Lunch Box Safety Talks

Safety Over Sandwiches

MAY: Hazard Communication

Presented by Joe Mlynek

OSHA's Hazard Communication Standard 1910.1200

- Purpose: Ensure that the hazards of chemicals used, stored or distributed at a facility are evaluated and that information concerning chemical hazards is communicated to employees, customers, visitors and contractors.

- Also called the "Right to Know" Standard.

- Requires a written program.

Written Program Elements

- Roles and Responsibilities
- Chemical Inventory
- Material Safety Data Sheets
- Chemical Labeling
- Emergency Response Procedures
- Employee Training
- Provisions for Contractors

Roles and Responsibilities

- The program coordinator or designated person has overall responsibility for the program.

- Employees responsible for:
  - Participation in training
  - Ensuring chemicals are properly labeled
  - Communicating issues to their supervisor, program coordinator or the designated person.

Chemical Evaluation

- Initial evaluation is performed by the manufacturer.
- All chemicals need to be evaluated prior to being handled or stored at the facility.
  - Toxicity
  - Flammability
  - Health Hazards
  - Reactivity
  - Regulatory Requirements

Chemical Inventory

- List of all **hazardous** chemicals at the facility.
  - Physical Inventory of hazardous chemicals.
  - Review of purchasing requisitions.
- Updated by the program coordinator/designated person.
- Must be accessible to all employees.

Material Safety Data Sheets

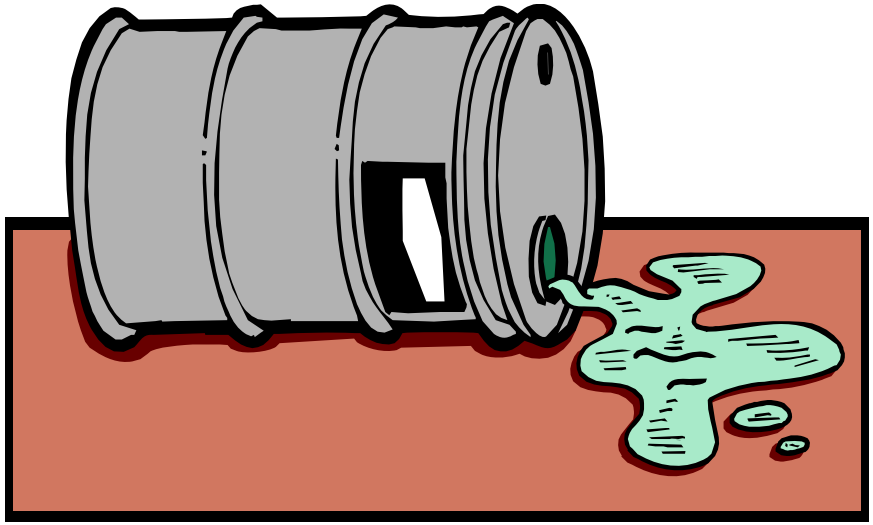
- Kept for all hazardous chemicals at the facility
- Must be accessible
- Must be in the work area

MSDS Information

- Emergency Contact Information
- Chemical Composition
- Physical and Chemical Characteristics
- Physical Hazards
- Health Hazards
- Permissible Exposure Limits
- Routes of Entry

MSDS Information

- Control Measures
- Emergency First Aid Procedures
- Storage
- Regulatory Information
- Spill or Release Information



MSDS Sheets

- Sometimes provided to first responders or treatment facility if an employee is exposed to a chemical

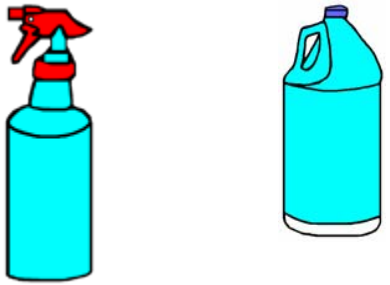
- Used by Fire Department and First Responders
  - Spills
  - Fires
  - Overexposure

Can't Locate an MSDS sheet for a chemical?

