Standard Operating Procedure (SOP): Chemical Storage and Handling Guidelines

This SOP provides comprehensive **chemical storage and handling guidelines** designed to ensure safe management of chemicals in the workplace. It covers proper labeling, segregation, storage conditions, handling procedures, personal protective equipment requirements, spill response protocols, and disposal methods. The goal is to minimize risks associated with chemical exposure, prevent accidents, and protect the health and safety of employees and the environment.

1. Purpose

To establish safe procedures for the storage, handling, and disposal of chemicals in order to minimize risks, prevent accidents, and comply with health, safety, and environmental regulations.

2. Scope

This SOP applies to all personnel who store, handle, or dispose of chemicals in the facility.

3. Responsibilities

- **All Personnel:** Follow guidelines and report any unsafe conditions.
- **Supervisors:** Ensure compliance and provide necessary training and resources.
- **EH&S Team:** Regularly inspect storage and handling areas.

4. Chemical Labeling

- All chemical containers must be clearly labeled with:
    - Full chemical name (no abbreviations)
    - Hazard warnings (e.g., flammable, corrosive, toxic)
    - Date received and opened
    - Responsible person or department

5. Segregation and Storage

- Segregate chemicals by compatibility group (e.g., acids, bases, flammables, oxidizers).
- Never store incompatible chemicals together (see table below).
- Store chemicals in designated, labeled, and well-ventilated storage areas.
- Keep containers tightly closed when not in use.
- Flammable chemicals must be stored in approved flammable cabinets.
- Acids and bases must be stored in acid/base-resistant cabinets.
- Secondary containment is required for liquid chemicals.

Do NOT Store Together	Reason
Acids & Bases	Violent neutralization reaction, heat, possible splattering
Oxidizers & Flammables	Potential for fire or explosion
Acids & Cyanides/Sulfides	Generates toxic gases (hydrogen cyanide or hydrogen sulfide)

Do NOT Store Together	Reason
Water Reactives & Water	Violent reaction, fire, or explosion

6. Handling Procedures

- Read Safety Data Sheets (SDS) before handling any chemical.
- Use mechanical aids or secondary containers for transport.
- Do not eat, drink, or apply cosmetics in chemical areas.
- Wash hands thoroughly after handling chemicals.
- Promptly clean up spills using proper procedures.

7. Personal Protective Equipment (PPE)

- Wear PPE as specified in the SDS, which may include:
    - Nitrile or chemical-resistant gloves
    - Safety goggles or face shield
    - Lab coat or protective apron
    - Closed-toe shoes
    - Respiratory protection (when indicated)

8. Spill Response Protocol

- Evacuate and isolate area if necessary.
- Notify supervisor and EH&S immediately.
- Use appropriate spill kit. Wear suitable PPE.
- Contain spill and clean up following established procedures.
- Dispose of spill materials as hazardous waste.
- Complete incident report.

9. Disposal Methods

- Do not pour chemicals down drains or in regular trash.
- Segregate chemical waste by compatibility.
- Label waste containers with contents and hazards.
- Arrange for waste pick-up through authorized hazardous waste disposal service.
- Maintain waste disposal records in accordance with regulations.

10. Training

- All personnel must receive annual training in chemical storage, handling, and emergency procedures.

11. References

- OSHA 29 CFR 1910.1200: Hazard Communication
- NIOSH Pocket Guide to Chemical Hazards
- SDS for all chemicals in use