

1910.120: HAZARDOUS WASTE OPERATIONS AND EMERGENCY RESPONSE (HAZWOPER)

INTRODUCTION

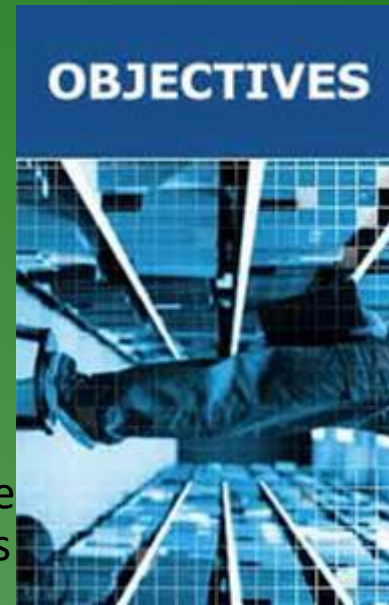
This course broadly cover the issues associated with the OSHA standard designed to protect workers who respond to, or clean-up, releases of hazardous wastes or other hazardous substances. The Hazardous Waste Operations and Emergency Response Standard (HAZWOPER) requires affected employers to develop a safety and health program and a site specific safety and health plan to protect their workers who will be, or may be, exposed to hazardous wastes and materials. The Hazard Communication Standard, which is briefly reviewed under Lesson 5, is also included to emphasize the risks associated with working with hazardous chemicals and the information that must be supplied to the employee (by the employer) to reduce illness and injury when working with hazardous chemicals.



LEARNING OBJECTIVES

The learning objectives of this course are as follows:

- To enable the participant to understand the scope, purpose and application of the HAZWOPER standard
- To introduce to, or refresh the participant's memory about, the main provisions of the Hazard Communication Standard
- To ensure that the participant is conversant with the main points of HAZWOPER program elements such as decontamination, drum and container handling, emergency response, site hazard evaluation, site safety and health plans, medical surveillance, new technology programs, and other pertinent topics



KEY TERMS

- **Buddy System:**

a system of organizing employees into work groups in such a manner that each employee of the work group is designated to be observed by at least one other member of the work group for purposes of the health and safety of the workers

- **Clean-up Operations:**

means an operation where hazardous substances are removed, contained, incinerated, neutralized, stabilized, cleared-up, or in any other manner processed or handled with the ultimate goal of making the site safer for people or the environment



KEY TERMS

- **Decontamination:**

means the removal of hazardous substances from employees and their equipment to the extent necessary to preclude the occurrence of foreseeable adverse health effects

- **Emergency Response**

response effort by employees from outside the immediate release area or by other designated responders to an occurrence which results, or is likely to result, in an uncontrolled release of a hazardous substance

- **Facility:**

any site or area where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located



KEY TERMS

- **Hazardous Materials Response Team (HAZMAT):**
an organized group of employees, designated by the employer, who are expected to perform work to handle and control actual or potential leaks or spills of hazardous substances requiring possible close approach to the substance



KEY TERMS

- **Hazardous Substance:**

any substance, such as hazardous waste, where exposure results or may result in adverse effects on the health or safety of employees

- **Health Hazard:**

chemical, mixture of chemicals or a pathogen for which there is statistically significant evidence that acute or chronic health effects may occur in exposed employees



LESSON 1

INTRODUCTION TO HAZWOPER

This lesson focuses on the following topics:

- Purpose Of HAZWOPER
- Site Safety And Health Program
- Site Characterization And Analysis
- Site Control

LESSON 1

PURPOSE OF HAZWOPER PROCEDURE



The scope and application of this standard includes the following:

- Clean-up operations at uncontrolled hazardous waste sites
- Clean-up operations at sites covered by the Resource Conservation and Recovery Act (RCRA)
- Voluntary clean-up operations at sites recognized by Federal, state, local, or other governmental bodies as uncontrolled hazardous waste sites

