Hazard Communication
also known as
“Right to Know” and
“Right to Understand”

Presented by:
Risk Management and Safety
Camp Auburn Safety Annex
971 Camp Auburn Road
Auburn University, Alabama
Hazard Communication involves the communication of hazards about chemicals, also known as the “Right To Know” and “Right to Understand”.

It is the responsibility of the department, as well as your own, to handle chemicals safely, understand chemical **labels**, and understand the **Safety Data Sheets (SDSs)**.
The Hazard Communication Standard (HCS) requires chemical manufacturers, distributors, or importers to provide SDSs (formerly known as Material Safety Data Sheets or MSDSs) to communicate the hazards of hazardous chemical products. As of June 1, 2015, the HCS will require new SDSs to be in a uniform format, and include the section numbers, the headings, and associated information under the headings below:
Section 1, Identification includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.

Section 2, Hazard(s) identification includes all hazards regarding the chemical; required label elements.

Section 3, Composition/information on ingredients includes information on chemical ingredients; trade secret claims.

Section 4, First-aid measures includes important symptoms/effects, acute, delayed; required treatment.
Section 5, Fire-fighting measures; lists suitable extinguishing techniques, equipment; chemical hazards from fire.

Section 6, Accidental release measures; lists emergency procedures; protective equipment; proper methods of containment and cleanup.

Section 7, Handling and storage; lists precautions for safe handling and storage, including incompatibilities.
Section 8, Exposure controls/personal protection; lists OSHA's Permissible Exposure Limits (PELs); Threshold Limit Values (TLVs); appropriate engineering controls; personal protective equipment (PPE).

Section 9, Physical and chemical properties; lists the chemical's characteristics.

Section 10, Stability and reactivity; lists chemical stability and possibility of hazardous reactions.

Section 11, Toxicological information includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.
Section 12, Ecological information*

Section 13, Disposal considerations*

Section 14, Transport information*

Section 15, Regulatory information*

Section 16, Other information, includes the date of preparation or last revision.

*Note: Since other Agencies regulate this information, OSHA will not be enforcing Sections 12 through 15(29 CFR 1910.1200(g)(2)).
1. Identification

(a) Product identifier used on the label;

(b) Other means of identification;

(c) Recommended use of the chemical and restrictions on use;

(d) Name, address, and telephone number of the manufacturer, importer, or other responsible party;

(e) Emergency phone number.
2. Hazard(s) identification

(a) Classification of the chemical

(b) Signal word, hazard statement(s), symbol(s) and precautionary statement(s). (Hazard symbols may be provided as graphical reproductions in black and white or the name of the symbol, e.g., flame, skull and crossbones);

(c) Describe any hazards not otherwise classified that have been identified during the classification process;

(d) Where an ingredient with unknown acute toxicity is used in a mixture at a concentration ≥ 1% and the mixture is not classified based on testing of the mixture as a whole, a statement that X% of the mixture consists of ingredient(s) of unknown acute toxicity is required.

SDSs Provide Detailed Information
3. Composition/information on ingredients

Except as provided for trade secrets:

For Substances

(a) Chemical name;

(b) Common name and synonyms;

(c) CAS number and other unique identifiers;

(d) Impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substance.
3. Composition/information on ingredients

For Mixtures

In addition to the information required for substances:

(a) The chemical name and concentration (exact percentage) or concentration ranges of all ingredients which are classified as health hazards and

   (1) are present above their cut-off/concentration limits; or

   (2) present a health risk below the cut-off/concentration limits.

(b) The concentration (exact percentage) shall be specified unless a trade secret claim is made or when there is batch-to-batch variability in the production of a mixture, or for a group of substantially similar mixtures with similar chemical composition. In these cases, concentration ranges may be used.
3. Composition/information on ingredients

For All Chemicals Where a Trade Secret is Claimed

Where a trade secret is claimed, a statement that the specific chemical identity and/or exact percentage of composition (concentration) has been withheld as a trade secret is required.
4. First-aid measures

(a) Description of necessary measures, subdivided according to the different routes of exposure, i.e., inhalation, skin and eye contact, injection, and ingestion;

(b) Most important symptoms/effects, acute and delayed.