- Contact
  - Supervisor
  - Program Coordinator/Designated Contact
- Program coordinator/designated contact will contact manufacturer or vendor to obtain.
- Web search

Chemical Labels

- Short Version of MSDS
- Use words, pictures and symbols to warn of hazards
- All chemicals must be labeled

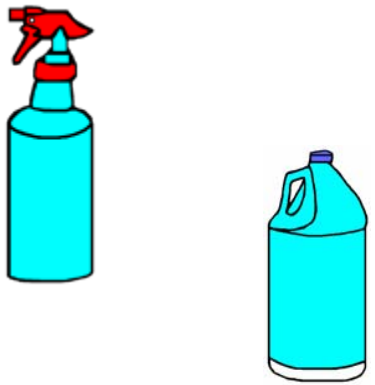


General Labeling Requirements

- Manufacturer Labels must contain the following information:
  - Identity of the chemical(s)
  - Appropriate Hazards Warnings
  - Name and Address of the Manufacturer

Secondary Use Containers

- If chemicals are transferred into un-marked containers, these containers must be labeled with the required information, unless the container into which the chemical is transferred into is intended for immediate use by the employee.



What is a Hazard Warning?

- Words, pictures or symbols in combination appearing on a label which convey physical and health hazards.
- Signal Words are used to communicate the degree of Hazard. Signal words include:
  - **Danger** - Highest degree of hazard
  - **Warning** - Intermediate Degree of Hazard
  - **Caution** - Lowest Degree of Hazard

Labeling

- Two Systems Widely Used:
  - Hazardous Materials Information System (HMIS)
  - National Fire Protection Association Label (NFPA)

Hazardous Materials Information System

- Health - Blue
- Fire - Red
- Reactivity - Yellow
- White - Special Hazard

Hazardous Materials Information System

- Numbers are placed in the sections indicating the degree of hazard
- The White Area has a letter from A to X indicating the level of personal protective equipment

Blue =Health Ratings

4 Life-threatening, major or permanent damage may result from single or repeated overexposures.

3 Major injury likely unless prompt action is taken and medical treatment is given.

2 Temporary or minor injury may occur.

1 Irritation or minor reversible injury possible.

0 No significant risk to health.

Red = Flammability

4 Flammable gases, or very volatile flammable liquids with flash points below 73 °F, and boiling points below 100 °F. Materials may ignite spontaneously with air.

3 Materials capable of ignition under almost all normal temperature conditions. Includes flammable liquids with flash points below 73 °F and boiling points above 100 °F, as well as liquids with flash points between 73 °F and 100 °F.

Flammability Continued:

2 Materials which must be moderately heated or exposed to high ambient temperatures before ignition will occur. Includes liquids having a flash point at or above 100 °F (38 °C) but below 200 °F (93 °C) (eg., Diesel fuel).

1 Materials that must be preheated before ignition will occur. Includes liquids, solids and semi solids having a flash point above 200 °F (eg., Canola oil).

0 Materials that will not burn (eg., Water).

Orange/Yellow = Reactivity

4 Materials that are readily capable of explosive, water reaction, detonation or explosive decomposition, polymerization, or self-reaction at normal temperature and pressure.

3 Materials that may form explosive mixtures with water and are capable of detonation or explosive reaction in the presence of a strong initiating source. Materials may polymerize, decompose, self-react, or undergo other chemical change at normal temperature and pressure with moderate risk of explosion.

Physical Hazard Continued:

2 Materials that are unstable and may undergo violent chemical changes at normal temperature and pressure with low risk for explosion. Materials may react violently with water or form peroxides upon exposure to air.

1 Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures.

0 Materials that are normally stable, even under fire conditions, and will not react with water, polymerize, decompose , condense, or self-react.

Special Precautions Section

CLASS	EYE	HAND	BODY	RESPIRATOR	FOOT
A	SAFETY GLASSES				
B	SAFETY GLASSES	GLOVES			
C	SAFETY GLASSES	GLOVES	SYNTHETIC APRON		
D	FACE SHIELD	GLOVES	SYNTHETIC APRON		
E	SAFETY GLASSES	GLOVES		DUST	
F	SAFETY GLASSES	GLOVES	SYNTHETIC APRON	DUST	
G	SAFETY GLASSES	GLOVES		VAPOR	
H	SAFETY GLASSES	GLOVES	SYNTHETIC APRON	VAPOR	
I	SAFETY GLASSES	GLOVES		DUST/VAPOR	
J	SAFETY GLASSES	GLOVES	SYNTHETIC APRON	DUST/VAPOR	
K	AIRLINE HOOD/MASK	GLOVES	FULL PROTECTIVE SUIT		BOOTS
X	SITUATION REQUIRING SPECIAL HANDLING				