LESSON 1

PURPOSE OF HAZWOPER PROCEDURE



- Certain operations at treatment, storage and disposal (TSD) facilities
- Emergency response operations for the release or substantial threat of a release of hazardous substances

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- Clean-up operations must comply with all paragraphs of the Standard except paragraphs (P) And (Q)
- Operations at TSD Facilities must comply with paragraph (P)

LESSON 1

SITE SAFETY AND HEALTH PROGRAM

A proper site safety and health program should include, at the least, all of the following:



- An organizational structure for site operations including provision for a general supervisor and a site safety and health supervisor
- A comprehensive work plan
- A site specific safety and health plan
- Safety and health training program
- Medical surveillance program
- Standard operating procedures for safety and health
- Any necessary interface between the general program and the site specific activities

LESSON 1

SITE CHARACTERIZATION AND ANALYSIS

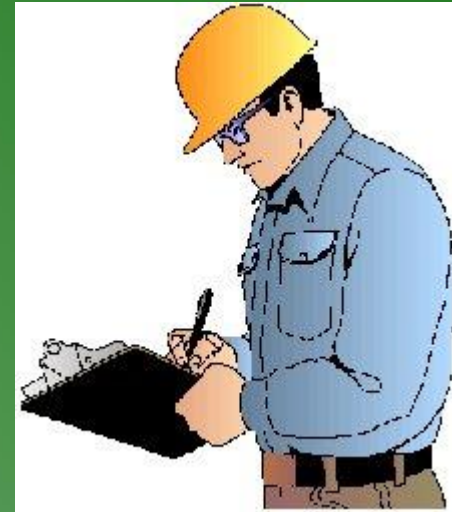
- Hazardous waste sites shall be evaluated to determine appropriate safety and health control procedures
- Preliminary evaluation shall be performed prior to entry with a more detailed evaluation immediately upon initial entry
- PPE for initial entry shall provide protection from known or suspected hazards
- If hazards, or suspected hazards, are not identified during the preliminary evaluation, level “B” protection, as a minimum, shall be provided for initial entry



LESSON 1

SITE CONTROL

Site control shall be implemented before work begins. The Site Control Plan shall be developed during the planning phases of the operation.



LESSON 1

SITE CONTROL

Elements Of Site Control Plan

The following are necessary elements of a Site Control Plan:

- Site map
- Site work zones
- Use of the buddy system
- Site communications and alerting procedures for emergencies
- Standard operating procedures
- Identification of nearest medical assistance

LESSON 2

FUNDAMENTALS OF EMPLOYEE TRAINING

This Lesson Focuses on the following Topics:

- Training
- Medical Surveillance
- PPE Program
- Monitoring
- Informational Programs

LESSON 2

TRAINING

- Training shall be provided for site workers, supervisors and managers
- Training is required prior to job assignment

LESSON 2

TRAINING

Required Training

General Site Workers

- 40 hours plus
- 3 days supervised field experience

Occasional Site Workers

- 24 hours plus
- 1 day supervised field experience



LESSON 2

TRAINING

Regular Workers In Areas Of Low Exposure

- 24 hours plus
- 1 day supervised field experience

Managers And Supervisors

- 40 hours plus
- 8 hours of specialized training



LESSON 2

MEDICAL SURVEILLANCE

Medical surveillance applies to certain categories of employees

- Medical surveillance should occur periodically (normally every year) or otherwise prior to:
- assignment
- termination or reassignment



LESSON 2

MEDICAL SURVEILLANCE

Medical surveillance should also occur if an employee shows the following signs or symptoms:

- overexposure
- injury caused by exposure
- illness caused by exposure



LESSON 2

MEDICAL SURVEILLANCE

Physician's Written Opinion Shall Include

- Medical conditions that put the employee at increased risk
- Recommended limitations on employee's assignment
- Result of exam and test if requested by employee
- Statement that employee has been notified of results

