California Schools JPA[SM]

SAFETY MATTERS
RISK MANAGEMENT NEWSLETTER

IN THIS ISSUE MARCH 24, 2023

GUIDELINES FOR PROPER CHEMICAL STORAGE

OBJECTIVE Safety Tips for Proper Chemical Storage and Handling to Avoid Injury or Property Damage

The safe storage of hazardous chemicals is an essential part of work safety. Chemical storage is complex—there is no one-size-fits-all plan to store chemicals—but there are regulations, and best practices that can guide the process. The general concept is to prevent chemicals from causing harm to people, property, other chemicals, or the environment.

To fully understand the hazards associated with stored chemicals you first need to know what chemicals are being stored. Safe storage begins with an up-to-date inventory of chemicals and knowledge of the hazards posed by each chemical.

There are many work situations where chemicals are routinely relied upon to get the work done. Just as important as the safe handling of these chemicals, is their safe storage. If not stored properly, chemicals can cause a fire, an explosion, or personal injury. There are some safe storage procedures that should be followed to keep workers and the workplace free of chemical-related accidents.

GENERAL CONSIDERATIONS FOR CHEMICAL STORAGE LOCATIONS

- Avoid storing materials on top of cabinets. Clearance from the ceiling must be 18 inches for sprinklered buildings and 24 inches for not sprinklered.

- Chemicals should be readily accessible and to reduce accidents, materials should not be stored on shelves higher than 5 feet (~1.5m).
- Ensure container weight does not exceed the load rating of the shelves. Heavier items and larger containers should be stored on lower shelves.
- Corrosive liquids and Particularly Hazardous Substances (PHS) shall be stored below eye level.
- Do not store chemicals in fume hoods.
- Provide adequate storage space for chemicals within your work area.
- Keep chemicals away from sources of heat or direct sunlight.
- Use secondary containment whenever possible for hazardous chemicals, and as required for all waste. Secondary containment should be large enough to contain 110% of the largest container. Use properly rated and labeled refrigerators and freezers when storing flammable materials.
- Do not store chemicals near consumables, area where food is stored or near any tools that will come into contact with food.

Segregation

As a general rule, chemicals need to be physically segregated from incompatible chemicals; some key requirements are listed below:

- Store flammable liquids in approved safety containers. Do not store anything but flammable or combustible liquids in these.
- Segregate acids from bases and other incompatible chemicals, reactive metals (sodium, potassium, magnesium).
- Keep oxidizers away from flammables and combustibles.
- Keep corrosives away from substances that they may react with and release corrosive, toxic, or flammable vapors.
- Do not store chemicals alphabetically unless they are compatible.

Storage Limitations

It is best practice to minimize the quantities of hazardous chemicals on hand whenever possible. Minimization of stored chemicals is a key way to reduce the likelihood and severity of an incident involving chemicals. It is important to note storage limitations, particularly based on fire code, each space is different and often extends to large groupings of labs or even entire floors of buildings.

Chemical Inventory and Safety Data Sheets (SDS)

Employees who use chemicals or chemical-containing products at any district owned or leased facility are required to maintain chemical inventories.

Chemical inventories are linked to a responsible party, other area contacts, and contain Safety Data Sheets (SDS). They help with compliance with federal, state and local hazardous material regulations, including Hazardous Material Storage and Use Permits, Hazard Communication, Community Right-To-Know and the Chemical Facility Anti-Terrorism Standard.

Safety Data Sheets includes information such as the properties of each chemical; the physical, health, and environmental health hazards; protective measures; and safety precautions for handling, storing, and transporting the chemical. It is important to consult the Safety Data Sheets for proper chemical handling, storage, and emergency information.

Shelving and Cabinets

- Use the SDS as a guide for making storage decisions.
- Store chemicals in well-ventilated areas, away from direct sunlight or other heat sources, and away from sparks, flames, static electricity, or other sources of ignition.
- Ensure that storage shelving material is acid resistant, secured to a permanent structure, and strong enough to support the weight of the containers. Do not overload a shelving unit.
- Use shelves with a raised lip or tilted slightly backward so containers will not slip off the edge.
- Color code the containers to correspond to the color on the shelf where it should be stored for quick access and proper storage return.
- Never store chemicals higher than eye level.

Proper Placement

- Chemicals should be placed so that incompatible substances are stored apart. For example, you do not want to store a water-reactive chemical next to a sink. (see Chemical Segregation and Storage Table)
- Chemicals should never be stored or refrigerated with food.
- Chemical containers should not be stored on top of each other or on the floor where they could accidentally be knocked over.
- Do not casually leave chemical containers wherever you last used them or set them aside to make room for other work. Take the time to return containers to their proper storage place.

Chemical Container Maintenance

- Keep chemicals in their original containers when possible.
- Ensure that each chemical container has a label. The label is a quick way of determining whether the material is a fire, health, or reactivity hazard. Replace as necessary.
- Read the chemical's Safety Data Sheet (SDS). The SDS describes the chemical's properties, hazards, and what to do if there is an accidental spill or exposure.
- Periodically inventory the chemicals and check for damaged or corroded containers, signs of leakage, or container pressure buildup.
- Make sure empty or damaged chemical containers are disposed of properly (follow the SDS for proper disposal).

CHEMICAL SPILL RESPONSE

A proper spill-kit should be accessible near chemical storage and use areas with the appropriate supplies for the chemicals in use. You may purchase one or create your own with some standard supplies. Standard operating procedures should be established for a chemical spill response. General steps should include:

1. Confine the spill: create a barrier around the outside of the spill with spill socks or hazmat booms.
2. Stop the flow: find where the liquid is coming from and shut down the source.
3. Clean up the mess: working from the outside to the inside of the spill, use the absorbents in the kit to clean up (i.e., neutralizer for acid/base, absorbent pads for petroleum, etc.).
4. Dispose of used absorbents: secure the saturated absorbents in disposal bags provided in your spill kit and dispose of them in accordance with all local, state and federal regulations.

Chemical Hygiene Plan (CHP)

OSHA's Occupational Exposure to Hazardous Chemicals in Laboratories standard (29 CFR 1910.1450), referred to as the Laboratory standard specifies the mandatory requirements of a Chemical Hygiene Plan (CHP) to protect laboratory workers from harm due to hazardous chemicals.

However, the CHP is a written program stating the policies, procedures and responsibilities that protect and can be applied to all workers from the health hazards associated with the hazardous chemicals used in that workplace. You should be familiar with your school or organization's CHP, and it should be readily available to all. The CHP is described in the OSHA document 29 CFR 1910.1450, Laboratory Standard.

RESOURCES

Safety Data Sheet Management:
Free online software to CSRM Member Districts. Utilize MSDS Online to manage your chemical inventory, print secondary labels, ensure that all staff have easy access from any mobile device to current safety data sheets for chemicals.

- **System Administration Training: Video**
- **Request a Live Training Session: Register**
- **Account Functionality Training: Video Library**

Hazardous Chemical Database: NOAA CAMEO Chemicals

This California Schools JPA fact sheet is not intended to be exhaustive. The discussion and best practices suggested herein should not be regarded as legal advice. Readers should pursue legal counsel or contact their insurance providers to gain more exhaustive advice.

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California Schools JPA℠

SIGN-IN SHEET

GUIDELINES FOR PROPER CHEMICAL STORAGE

Trainer: ______________________ Trainer's Signature: ______________________

Date: __________ Organization: ______________________ Department: ______________________

CLASS PARTICIPANTS

Name: ______________________ Signature: ______________________

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