

Good Laboratory Safety Practice

Division of Public Safety

Dept of Environmental Health & Safety



Good Laboratory Safety Practice

- Minimize all chemical exposures.
- Avoid underestimating the risk.
- Provide adequate ventilation.
- Institute a Chemical Hygiene Program.
- Observe the PEL's or TLV's
- Observe all the rules of safety.

PEL's vs. TLV's

- PEL = **P**ermissible **E**xposure **L**imit (OSHA)
- TLV = **T**hreshold **L**imit **V**alue (ACGIH)

PEL's vs. TLV's (cont.)

- PEL's and TLV's are airborne concentrations of chemicals set as limits, which are generally considered safe for the average worker.
- These limits are based on an average eight work hours in an average forty hours work week.
- PEL's are exposure levels regulated by OSHA, whereas TLV's are exposure guidelines suggested by the American Conference of Governmental Industrial Hygienists (ACGIH)

PEL's vs. TLV's (cont.)

- PEL's and TLV's can also be based on a fifteen minute exposure, which is called **STEL** (Short Term Exposure Limit).
- There can also be a limit based on a maximum exposure with no time average, which is called **Ceiling**.

Chemical Hygiene Program

- Limit exposure to chemicals
- Use proper controls
- Monitor for potential air contaminants
 - initial monitoring
 - periodic monitoring
 - employee notification
- Medical surveillance
- Engineering controls
- Administrative controls
- Personal protective equipment (PPE)

General Laboratory Safety Rules

- Avoid working alone.
- Clean up spills.
- Do not store or consume food or beverages in the lab.
- Do not smoke in the lab.
- Do not deliberately smell or taste chemicals.
- Do not use damaged glassware.
- Always shield Dewar (Vacuum) flasks.
- Wash up before leaving.

General Laboratory Safety Rules (cont.)

- No horseplay, practical jokes, or other acts of carelessness.
- Do not pipette by mouth.
- Wear proper PPE.
- Keep your work area clean.
- Properly label all chemical containers.
- Observe the SDS
 - Safety Data Sheet
- Post appropriate warning signs.
- Inspect all equipment for defects
- **Be alert to unsafe conditions and correct them when detected.**

Emergency Equipment

- Know where the emergency equipment is kept.
- Know how to use emergency equipment.
- Post signs that indicate the location of emergency equipment.
- Keep emergency equipment unobstructed at all times.
- An emergency shower and eyewash station should be within easy reach.
- Know how to safely deal with chemical spills.

Personal Protective Equipment (PPE)

- Always wear proper eye protection in the lab.
 - safety glasses or goggles
- Do not wear contact lenses in the lab.
- Wear proper gloves.
- Wear aprons or lab coats.

PPE (cont.)

- Wear closed-toe shoes.
- Wear hearing protection if the noise level is greater than 85 dBA.
- Wash arms and hands immediately after working with allergens, carcinogens, pathogenic organisms, or toxic chemicals.

Electrical & Mechanical Equipment

- All electrical equipment and services must be grounded.
- Replace frayed or deteriorated electrical cords.
- Extension cords are for temporary use only.
- Do not place electrical cords where they will be subjected to wear by friction or heat or where they may present a shock or fire hazard.
- Do not place electrical cords above ceiling tiles, through doorways or walls, or where they will present a trip hazard.

Electrical & Mechanical Equipment (cont.)

- Store flammable chemicals in “Flammable Storage” or “Explosion Proof” refrigerators or freezers only.
- Use explosion proof equipment when explosive vapors are present.
- Use proper guards
 - rotating parts
 - sharp edges
 - hot surfaces
 - machine belts, pto’s
- Do not use defective equipment.

Special Hazardous Situations

- Radioactive materials
- Lasers
- Ultraviolet radiation
- Recombinant DNA
- Chemical carcinogens
- Infectious agents
- Bloodborne pathogens
- Compressed gas
- Cryogenic liquids
- Hazardous waste

...and Most Important

Be alert to unsafe conditions and correct them
when detected.

How to reach us?

<http://www.ksu.edu/safety>

safety@ksu.edu

532-5856