(c) Indication of immediate medical attention and special treatment needed, if necessary.
5. Fire-fighting measures

(a) Suitable (and unsuitable) extinguishing media.

(b) Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products).

6. Accidental release measures

(a) Personal precautions, protective equipment, and emergency procedures.

(b) Methods and materials for containment and cleaning up.
7. Handling and storage

(a) Precautions for safe handling.

8. Exposure controls/personal protection

(a) OSHA permissible exposure limit (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available.

(b) Appropriate engineering controls.
9. Physical and chemical properties

(a) Appearance (physical state, color, etc.);
(b) Odor;
(c) Odor threshold;
(d) pH;
(e) Melting point/freezing point;
(f) Initial boiling point and boiling range;
9. Physical and chemical properties

(g) Flash point;
(h) Evaporation rate;
(i) Flammability (solid, gas);
(j) Upper/lower flammability or explosive limits;
(k) Vapor pressure;
(l) Vapor density;
9. Physical and chemical properties

(m) Relative density;

(n) Solubility(ies);

(o) Partition coefficient: n-octanol/water;

(p) Auto-ignition temperature;

(q) Decomposition temperature;

(r) Viscosity.
10. Stability and reactivity

(a) Reactivity;

(b) Chemical stability;

(c) Possibility of hazardous reactions;

(d) Conditions to avoid (e.g., static discharge, shock, or vibration);

(e) Incompatible materials;

(f) Hazardous decomposition products.
11. Toxicological information

Description of the various toxicological (health) effects and the available data used to identify those effects, including:

(a) Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact);

(b) Symptoms related to the physical, chemical and toxicological characteristics;

(c) Delayed and immediate effects and also chronic effects from short- and long-term exposure;
11. Toxicological information

(d) Numerical measures of toxicity (such as acute toxicity estimates).

(e) Whether the hazardous chemical is listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest editions), or by OSHA.
12. Ecological information (Non-mandatory)
   
   (a) Ecotoxicity (aquatic and terrestrial, where available);

   (b) Persistence and degradability;

   (c) Bioaccumulative potential;

   (d) Mobility in soil;

13. Disposal considerations (Non-mandatory)

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging.
14. Transport information (Non-mandatory)

(a) UN number;

(b) UN proper shipping name;

(c) Transport hazard class(es);

(d) Packing group, if applicable;

(e) Environmental hazards (e.g., Marine pollutant (Yes/No));
14. Transport information (Non-mandatory)

(f) Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code);

(g) Special precautions, which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises.
15. Regulatory information (Non-mandatory)

Safety, health and environmental regulations specific for the product in question.

16. Other information, including date of preparation or last revision.

The date of preparation of the SDS or the last change to it.
A SDS comes with every purchase. The supervisor or department has a designated area where the SDSs are to be located.

If you cannot locate a SDS, contact your supervisor. Your supervisor will locate and make it readily available and accessible.
As of June 1, 2015, the Hazard Communication Standard (HCS) will require pictograms on labels to alert users of the chemical hazards to which they may be exposed. Each pictogram consists of a symbol on a white background framed within a red border and represents a distinct hazard(s). The pictogram on the label is determined by the chemical hazard classification.
Health Hazard

- Carcinogen
- Mutagenicity
- Reproductive Toxicity
- Respiratory Sensitizer
- Target Organ Toxicity
- Aspiration Toxicity
Flame

Flammable Gas

Pyrophorics

Self-Heating

Emits Flammable Gas

Self-Reactives

Organic Peroxides
Exclamation Mark

Irritant (skin and eye)
Skin Sensitizer
Acute Toxicity
Narcotic Effects
Respiratory Tract Irritant
Hazardous to Ozone Layer (Non-Mandatory)
Pictograms

Gas Cylinder

Gases Under Pressure
Pictograms

Corrosion

Skin Corrosion/Burns
Eye Damage
Corrosive to Metals
Pictograms

Exploding Bomb

Explosives
Self-Reactives
Organic Peroxides
Pictograms

Flame Over Circle

Oxidizers
Pictograms

Environment (Non-Mandatory)

Aquatic Toxicity
Pictograms

Skull and Crossbones

Acute Toxicity
(fatal or toxic)
Labels

The label tells you the contents, the hazard associated with the chemical, and what part of your body it affects.