National Fire Protection Association Label

- Health - Blue
- Flammability - Red
- Reactivity - Yellow
- Special Hazard - White

Health (Blue)

4	Very short exposure could cause death or major residual injury (e.g., hydrogen cyanide, phosphine)
3	Short exposure could cause serious temporary or moderate residual injury (e.g., chlorine gas)
2	Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury (e.g., ethyl ether)
1	Exposure would cause irritation with only minor residual injury (e.g., acetone)
0	Poses no health hazard, no precautions necessary (e.g., lanolin)

Flammability (Red)

4	Will rapidly or completely vaporize at normal atmospheric pressure and temperature, or is readily dispersed in air and will burn readily (e.g., propane). Flash point below 23°C (73°F)
3	Liquids and solids that can be ignited under almost all ambient temperature conditions (e.g., gasoline). Liquids having a Flash point below 23°C (73°F) and having a Boiling point at or above 38°C (100°F) or having a Flash point between 23°C (73°F) and 38°C (100°F)
2	Must be moderately heated or exposed to relatively high ambient temperature before ignition can occur (e.g., diesel fuel). Flash point between 38°C (100°F) and 93°C (200°F)
1	Must be heated before ignition can occur (e.g., soybean oil). Flash point over 93°C (200°F)
0	Will not burn (e.g., water)

Instability/Reactivity (Yellow)

4	Readily capable of detonation or explosive decomposition at normal temperatures and pressures (e.g., nitroglycerine, RDX)
3	Capable of detonation or explosive decomposition but requires a strong initiating source, must be heated under confinement before initiation, reacts explosively with water, or will detonate if severely shocked (e.g. ammonium nitrate)
2	Undergoes violent chemical change at elevated temperatures and pressures, reacts violently with water, or may form explosive mixtures with water (e.g., phosphorus, potassium, sodium)
1	Normally stable, but can become unstable at elevated temperatures and pressures (e.g. propene)

Special (White)

The white "special notice" area can contain several symbols. The following symbols are defined by the NFPA 704 standard.

W	Reacts with water in an unusual or dangerous manner (e.g., cesium, sodium, sulfuric acid)
OX	Oxidizer (e.g., potassium perchlorate, ammonium nitrate, hydrogen peroxide)

Labeling Responsibilities

- Manufacturer responsible for labeling.
- All chemicals must have labels.
- Labels must not be removed or defaced.
- If a label is missing:
  - Contact your supervisor or program coordinator
  - Program coordinator will contact vendor or manufacturer to obtain appropriate labeling.

Employee Training Requirements

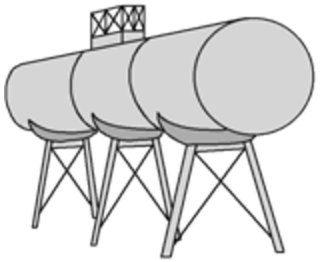
- Apply to any employee who may be potentially exposed to a hazardous chemical.
- Training to consist of:
  - Operations in work area where hazardous chemicals are present.
  - Location of written program, chemical inventory and MSDS sheets.
  - Methods used to detect the presence or release o f hazardous chemicals
  - Physical/Health Hazards of chemicals in the work area.
  - Protection Measures.
  - Types of labeling systems.

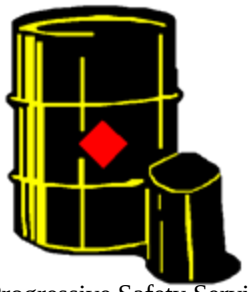
Contractors

- Communicate program to the contractor.
- Communicate hazardous chemicals they may come into contact with.
  - Provide MSDS sheet
- Communicate emergency response activities.
- Require contractor to provide MSDS sheets for hazardous chemicals they bring into the facility.

Chemical States and Storage

- Solids
- Liquids
- Gases
- Stored in bags, drums, tanks, pressure vessels, cylinders, tankers, process systems, etc.



