
HAZCOM - Training

The OSHA HazCom Standard

- **The Right-To-Know**
- **SDS (Safety Data Sheets)**
- **Chemical Listings**
- **Labels and Warnings**
- **Notification of Workplace Hazards**
(authorized and affected employees/students)

Hazard Communication Standard

- The standard maintains that workers have the right to know the health hazards associated with their exposure to toxic substances:
 - A right to make an informed decision
 - Trained to observe symptoms of toxic effects

The New Globally Harmonized System

The Globally Harmonized System (GHS) is an international approach to hazard communication, providing agreed criteria for classification of chemical hazards, and a standardized approach to label elements and safety data sheets. The GHS was negotiated in a multi-year process by hazard communication experts from many different countries, international organizations, and stakeholder groups. It is based on major existing systems around the world, including OSHA's Hazard Communication Standard and the chemical classification and labeling systems of other US agencies.

Recent Changes to Standard:

- **Hazard classification:** The definitions of hazard have been changed to provide specific criteria for classification of health and physical hazards, as well as classification of mixtures. These specific criteria will help to ensure that evaluations of hazardous effects are consistent across manufacturers, and that labels and safety data sheets are more accurate as a result.
- **Labels:** Chemical manufacturers and importers will be required to provide a label that includes a harmonized signal word, pictogram, and hazard statement for each hazard class and category. Precautionary statements must also be provided.
- **Safety Data Sheets:** Will now have a specified 16-section format.

Inventory

- **UL Lafayette is required to maintain a list of all hazardous chemicals present in the work area. The list must include:**
 - **Each hazardous chemical by the primary name on the label**
 - **Type of container hazardous chemical is stored**
 - **Amount of hazardous chemical**
 - **Chemical abstract number (CAS).**
 - *****This is collected by EH&S every year.**

Hazard Definition

- A toxic or hazardous substance has the capacity to produce personal injury or illness to a person through ingestion, inhalation, or absorption through any body surface.
- This concerns any material that is known to be present in the work area in such a manner that personal may be exposed under normal conditions of use or in a foreseeable emergency.



What is a Hazard Chemical?

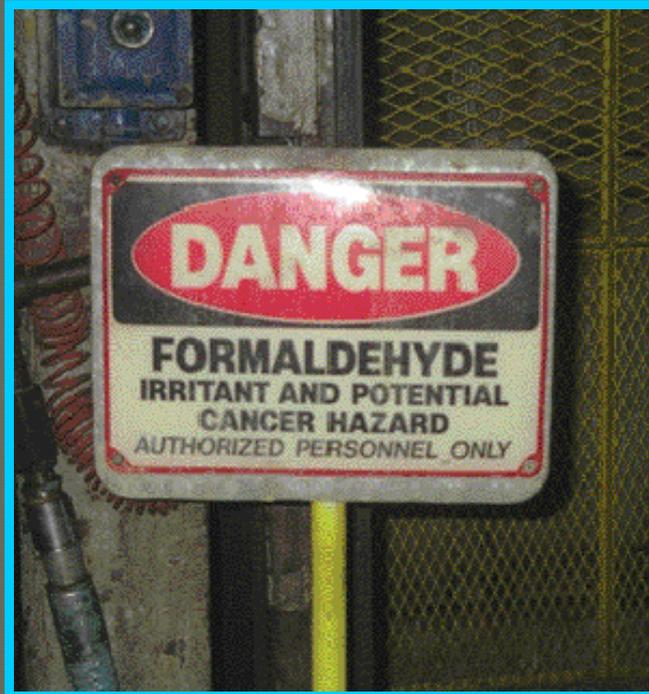


A chemical is considered to be **HAZARDOUS** if it is a **PHYSICAL** or a **HEALTH** hazard.