LESSON 2

ENGINEERING CONTROLS AND WORK PRACTICES

- Engineering controls and work practices are the preferred means to control employee exposures
- Personal protective equipment (PPE) may be used as an element of protecting when other controls are not feasible, and shall be selected based on the hazards likely to be encountered
- A written PPE program is required

LESSON 2

ENGINEERING CONTROLS AND WORK PRACTICES

PPE Program

A PPE program should be selected based upon site hazards, and should include information on the following:

- Use and limitations
- Work mission duration
- Maintenance and storage
- Decontamination and disposal
- Training and proper fitting



LESSON 2

ENGINEERING CONTROLS AND WORK PRACTICES

- Donning and doffing procedures
- Inspection procedures
- Program evaluation
- Limitations that result from temperature extremes (heat stress)



LESSON 2

ENGINEERING CONTROLS AND WORK PRACTICES

Monitoring

Air monitoring is conducted to assure proper selection of:

- Engineering controls
- Work practices
- PPE

Air monitoring is conducted to identify and quantify airborne contaminants. Program must include initial monitoring, periodic monitoring and personal monitoring of employees

LESSON 2

ENGINEERING CONTROLS AND WORK PRACTICES

Informational Programs



Informational programs shall be developed to inform employees, contractors and subcontractors about the nature, level and degree of exposures that are likely to occur

LESSON 3

WASTE MANAGEMENT AND CONTAINMENT

This Lesson Focuses on the following topics:

- Handling Drums And Containers
- Decontamination
- Emergency Response At Hazardous Waste Sites
- Illumination
- Sanitation At Temporary Workplaces

LESSON 3

HANDLING DRUMS AND CONTAINERS

General requirements must be established for drum and container handling. Such requirements should include instructions for:

- Procedures for opening drums and containers
- The use of materials handling equipment
- Handling radioactive, shock sensitive and lab wastes
- The sampling of drums and containers
- Shipping and transporting
- Working with tanks and vaults



LESSON 3

HANDLING DRUMS AND CONTAINERS

Decontamination

The following are policies and procedures that must be implemented to establish and maintain proper decontamination areas and protocols

- The decontamination area, practices, and controls must be implemented prior to site entry
- Standard operating procedures must be developed to minimize contact with hazardous materials
- All employees leaving the work area must go through decontamination



LESSON 3

HANDLING DRUMS AND CONTAINERS

- The site safety supervisor must monitor effectiveness of the decontamination procedures
- Equipment and PPE must be decontaminated or disposed of in a proper manner
- Regular showers and change rooms must meet the requirements of the OSHA sanitation standard



LESSON 3

EMERGENCY RESPONSE AT HAZARDOUS WASTE SITES

A written emergency response plan is required. Employers who will evacuate all personnel and not allow them to participate in response efforts are exempt from this requirement but must prepare an emergency action plan as required by 29 CFR 1910.38



LESSON 3

EMERGENCY RESPONSE AT HAZARDOUS WASTE SITES

Elements of the Emergency Response Plan

The necessary elements of the emergency response plan are as follows:

Pre-emergency Planning

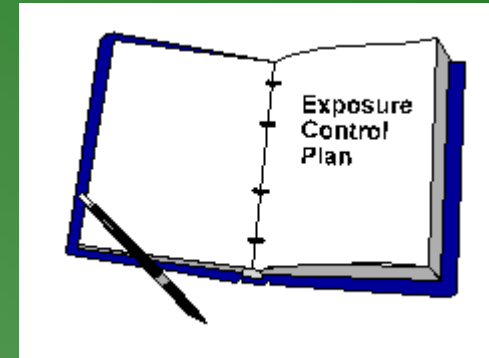
- Personnel Roles, Lines Of Authority And Communication
- Emergency Recognition And Prevention
- Safe Distances And Places Of Refuge
- Site Security And Control
- Evacuation Routes And Procedures
- Decontamination Procedures