The unlabeled container could be water or it could be a strong acid. You do not know what it is so you do not know what precautions to take.

Remember, you should never remove a label from a container!

If you have any doubt about a label, contact your supervisor or RMS.
As of June 1, 2015, all labels will be required to have pictograms, a signal word, hazard and precautionary statements, the product identifier, and supplier identification. Supplemental information can also be provided on the label as needed.
<table>
<thead>
<tr>
<th><strong>Product Identifier</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CODE</strong> __________________________________</td>
</tr>
<tr>
<td><strong>Product Name</strong> __________________________</td>
</tr>
<tr>
<td><strong>Supplier Identification</strong></td>
</tr>
<tr>
<td><strong>Company Name</strong> ________________</td>
</tr>
<tr>
<td><strong>Street Address</strong> __________________________</td>
</tr>
<tr>
<td><strong>City</strong> ________________ <strong>State</strong> ______</td>
</tr>
<tr>
<td><strong>Postal Code</strong> ____________ <strong>Country</strong> ______</td>
</tr>
<tr>
<td><strong>Emergency Phone Number</strong> ____________</td>
</tr>
</tbody>
</table>
Precautionary Statements

Keep container tightly closed. Store in cool, well ventilated place that is locked.
Keep away from heat/sparks/open flame. No smoking.
Only use non-sparking tools.
Use explosion-proof electrical equipment.
Take precautionary measure against static discharge.
Ground and bond container and receiving equipment.
Precautionary Statements

Do not breathe vapors.
Wear Protective gloves.
Do not eat, drink or smoke when using this product.
Wash hands thoroughly after handling.
Dispose of in accordance with local, regional, national, international regulations as specified.
In Case of Fire
Use dry chemical (BC) or Carbon dioxide (CO2) fire extinguisher to extinguish.

First Aid
If exposed call Poison Center.
If on skin (on hair): Take off immediately any contaminated clothing. Rinse skin with water.
Hazard Pictograms

Signal Word

Danger

Hazard Statement

Highly flammable liquid and vapor
May cause liver and kidney damage
Supplemental Information

Directions for use

Fill weight: __________ Lot Number ______
Gross weight: __________ Fill Date: ______
Expiration Date: ____________
Sample Label

Product Identifier

CODE
Product Name
Supplier Identification
Company Name
Street Address
City State
Postal Code Country
Emergency Phone Number

Precautionary Statements
Keep container tightly closed. Store in cool, well ventilated place that is locked.
Keep away from heat/sparks/open flame. No smoking.
Only use non-sparking tools.
Use explosion-proof electrical equipment.
Take precautionary measure against static discharge.
Ground and bond container and receiving equipment.
Do not breathe vapors.
Wear Protective gloves.
Do not eat, drink or smoke when using this product.
Wash hands thoroughly after handling.
Dispose of in accordance with local, regional, national, international regulations as specified.

In Case of Fire: use dry chemical (BC) or Carbon dioxide (CO2) fire extinguisher to extinguish.

First Aid
If exposed call Poison Center.
If on skin (on hair): Take off immediately any contaminated clothing. Rinse skin with water.

Hazard Pictograms

Signal Word
Danger

Hazard Statement
Highly flammable liquid and vapor. May cause liver and kidney damage.