HazCom Physical Hazard

- **Examples of Physical Hazards:**
 - **Explosives**
 - **Flammable Aerosols, Gases, Liquids and Solids**
 - **Oxidizing Gases, Liquids and Solids**
 - **Gases Under Pressure**
 - **Pyrophoric Liquids and Solids**
 - **Self-Heating and Self-Reactive Substances**
 - **Substances which, in contact with water emit flammable gases**
 - **Organic Peroxides**
 - **Corrosive to Metals**

HazCom Health Hazards



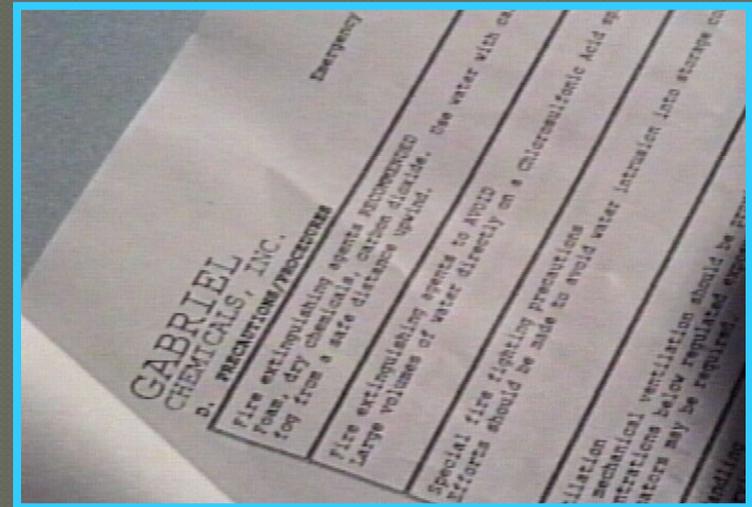
A chemical that has been scientifically proven to cause either **CHRONIC** or **ACUTE** health effects in exposed employees

HazCom Health Hazards

- **Acute Toxicity** (quickly overwhelmed)
- **Skin Corrosion/Irritation**
- **Serious Eye Damage/Eye Irritation**
- **Respiratory or Skin Sensitization** (Reactions)
- **Germ Cell Mutagenicity**
- **Carcinogenicity**
- **Reproductive Toxicology**
- **Target Organ Systemic Toxicity - Single Exposure**
- **Target Organ Systemic Toxicity - Repeated Exposure**
- **Aspiration Toxicity** (Aspiration is the entry of a liquid or solid directly through the oral or nasal cavity, or indirectly from vomiting, into the trachea and lower respiratory system.)

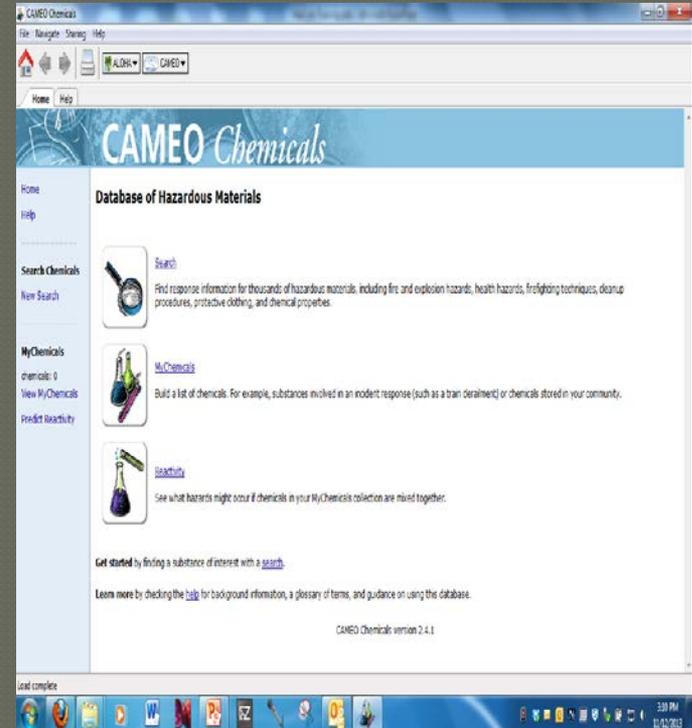
Safety Data Sheets

- The safety data sheet (SDS) gives details on chemical and physical dangers, safety procedures, and emergency response techniques.
- They may be obtained from the CAMEO Chemicals Program (downloaded to individual hard drives). CAMEO can be found in Software Center or by calling the help desk.