LESSON 3

EMERGENCY RESPONSE AT HAZARDOUS WASTE SITES

Additional Elements Of The Plan

- Emergency medical treatment and first aid
- Emergency alerting and response procedures
- Critique of the response and follow-up
- PPE and emergency equipment
- Site topography, layout, and prevailing weather conditions
- Procedures for reporting incidents to governmental agencies



LESSON 3

EMERGENCY RESPONSE AT HAZARDOUS WASTE SITES

Illumination

Requirements for minimum level of illumination at work site

Areas accessible to employees shall be lighted to not less than the following minimum illumination intensities

- General site areas 5 foot candles
- General shops 10 foot candles
- First aid stations and offices 30 foot candles

For more information, please refer to Table H-120.1 Minimum Illumination Intensities in Foot Candles in the 1910.120 Standard

LESSON 3

EMERGENCY RESPONSE AT HAZARDOUS WASTE SITES

Sanitation at Temporary Workplaces



When establishing guidelines for proper sanitation at temporary workplaces, make sure to include procedures for all of the following:

- Requirements for potable and non-potable water supplies
- Requirements for toilet facilities
- Requirements for food handling, temporary sleeping quarters and washing facilities
- Requirements for showers and change rooms

LESSON 4

HAZARD CONTROL AND MANAGEMENT

This Lesson Focuses on the following topics:

- New Technology Programs
- TSD Facilities
- Emergency Response To Hazardous Substance Release
- Response Personnel And Training Requirements

LESSON 4

NEW TECHNOLOGY PROGRAMS

- Employers shall implement procedures for introducing effective new technologies developed for the improved protection of employees working with hazardous waste clean-up operations.
- Employers shall implement procedures for introducing effective new technologies as part of the site safety and health program to ensure that advanced employee protection is being maintained.

LESSON 4

NEW TECHNOLOGY PROGRAMS

- Employers shall evaluate new technologies, equipment and control measures available to the industry (such as foams and absorbents designed to suppress the level of air contaminants) in an effort to increase employee awareness and safety. All such introduced technologies shall be evaluated for effectiveness and practicality, by the employer and the employees before use in large scale operations, and shall be made available to OSHA upon request.

LESSON 4

TSD FACILITIES

Treatment, storage, and disposal facilities shall incorporate all of the following regulations:

- Written safety and health program
- Hazard communication program
- Medical surveillance program meeting requirements of paragraph (f)
- Decontamination program meeting requirements of paragraph (k)



LESSON 4

TSD FACILITIES

- New technology program meeting requirements of paragraph (o)
- Materials handling program for drums and containers
- Training program (24 hours for new employees and 8 hours annual refresher)
- Emergency response program



LESSON 4

TSD FACILITIES

Elements of the Emergency Plan for TSD Facilities

An emergency response plan for TSD facilities should incorporate, at the least, all of the following elements:

- Pre-emergency planning and coordination with outside parties
- Personnel roles and lines of authority and communication
- Emergency recognition and prevention
- Safe distances and places of refuge
- Site security and control
- Evacuation routes and procedures
- Decontamination procedures



LESSON 4

TSD FACILITIES

Additional Elements of the Plan

- Emergency medical treatment and first aid
- Emergency alerting and response procedures
- Critique of response and follow-up
- PPE and emergency equipment
- Site topography, layout, and prevailing weather conditions
- Procedures for reporting incidents to governmental agencies

LESSON 4

EMERGENCY RESPONSE TO HAZARDOUS SUBSTANCE RELEASE

Emergency response plans are required except where employers will evacuate their employees. Such plans should include procedures for each of the following:

- Procedures for handling an emergency response incident
- Personnel and levels of training
- Trainer qualifications



LESSON 4

EMERGENCY RESPONSE TO HAZARDOUS SUBSTANCE RELEASE

- Refresher training requirements
- Medical surveillance program that complies with paragraph (f)
- Chemical protective clothing requirements
- Post-emergency response operations