Supplemental Information
Directions for use

Fill weight: Lot Number
Gross weight: Fill Date: Expiration Date:
Labels Provide Basic Information

- Chemical’s identity
- Name/address of manufacturer or supplier
- Physical hazards
- Health Hazards
- Storage and handling
- Protective clothing, equipment, and procedures

If a label gets removed, destroyed or covered, you must replace the label with the above information.
The NFPA system uses a diamond-shaped diagram of symbols and numbers to indicate the degree of hazard associated with a particular chemical or material. These diamond-shaped symbols are placed on containers of chemicals or materials to identify the degree of hazard associated with the chemical or material.
Special Hazard Information

- An open space at the bottom of the NFPA diagram can be used to indicate additional information about the chemical or material. This information may include the chemical or material's radioactivity, proper fire extinguishing agent, skin hazard, its use in pressurized containers, protective equipment required, or unusual reactivity with water. Some examples of those are below:

  - OX or OXY indicates a material that is an oxidizer.
  - W indicates a material that is water reactive.
  - ALK indicates a material that is alkali.
  - COR indicates a material that is corrosive.
  - RAD indicates a material that is radioactive.
The HMIS labeling system operates on the same principle as the NFPA diamond.

- Blue = health hazard
- Red = flammability
- Yellow = reactivity
- White = Special information (personal protective equipment)
Specific sections of an HMIS® label include the following:

Health

- The Health section conveys the health hazards of the material. The blue Health bar has two spaces, one for an asterisk and one for a numeric hazard rating. If present, the asterisk (*) signifies a chronic health hazard, meaning that long-term exposure to the material could cause a health problem such as emphysema or kidney damage.
- The numbering system is a 0 to 4 scale where 0 indicates minimal hazard and 4 indicates an extreme hazard.
Flammability

- The numbering system is a 0 to 4 scale where 0 indicates minimal hazard and 4 indicates an extreme hazard.

Reactivity

- The numbering system is a 0 to 4 scale where 0 indicates minimal hazard and 4 indicates an extreme hazard.
Personal Protection

- HMIS® uses the white section to indicate what PPE should be used when working with the material.
- HMIS® uses a letter coding system or variant for this section. Below is the lettering scheme along with a series of graphics meant to reinforce the meaning of each letter:
Secondary Labels Protect Others

Make sure others have the benefit of the same information that you had. If you put some chemical into a new container, label it with information from the original label.

Only containers that you fill and use up yourself over one shift may be with out labels.
Signs, placards, process sheets, batch tickets, operating procedures, or other written materials may be used in lieu of affixing labels to individual stationary process containers, as long as the alternative method identifies the containers to which it is applicable and conveys the information required on secondary containers.
Physical vs. Health Hazards
Which substance would you consider most hazardous.

These containers are acceptable, you know what it is!

The less you know about a material, the more hazardous it is to you.
What is Considered A Hazard?

**Physical hazard:**
- Corrosive to metal
- Compressed gas
- Explosive
- Flammable
- Organic Peroxide
- Oxidizer
- Pyrophoric
- Self heating
- Self reactive
- Contact with water results in flammable gas

**Health hazard:**
- Carcinogens
- Acute toxicity
- Reproductive toxins
- Serious eye damage or eye irritation
- Skin corrosion or irritation
- Respiratory or skin sensitization
- Germ cell mutagenicity
- Specific organ toxicity
- Aspiration hazard
Hazardous Materials are used all over Campus

The following are just some of the hazardous materials found on campus:

- Asbestos
- Chlorine
- Cleaners
- Freon
- Paint
- Solvents
- Sulfuric Acid
- Water treatment chemicals
Physical state is one of the factors in determining how hazardous a material is and in deciding what precautions, such as personal protective equipment, are necessary.
Materials Whose Physical State can be Hazardous include:

- Flammable Gases
- Aerosols
- Liquids
- Solids
Materials Whose Physical State can be Hazardous include:

Compressed gas (Gases in containers under pressure)

Explosives (Substance that react rapidly and violently)

Oxidizers (Materials that give off oxygen and simulate combustion)
Hazardous Chemicals Affect You:

The effects hazardous chemicals have on you.

