CHEMICAL STORAGE

CCSD
CLARK COUNTY
SCHOOL DISTRICT

Introduction

- Protect the health and safety of students and school personnel
- Prevent fires and spills
- Save money, reduce liability
- Ensure safe handling, application, requirements and procedures, when working with and around chemicals

Learning Objectives

- To increase safety awareness regarding proper Chemical Storage Practices
- Be Aware that Chemical Incompatibilities exist and create potential loss exposures
- Identify potential Ignition Sources and Hazard Controls
- Understand types of Chemical Classes and Characteristics

Common Chemical Storage Problems

- Excessive quantities
- Unused and unneeded chemicals
- Unlabeled and unidentified chemicals
- Improper storage of incompatible chemicals near each other
- Storage in classrooms and unlocked facilities
- Corroded and leaking containers
- Untrained staff in charge of chemical storage

Storage Fundamentals

- Identify incompatible chemicals – check the Material Safety Data Sheet
- Isolate and separate incompatible materials
  - Isolate by storing in another area or room
  - Degree of isolation depends on quantities, chemical properties and packaging
  - Separate by storing in same area or room, but apart from each other

Ventilation

- Always provide adequate ventilation to reduce the potential of ignition of flammable vapors

Chemicals Found in Schools

Where Chemicals are Used	Where Chemicals are Found	Examples
Classrooms	Science laboratories	Picric acid, cyanide, formaldehyde
	Vocational classes	Oils, solvents, paints
	Art classes	Paints, solvents, rubber cement
Health Care	Nurse's office	Mercury, pharmaceuticals
Facility Maintenance	Custodial services	Floor strippers, high pH cleaning agents
	Transportation services	Oils, lubricants, antifreeze
	Grounds maintenance	Pesticides, gasoline

Types of Chemical Classes

- Flammables
- Oxidizers
- Corrosives
- Toxics

Flammables & Combustibles

The two primary hazards associated with flammable and combustible liquids:

- *Explosion*
- *Fire*

(Safe handling and storage of flammable liquids requires the use of approved equipment and practices)

Corrosives

- Any material that can rapidly cause visible destruction and permanent damage of human tissues or gradually weaken & destroy metal and other compounds (i.e. wood, concrete) by chemical action

Oxidizing Agents

- Substance that is not necessarily combustible, but may cause or contribute to the combustion of other materials, by yielding oxygen (i.e. sodium hypochlorite, O2)

Reducing Agents

- **Substances that are specially and easily oxidized. Accidental combining of oxidizing & reducing agents present a significant fire and explosion hazard???**

- All hydrocarbons and most solvents. Paper, sawdust and wood shavings are also reducing agents

General Guidelines

- Read and follow label and MSDS instructions before starting any job with a chemical
- Keep chemical containers closed when not in use
- Use only labeled containers
- Use assigned personal protective equipment and follow handling and storage instructions

General Guidelines (cont.)

- Segregation by Class of Chemicals
- Limit Quantities Stored
- Storage of Like-Class Classes of Compounds
- Consumption or storage of food / beverages should be forbidden in rooms where chemicals are stored.
- Storage areas should be equipped with fire extinguishers
- Remove and properly dispose of any substances which are in leaking containers

General Guidelines (cont.)

- Chemical storage strategies
- Chemical hygiene plan (written plan to manage the purchasing and storing hazardous chemicals)
- Importance of a current and appropriate chemical inventory

Summary

- Plan and budget for the management of chemical purchases and disposal
- Establish a chemical management plan
- Conduct periodic chemical inventories to identify hazards
- Use the smallest amount of the least hazardous chemicals possible
- Offer hazardous chemical management and safety training for school staff