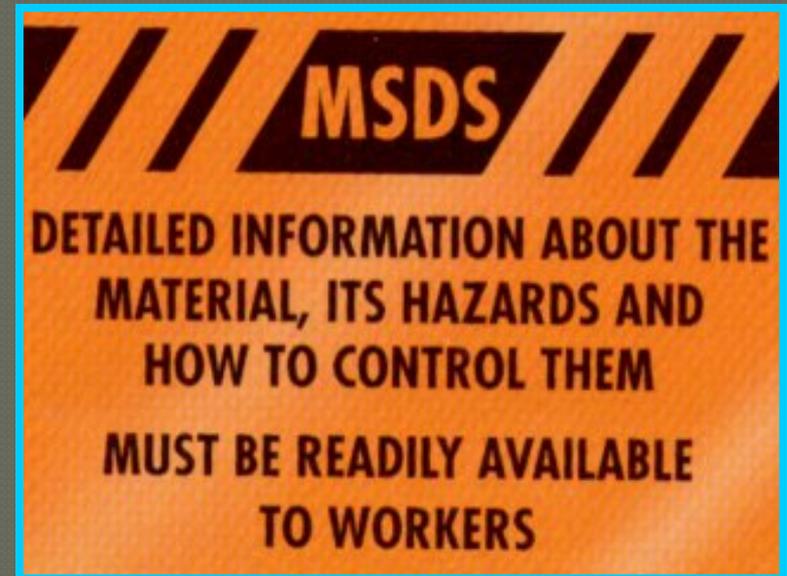
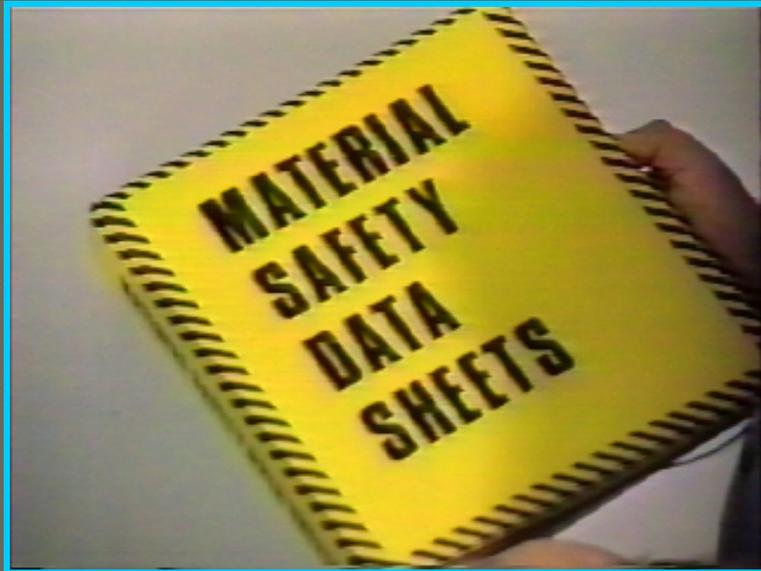


Where can you find them?

- Chemicals are logged in the CAMEO software
- CAMEO can be found in the software center or by calling the help desk



Hard Copies are Still Encouraged



SDS Sections

- Section 1. Identification
- Section 2. Hazard(s) identification
- Section 3. Composition/information on ingredients
- Section 4. First-Aid measures
- Section 5. Fire-fighting measures
- Section 6. Accidental release measures
- Section 7. Handling and storage
- Section 8. Exposure controls/personal protection
- Section 9. Physical and chemical properties
- Section 10. Stability and reactivity
- Section 11. Toxicological information
- Section 12. Ecological information
- Section 13. Disposal considerations
- Section 14. Transport information
- Section 15. Regulatory information
- Section 16. Other information, including date of preparation or last revision

Labeling Elements (updated requirements)

- **Pictogram:** a symbol plus other graphic elements, such as a border, background pattern, or color that is intended to convey specific information about the hazards of a chemical. Each pictogram consists of a different symbol on a white background within a red square frame set on a point (i.e. a red diamond). There are nine pictograms under the GHS. However, only eight pictograms are required under the HCS.
- **Signal words:** a single word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. The signal words used are "danger" and "warning." "Danger" is used for the more severe hazards, while "warning" is used for less severe hazards.

Labeling Elements, cont.