Make you sick (toxic/Irritant)
ie. Silica Gel, glycine

Catch fire or explode (flammable, combustible, or reactive chemicals)
ie. Pine oil, gasoline
Chemicals that enter your body affect it. Different kinds and doses of chemicals can have different effects. The effects can be acute or chronic and also systematic or localized.

Let’s take a closer look at the differences!!
What is the Difference?

**Localized**
- Site of contact: On body
- This is like an organic coming in contact with your skin and burning it!

**Systematic**
- Widespread: Throughout body
- This is like inhaling vapors and causing damage to your lungs

**Acute**
- Short-term: Health problems
- This is like the effects alcohol has on the brain and kidneys.

**Chronic**
- Long-term: Health problems
- This is like the effects of alcohol on the liver over time.
Some chemicals travel in the body to a particular organ where they build up. You call this organ the chemical’s target organ.

- Carbon monoxide targets the blood
- Lead targets the blood, nervous, and reproductive system

While there, the chemical may prevent that organ or body system from working at its best.
How do chemicals enter the body? Chemicals can enter your body in 4 different ways.

Most commonly by breathing

But also by:
So be aware!

Yes! You can prevent chemicals from entering your body if you are careful, follow safe work practices, and wear PPE when necessary.
Asphyxiation can occur through inhalation if there is not enough oxygen ($O_2$) in the area or if something prevents your body from getting the oxygen it needs.

This happens when gas fills up a room or space and pushes all the air out, there will not be enough oxygen to breathe.

Asphyxiation decreases the amount of oxygen to your brain. This can damage the brain or cause death.

Example: Carbon Monoxide attaches to blood cells and prevents the cells from carrying $O_2$ to the rest of the body, this is a chemical asphyxiant.
Exposure to Chemicals

An exposure is the amount of a chemical you come in contact with. This is usually measured by its concentration in the air.

Skin exposure is more difficult to measure than exposure through breathing.
Who is most affected by exposure?

The larger person may still be affected but less extreme.

The smaller person is likely to take in a bigger dose per pound of body weight.
Be Aware of your Surroundings!!

Use primarily sight and monitoring devices to detect for hazard.

Smell is an unreliable indicator of chemicals. You may get used to the smell and no longer be able to detect it. Also, some chemicals do not have a smell!

Example: The presence of Radon & Asbestos can only be determined by actual tests. Carbon Monoxide cannot be detected by smell either.
Hazards You May Encounter on Campus
Dusts, mists, vapors, gases, droplets, and fumes all float in the air you breathe. They can settle on your skin, or get into your eyes, nose, lungs, mouth. They can irritate, damage, or build up in your body.

A common dust like flour or even fluorescent bulb dust can irritate your nose, throat, and lungs.
At very high concentrations and under the right conditions, some dusts can be explosive.

The smaller the particle, the more reactive the dust. As the materials become smaller, they disperse and remain suspended, increasing the potential for ignition and propagation of the reaction.

An example is excess organic material created from dumping corn into a silo.
Liquids can spill, run, splatter, and splash.

Chemical burns or irritation can occur if certain liquids splash in your eyes.

Skin contact with some chemicals can produce rashes or be absorbed.
Gases float in the air at normal temperatures and pressures. Because gases float, they are hard to contain if released.

Also, they move in air, you can inhale them. This is dangerous if they are poisonous. Gases can also irritate or burn tissue they contact.

Chlorine is not only a poison by inhalation, it is also very irritating to the skin.
Some organic substances such as alcohol and gasoline, are good fuel for fires. You call the temperature at which enough liquid evaporates to fuel a fire the vapor’s **flash point**.

The warmer the room, the more a liquid will evaporate. When there is enough vapor, a spark or other source can ignite it. A fire in an enclosed space can cause an explosion.
When you put gas into a container, you push it into a smaller and smaller space. This increases the pressure in the container.

If the container leaks, released gas can cause the container to travel at great speeds that can cause injuries.
Unlike gases, solids take on a definite form at normal temperatures and pressures. If a solid breaks or if you grind it, you produce a dust or a powder. Dusts mix in the air and you can inhale them.