LESSON 4

EMERGENCY RESPONSE TO HAZARDOUS SUBSTANCE RELEASE

Elements of the Emergency Plan

- Pre-emergency Planning And Coordination With Outside Parties
- Personnel Roles And Lines Of Authority And Communication
- Emergency Recognition And Prevention
- Safe Distances And Places Of Refuge
- Site Security And Control
- Evacuation Routes And Procedures
- Decontamination Procedures

LESSON 4

EMERGENCY RESPONSE TO HAZARDOUS SUBSTANCE RELEASE

- Emergency Medical Treatment And First Aid
- Emergency Alerting And Response Procedures
- Critique Of Response And Follow-up
- PPE And Emergency Equipment
- Emergency Response Organizations May Use Local Or State Plans As Part Of Their Plan To Avoid Duplication

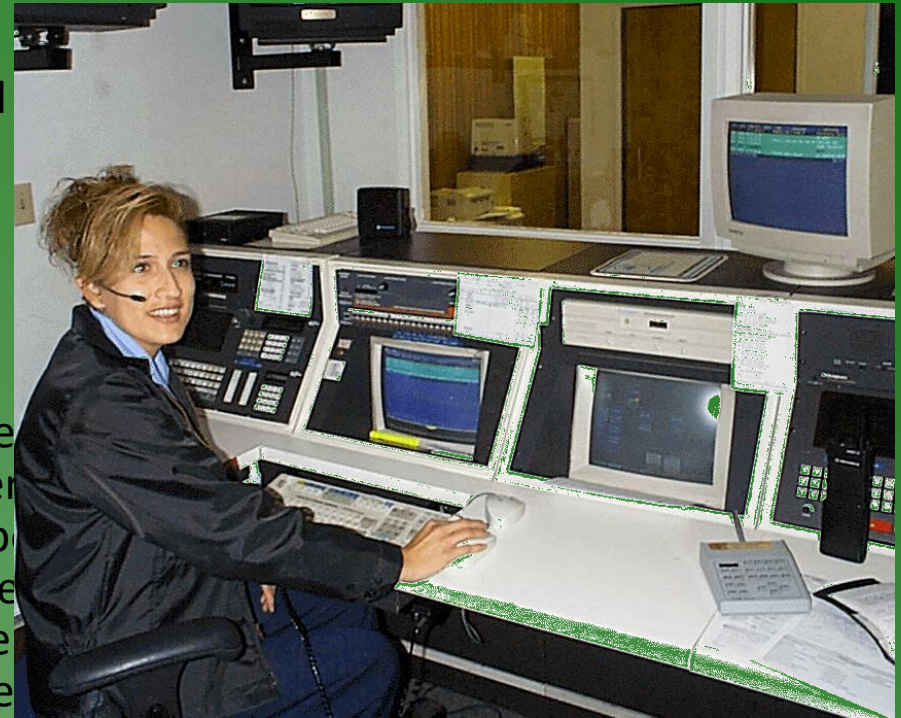
LESSON 4

RESPONSE PERSONNEL AND TRAINING REQUIREMENTS

The following is a list of personnel involved forming a response team:

1. Skilled Support Personnel

- Personnel, not necessarily an employee, who are skilled in the operation of certain equipment, and who are temporarily needed to perform immediate emergency support work that can't reasonably be performed in a timely fashion by the organization's own employees.



LESSON 4

RESPONSE PERSONNEL AND TRAINING REQUIREMENTS

These employees are not required to have gone through the same training as the employer's regular employees, but must be given an initial briefing enough information to prevent them from injuring themselves or the host employer's employees.