- **Hazard Statement:** a statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard.
- **Precautionary Statement:** a phrase that describes recommended measures to be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical, or improper storage or handling of a hazardous chemical.
- **Supplier Information**

Labeling Exceptions

- Pipes or piping systems
- It is not required to label portable containers into which hazardous materials are transferred from labeled containers, and which are intended only for the immediate use of the employee who makes the transfer



Signs & Symbols

HCS PICTOGRAMS & HAZARDS

Health Hazard



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

Flame



- Flammables
- Pyrophorics
- Self-Heating
- Emits Flammable Gas
- Self-Reactives
- Organic Peroxides

Exclamation Mark



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

Gas Cylinder



- Gases under pressure

Corrosion



- Skin Corrosion/ burns
- Eye Damage
- Corrosive to Metals

Exploding Bomb



- Explosives
- Self-Reactives
- Organic Peroxides

Flame over Circle



- Oxidizers

Environment (Non-mandatory)



- Aquatic Toxicity

Skull & Crossbones



- Acute Toxicity (fatal or toxic)

Labeling of Shipped Chemicals

- Under the revised Hazard Communication Standard (HCS), pictograms must have red borders.
- OSHA believes that the use of the red frame will increase recognition and comprehensibility. The red frame is required.
(regardless domestic or international)

What's wrong with this picture?





CHEMICAL X

DANGER



HAZARD STATEMENTS:

Fatal If swallowed.
Causes severe skin burns and eye damage.

PRECAUTIONARY STATEMENTS:

- Wear protective gloves.
- Wear face protection.
- Do not eat drink or smoke when using this product.
- Wash hands thoroughly after use.
- Store in a sealed container.
- **IF ON SKIN:** Rinse immediately with with cool water.
- **IF IN EYES:** Rinse thoroughly with water and seek medical attention.
- **IF SWALLOWED:** Do not induce vomiting. Seek medical attention.

Dispose of contents/container in accordance with local regulations.
Chemical X Manufacturing, 1234 Over There St., (123) 456-7890

See the S.D.S for more information.

Sample of New Labeling Requirements

EPICHLOROHYDRIN ¹

UN No. 2023

DANGER ²

⁴ Flammable liquid and vapor. Toxic if swallowed.
Toxic in contact with skin. Causes severe skin burns
and eye damage. May cause an allergic skin reaction.
May cause cancer.

⁵ Do not breathe dust/fume/gas/mist/vapors/spray.
Wear protective gloves/protective clothing/eye protection

Fill Weight: 18.52 lbs.

Lot Number: A032311323

Gross Weight: 20 lbs.

Fill Date: 1/15/2012

Expiration Date: 1/13/2018

⁶

HYPOTHETICAL CHEMICAL CORP. • Quincy, Massachusetts, USA



Number Description (previous)



1. 2-Propanol
2. Danger!

- 3.** Highly flammable liquid and vapor
Causes mild skin irritation.
Causes serious eye irritation.
May cause drowsiness or dizziness.