This can be hazardous. For example, if you inhale dust from a powdered drain cleaner that is corrosive, it could burn your throat, nose, and lungs.
If you heat a solid to a high enough temperature fumes form. Fumes mix in the air as dust do and you can inhale them. This can be hazardous. When your heat welding flux or other metals, you produce fumes. Flux cord arc welding produces the highest amount of fumes, and shielding metal arc welding the next highest.
By-products of work can release hazardous chemicals

Hazardous by-products can be the result of mixing different chemicals

An example of a hazardous by-product
- Bleach and ammonia (chlorine gas is formed)
- Sodium hydroxide and nitric acid (Caustics and acids)
Solvents can produce skin irritation or be inhaled as a vapor, which causes adverse health effects.

To protect yourself from solvent vapors, first use adequate ventilation.

To protect your skin, use proper gloves

Proper Personal Protective Equipment must be used.
The proper PPE must be used to provide barriers between you and the solvents you use. Examples of solvents include:

- Alcohol
- Benzene
- Mineral spirits
- Trichloroethane
- Turpentine
Flammable liquids have flash points below 100°F.

Combustible liquids have a flash point above 100°F.

Such liquids are dangerous because their flash points may be near room temperature.

Remember! the lower the flash point, the more hazardous it is.
A scale, called the pH scale, measures how acidic or basic a chemical is. Basic (caustic) chemicals have a pH between 8 and 14. Very caustic chemicals can burn your skin and eyes.

i.e. Battery acid
Sulfuric acid

i.e. Saliva
Pure water

i.e. Bleach
Oven cleaner
Acids have pH readings between 1 and 6. Very acidic chemicals can also burn the skin and eyes and eat quickly through materials.

Inhaled acid or caustic dusts can irritate or burn your respiratory track.
You call the ability of a chemical to eat into a material **corrosivity**. The farther the pH of a material is from 7, the more corrosive it is.

Corrosive materials are hazardous. You must handle them with caution and wear the proper PPE.
Have you ever walked into an area where paints or various chemicals have been used and find yourself becoming itchy, swollen, teary, or even tight in the chest?

Some individuals may have worked around these same chemicals for years and then find out that the reaction was suddenly caused by these same chemicals. This is becoming sensitized.

Once sensitized, you may react to that chemical for the rest of your life! You may be allergic.
Use these safe work practices when handling chemicals:

- Do not spill, splash, or drop them.
- Use flammable and combustibles away from open flames, sparks, and other sources of heat.
- Do not eat or smoke on the job.
- Wash your hands before going on break or eating.
Personal Protective Equipment
PPE is the barrier between you and the hazardous material you are working with. There are many factors to consider when choosing the proper PPE.

For example:

- Type of PPE
- Material PPE should consist of
- Durability
- Care of PPE
- Availability of the PPE
- Expense

Let’s take a closer look!
The SDS is where you can find out which PPE is right for the particular chemical. This is why it is important to know the location of the SDS. If questions still arise about the PPE, ask your supervisor.
Choose the Proper PPE

PPE is used to protect you from injury to the eyes, hands, face, skin, and respiratory system.

To prevent skin absorption you must wear personal protective equipment made of the proper material. Choosing the right gloves is especially important to protect the hands.

Look on to see the importance of glove use.
Gloves

- No glove is good against all hazards.
- Gloves have a finite lifespan and must be periodically replaced.
- When donning gloves, examine them for signs of tears, cracks, holes and dry rot.
- Hands should always be washed after removing gloves.

Only certain gloves can offer the proper protection of certain chemicals.
Face Protection

Face protection is necessary when splashing or flying pieces may be encountered and even when working around dust.