LESSON 4

RESPONSE PERSONNEL AND TRAINING REQUIREMENTS

2. Specialist Employees

- Employee, who in the course of their regular duties, work with and are trained in the handling of specific hazardous substances. These employees will be called upon to provide technical advice or assistance during a hazardous substance release, and shall receive annual training, or demonstrate competency in their specialization annually



LESSON 4

RESPONSE PERSONNEL AND TRAINING REQUIREMENTS

3. First Responder Awareness Level

- Employees who discover, or who are likely to discover, a hazardous substance release who have been trained to initiate an emergency response sequence by notifying the proper authorities and taking no further action

4. First Responder Operations Level

- Minimum of 8 hours training to the awareness level, and
- Demonstrate competencies for Operations Level



LESSON 4

RESPONSE PERSONNEL AND TRAINING REQUIREMENTS

5. Hazardous Materials Technician

- Minimum of 24 hours training to the Operator Level, and
- Demonstrate competencies for Technician

6. Hazardous Materials Specialist

- Minimum of 24 hours training to the Technician Level, and
- Demonstrate competencies for the Specialist

7. Incident Commander



LESSON 4

RESPONSE PERSONNEL AND TRAINING REQUIREMENTS

Appendices

- Appendix A - Personal Protective Equipment Test Methods
- Appendix B - General Description And Discussion Of The Levels Of Protection And Protective Gear
- Appendix C - Compliance Guidelines
- Appendix D - References
- Appendix E - Training Curriculum Guidelines

LESSON 5

HAZARD COMMUNICATION STANDARD 29 CFR 1910.1200

This Lesson Focuses on the following topics:

- Hazard Communication Standard (An Overview)
- Hazard Evaluation
- Material Safety Data Sheets
- Written Program Elements

LESSON 5

1910.1200: HAZARD COMMUNICATION STANDARD (AN OVERVIEW)

Purpose

- To ensure that the hazards of all the chemicals used in a specific workplace are evaluated
- To ensure that the information is conveyed to employees by means of a comprehensive hazard communication program
- To ensure that employees have the means to protect themselves from the hazards associated with the chemicals used in his/her workplace

LESSON 5

1910.1200: HAZARD COMMUNICATION STANDARD (AN OVERVIEW)

Scope

- Applies to “hazardous” chemicals known to be present in the workplace
- Does not apply to hazardous waste, tobacco products, food, over –the-counter drugs, cosmetics, hazardous chemical waste, ionizing radiation, biological hazards, and alcoholic beverages
- Does not apply to consumer products used in the workplace for the purpose intended by the manufacturer where the use does not result in exposures greater than those anticipated for consumers

LESSON 5

HAZARD EVALUATION

Manufacturers or importers must assess the hazards of chemicals that they produce or import and provide this information to the user (usually in the form of labels and Material Safety Data Sheets -- MSDS).

The Major Elements of an Employer's Hazard Communication Program include:

- Chemical inventory and reduction
- Product warning labels
- Material safety data sheets
- Written hazard communication program
- Employee training



LESSON 5

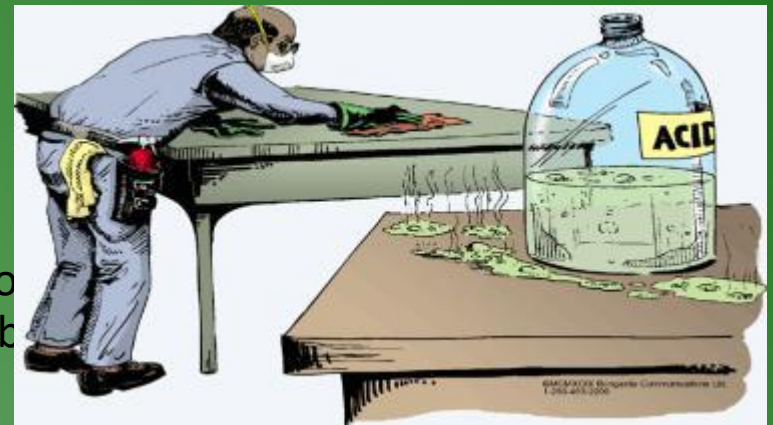
HAZARD EVALUATION

Chemical Inventory

A chemical inventory must include all hazardous chemicals known to be present in the workplace