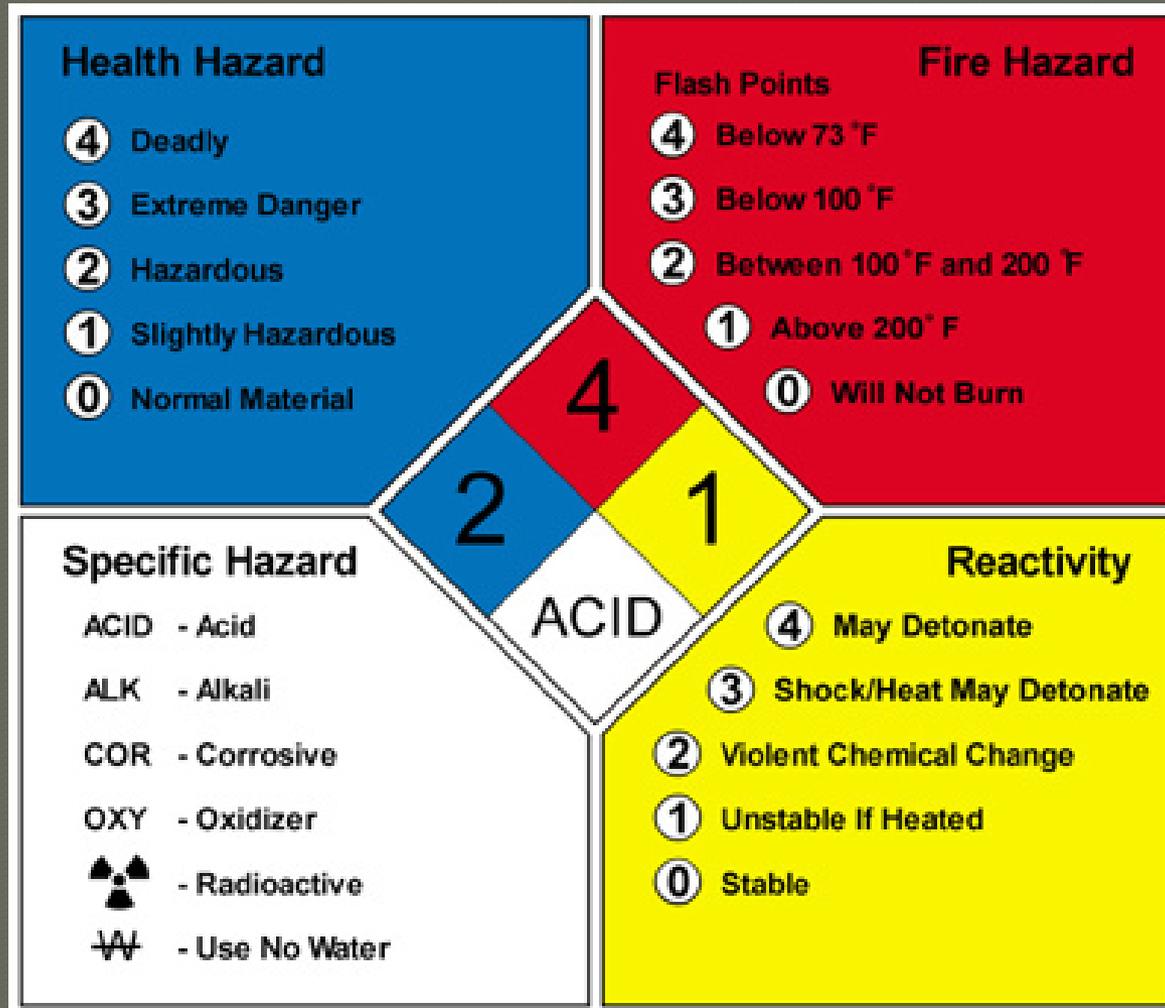


5.
Keep away from heat/sparks/open flames/hot surfaces. - No Smoking. Avoid breathing dust/fume/gas/mist/vapours/spray. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. May be harmful if inhaled. Causes respiratory tract irritation. Vapors may cause drowsiness and dizziness. May be harmful if absorbed through skin. Causes skin irritation. Causes eye irritation. May be harmful if swallowed.

6.
Acme Chemical
101 Main Street
Anywhere, USA

- 1. Product Identifier / Ingredient Disclosure** - Chemical name, product name, or other unique identifier.
- 2. Signal Word** - When required, the signal word indicates the severity of the hazard of the chemical - "Danger" for more severe and "Warning" for less severe.
- 3. Hazard Statement** - Standardized phrases that describe the nature and degree of hazard.
- 4. Pictograms** - A black symbol on a white background with a red border which conveys information about the hazards of a chemical.
- 5. Precautionary Statement** - Standardized phrases that describe recommended measures that should be taken to minimize or prevent adverse effects that result from exposure to the chemical, or from improper handling or storage.
- 6. Supplier Identification** - Name, address, and phone number of the chemical manufacturer, importer, or other responsible party.

NFPA Diamond (may still be found in industry)



HMIS Labeling System (may still be found in industry)

HMIS®

HEALTH		
FLAMMABILITY		
PHYSICAL HAZARD		
PERSONAL PROTECTION		

HMIS 10000 (PLCA - Personalized L.A.S.) Version 10 - 1-800-367-6800

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM

HMIS®

HAZARD INDEX		PERSONAL PROTECTION INDEX
4 = SEVERE HAZARD	An asterisk (*) or other designation corresponds to additional information on a data sheet or separate chronic effects notification	A
3 = SERIOUS HAZARD		B
2 = MODERATE HAZARD		C
1 = SLIGHT HAZARD		D
0 = MINIMAL HAZARD		E
Additional Information		F
PERSONAL PROTECTION EQUIPMENT		
A Safety Glasses	n Synthetic Apron	o Face Shield & Eye Protection
p Gloves	q Boots	r Synthetic Apron
s Full Suit	t Chem. Respirator	u Upper Extremities
w Chem. & Vapor Absorber	y Full Face Respirator	z Hazardous Material
		x Consult your supervisor or S.O.P. for "SPECIAL" handling directions

Resource Conservation and Recovery Act

- The Resource Conservation and Recovery Act (RCRA) is the public law that creates the framework for the proper management of hazardous and non-hazardous solid waste.
- The law describes the waste management program mandated by Congress that gave the Environmental Protection Agency (EPA) authority to develop the RCRA program.