Equipment that can be used includes:

- Face shield
- Safety eye glasses
- Eye goggles

Look on to see the importance of eye protection
Eye Protection

Your eyes are very sensitive & delicate and therefore are easy to injure. You do not want to get chemicals in your eyes!
You can inhale many substances in many work operations. You can inhale substances in various forms, including:

- Vapors
- Gases
- Dusts
- Mists
- Metallic Fumes
- Fibers

Respiratory Protection is necessary when hazardous chemicals reach unacceptable levels in the workplace.
Respiratory Protection

Respirators protect:

- The highly absorbent tissues in your nose from being damaged
- Your lungs if chemicals enter through inhalation. If chemicals enter your lungs it can cause damage or be transported to the rest of your body

If you think you need a respirator, talk with your supervisor or call RMS. If a respirator is needed, you will become part of the Respiratory Protection Program.
Protective Clothing

- Often hazard specific.
- To be considered effective, protective clothing must prevent the contaminant from reaching the clothing or skin of the wearer!
Cause of concern

- Intense heat
- Splashes of hot metals and other hot liquids
- Impacts from tools, machinery, and materials
- Cuts
- Hazardous chemicals
- Radiation
Body Protection

Provide protective clothing for parts of the body exposed to possible injury

- Types of body protection:
  - Vests
  - Aprons
  - Jackets
  - Coveralls
  - Full body suits
PPE Usage

- PPE that is required to safely conduct University work should be purchased by the work unit.
- Supervisors are responsible for ensuring that PPE is available and worn.
- You are responsible for wearing & maintaining PPE, and reporting worn or defective PPE to your supervisor.
Storage, Waste & Disposal
Store all chemicals and waste in a safe and secure area. The chemicals should be stored in a structurally sound, good condition container with a tight fitting cap. The container should be compatible with the material.

Leave 10-20% headspace in the container to prevent pressure build up.
Certain chemicals should not be stored together. For example:

- **Halogenated** separated from **non-halogenated**
- **Solids** separated from **liquids**

Solvents and low boiling point chemicals generate vapors and should be stored in a well ventilated area.
Remember!

Always try to minimize the waste generated by using alternatives when possible.

Never dump chemicals or chemical waste down the drain. For example:
- Toxics, Flammables, Mercury, Gasoline, Acids, or Caustics

Never leave waste in an area that is subject to public contact.
If there is chemical waste that needs to be disposed of, contact RMS.

RMS will pick up the waste and store it prior to final disposition.

The chemical waste must be properly labeled.

- If it is in the original container with original label, that label will be sufficient. If the original label is not readable, it should be replaced with a facsimile.
Chemical Waste Pick-up

You will also need a chemical waste label, provided by RMS. Include the following information:

- Accumulation Start Date
- Container type
- Physical State
- Generator information (P.I., Dept., Bldg., Room, Telephone)
- Waste description (Name, CAS #, Quantity)
- Amount (Total Volume or Mass)
- Container size
- Signature
The departmental supervisor or their designee must provide effective workplace specific training on hazardous chemicals that are located in the work area and whenever a new physical or health hazard is introduced into the work area.
The workplace specific training must provide information on:

- How to access an SDS for each chemical in the master list.
- The labeling system used in the work place.
- The physical and health hazards of the hazardous chemicals in the work area.
- Special precautions to follow when working with hazardous chemicals.
- How to reduce or prevent overexposure to hazardous chemicals.
- Steps that the department has taken to reduce or prevent exposure to hazardous chemicals.
Training con’t

- Methods and observations you may use to detect the presence of a hazardous chemical.
- Procedures to follow if you are exposed to hazardous chemicals.
- The health hazards, symptoms, first aid and emergency procedures to follow, in case of overexposure.
- Procedures to follow when a spill or leak occurs.
- How and when to use PPE.
- How to provide outside contractors the information about chemical hazards in the work place.
- The potential hazards associated with non routine tasks, and the control measures used to ensure safety. (Non routine tasks are those which are not a part of the normal day-to-day activities).
If you are unsure about the use and handling of a chemical, ask your supervisor or someone who does have knowledge about it.

RMS is here to help you! Contact them at 844-4805 if you have any questions.
References

OSHA 29 CFR 1910.1200

www.ehs.ilstu.edu/research/biosafety/documents/ISUHazComtraining.ppt

www.ehs.okstate.edu/modules/hazcom/index.htm

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