. Committee approval of the standard does not necessarily imply that all members voted for its approval. At the time of its approval, the Z390 Standards Committee had the following members:

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Jennie Dalesandro, Administrative Technical Support

Organization Represented

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American Society of Safety Engineers
Association of Energy Services Companies

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FIRECON
Gray Wireline Services Inc.
High Plains Safety Training Center
OIHS, Inc. – Occupational & Industrial Health Systems
Petroleum Education Council
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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
- refresher training requirements
- H₂S Safety Instructor qualifications
- 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
- selection, use and care of personal protective equipment appropriate for atmospheres containing H₂S concentrations above the Threshold Limit Value-Time Weighted Average (TLV-TWA)
- rescue techniques and first aid procedures for victims of H₂S exposure

1.2 Purpose. The purpose of this standard is to establish minimum requirements for site-specific H₂S safety training programs that will enhance safety in occupational settings where hydrogen sulfide is present, or is recognized as being potentially present, above the TLV-TWA.

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 *Threshold Limit Values (TLVs[®]) for Chemical Substances and Physical Agents and Biological Exposure Indices (BEIs[®])* as established by the American Conference of Governmental Industrial Hygienists (ACGIH) in their 2005 publication titled: *Guide to Occupational Exposure Levels*.

1.3.1 These requirements/recommendations apply when the instructor/administrator of the course meets the provisions of the standard, even when one or more assistant instructors presenting the course may not meet those standards.

1.3.2 If any of the provisions of this standard are deemed to be not applicable, the other requirements/recommendations of the standard shall still apply.

2. DEFINITIONS

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

2.2 Acute Toxicity. The acute adverse effects resulting from a single dose of or exposure to a substance. Acute toxicity tests (1) give a quantitative estimate of acute toxicity (LD₅₀) for comparisons to other substances; (2) identify target organs and other clinical manifestations of acute toxicity; (3) establish the reversibility of the toxic response; and (4) give dose-ranging guidance for other studies.

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