Labeling

- All labels must contain the name of the product as it appears on the MSDS and the applicable hazard warnings
- Products shipped from one workplace to another must contain manufacturer or supplier information



LESSON 5

SAFETY DATA SHEETS (SDS)

- Provides detailed information on chemical properties, hazards and protective measures
- Required for all hazardous chemicals
- Must be readily available to employees
- Must be in English (the employer may **also** have the MSDS in another language, if needed)

LESSON 5

SAFETY DATA SHEETS (SDS)

MSDS Contents

- Product identity
- Physical and chemical characteristics
- Physical hazards of the chemical
- Health hazards of the chemical
- Primary routes of entry
- Exposure limits

LESSON 5

MATERIAL SAFETY DATA SHEETS (MSDS)

- Whether the chemical is listed as a carcinogen
- Precautions for safe handling and use
- Applicable control measures, including PPE, engineering controls, and procedures for the clean-up of spills and leaks
- Emergency and first aid procedures

LESSON 5

MATERIAL SAFETY DATA SHEETS (MSDS)



Trade Secret

- Hazardous ingredients should be listed on the MSDS unless the manufacturer claims the specific composition as a “trade secret”
- Trade secret information must be disclosed to medical personnel in the event of an emergency
- Information on the hazards presented by the trade secret chemical must still appear on the MSDS

LESSON 5

WRITTEN PROGRAM ELEMENTS

When establishing a written program, remember to include all of the following:

- Procedures for complying with the requirements for labeling and other forms of warning
- Procedures for complying with the requirements for MSDS's
- Procedures for informing employees about the hazards of non-routine tasks

LESSON 5

WRITTEN PROGRAM ELEMENTS

- Procedures for warning employees about the hazards from unlabeled pipes
- Chemical inventory and reduction
- Methods for informing contractors about hazards in the workplace
- Procedures for informing employees about the physical and health hazards associated with the hazardous chemicals with which they routinely work
- The use of PPE and other control procedures

LESSON 5

WRITTEN PROGRAM ELEMENTS

Health Hazard

Hazardous chemicals may have one or more of the following health hazards which may cause acute and/or chronic effects:

- Toxic
- Highly toxic
- Corrosive
- Irritant
- Carcinogen
- Reproductive toxins
- Target organ effects
- Sensitizers

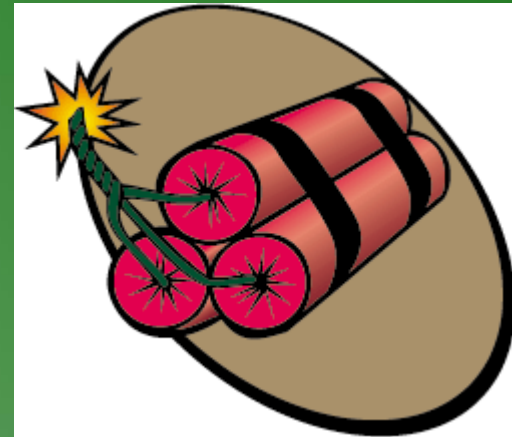


LESSON 5

WRITTEN PROGRAM ELEMENTS

Hazardous chemicals may have one or more of the following hazards that may cause a fire, explosion, serious injury and/or death:

- Combustible liquid
- Flammable liquid or solid
- Flammable gas
- Compressed gas
- Explosive
- Organic peroxide
- Unstable
- Water reactive
- Pyrophoric
- Oxidizer



LESSON 5

WRITTEN PROGRAM ELEMENTS

Training Elements

The following topics need to be a part of a minimal employee training program:

- Explanation of the scope, purpose, and application of the hazard communication standard
- A description of the Company's operations where hazardous chemicals are present
- The location and availability of the chemical inventory
- The location and availability of the written program
- The location and availability of SDSs