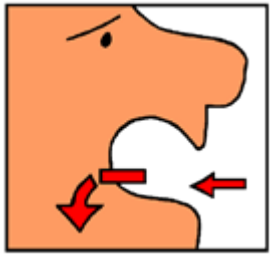


Chemical Hazards

- Physical Hazard
  - flammable
  - explosive
  - Reactive
  - Combustible
  - Oxidizer
  - Unstable
  - Pyrophoric
  - Water- Reactive

Health Hazards

- Causes adverse health effects when people are overexposed.
  - Illness
  - Disease
  - Physical harm
- Acute vs. Chronic



Types of Health Hazards

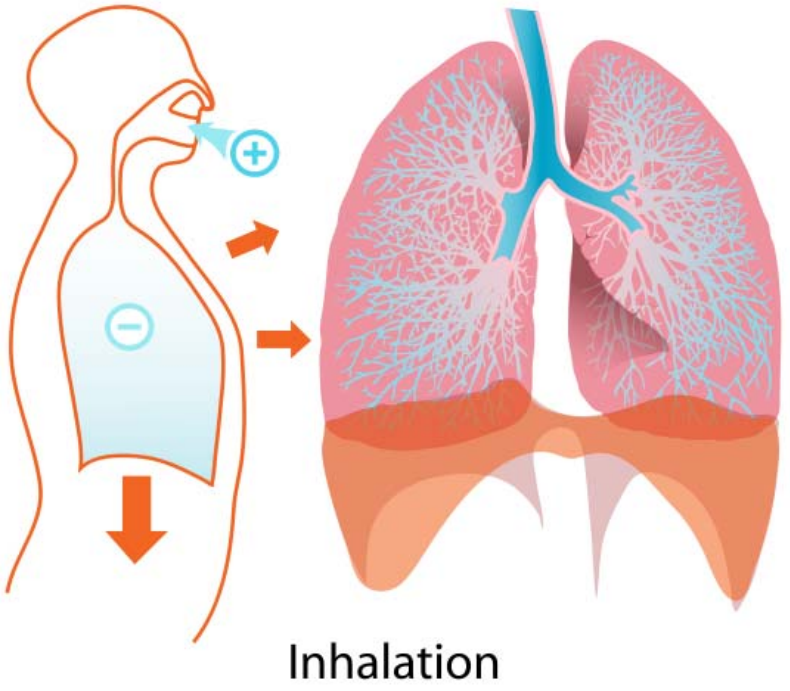
- Carcinogen - may cause cancer
- Corrosive - destroys or damages tissue
- Highly Toxic - can kill you quickly
- Irritant - harms your skin at contact site.
- Sensitizer - Causes allergic reaction
- Target Organ Effects - specific damage to body organ (liver, kidneys, etc.).

Exposure Limits

- PEL (Permissible Exposure Limit)
  - not exceed over 8 hours
- TLV (Threshold Limit Value)
  - not exceed over 8 hours
- STEL (Short Term Exposure Limit)
  - must not exceed over 15 minute period
- IDLH (Immediately Dangerous Life & Health)

Chemicals – Routes of Entry

- Inhalation
- Absorption
- Ingestion
- Injection



Controlling Exposure

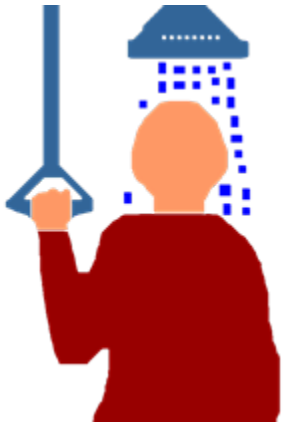
- Elimination
- Substitution
- Engineering Controls
- Administrative Controls
- Personal Protective Equipment

Chemical Safety on the Job

- Know hazards of chemicals you work with or around.
- Know emergency procedures
- Assume all new chemicals are hazardous.
- Ensure engineering controls are working.
- Wear PPE
- Inspect PPE

Chemical Safety on the Job

- Know the Location of Emergency Equipment:
  - Fire Extinguishers
  - Emergency Showers
  - Eyewash
  - Exits
  - Spill Kits
  - Emergency Escape Bottles
- Know Emergency Procedures
  - Spills, Fires, Exposure, Etc.



Questions????