What is a Hazardous Waste?

- Under RCRA, a Hazardous Waste is a solid waste that is **ALSO**
 - Listed in the Code of Federal Regulations
 - **OR**
 - Is a Characteristic Waste
- A hazardous waste characteristic is a property which, when present in a waste, indicates that the waste poses a sufficient threat to merit regulation as hazardous. EPA established four hazardous waste characteristics: ignitability, corrosivity, reactivity and toxicity.

Toxicity

- Toxicity Characteristic Leaching Procedure (also known as T-Clip Test)
- Sample mixed with Acetic Acid and tumbled for 18 hours
- Filter the mixture
- Contaminants measure in the filtered liquid
- Regulatory Chart gives the limits

Corrosivity

- Solutions – PH must be either less than 2 or greater than 12.5
- Non-aqueous Liquids – corrode steel greater than $\frac{1}{4}$ " per year.

Reactivity

- Materials that Explode (per the DOT definition)
- React violently with water or air
- Release toxic vapors or gasses
- Capable of generating Cyanide or Sulfide Gas

Ignitability

- Liquids with a flashpoint of less than 140 degrees Fahrenheit
- Oxidizers or Organic Peroxides

What is NOT a hazard?

- Radioactive material regulated under the Atomic Energy Act
- Point source discharges subject to the National Pollutant Discharge Elimination System
- Household wastes
- Domestic sewage
- Irrigation return flows
- Reclaimed or recycled material

Cradle to Grave

- Hazardous materials are identified and tracked from the time of generation to the time they are disposed of at a Treatment Storage or Disposal Facility (TSDF)
- These materials are tracked with manifests, which are permanent and linkable documents that fully describe the material.

Categories of Generators

- Generators are categorized by the amount of hazardous materials they generate per month
- Large Quantity Generator (LQG)= more than 1000 kilograms generated per month and stored no longer than 90 days
- Small Quantity Generator (SQG)= between 100 and 1000 kilograms generated per month and stored no more than 6 months (9 months for remote locations)
- Conditionally Exempt Small Quantity Generator (CESQG)= less than 100 kilograms generated per month and cannot accumulate more than 1000 kilograms of waste (ULL is a CESQG)

Standards for LQGs

- Notify EPA and obtain EPA ID number
- Manifest hazardous wastes and keep for 3 years
- Identify and label all hazardous wastes
- Store wastes in safe and appropriate units
- Have contingency plan
- Train personnel who handle waste

Standards for SQGs

- The standards are the same as LQGs except:
 - Fewer storage regulations
 - Simpler contingency plan
 - Less stringent personnel training requirements

Standards for CESQGs

- CESQGs must
 - Identify wastes
 - Ensure that the waste is properly recycled or disposed of

Enforcement

- Louisiana is an Agreement State
- DEQ enforces the Hazardous Waste Regulation
- The fine is no more than \$32,500.00/day/violation
- The most prevalent violations are:
 - failure to train
 - improper waste storage
 - improperly labeled waste

Satellite Accumulation Areas

- Satellite Accumulations Areas are any locations at which materials are stored on campus
- May not store more than 55 gallons of 1 waste in 1 location
- May not store accumulated waste for longer than 9 months
- Cost plays a role in this

Labeling

- Words “Hazardous Waste” in letters 2” high
- Identify the waste (trade name acceptable, but not preferred)
- Start Accumulation Date

Disposal Process

- 4 pickups per year
- University pays for this (not Department)
- Waste management is important to keep cost down

Spills

- Small spills– able to be contained within 1 room and do not pose a threat to people or property
- Large spills – can spread beyond 1 room OR pose a threat to people or property

Spill procedures

- Small spills– Use proper methods to contain, neutralize, and/or clean up spill
- Large spill – Contact University Police, request first responder assistance as necessary. Make sure my office is contacted (contracted spill clean up)