
Chemical Lab Safety Rules Activity

Instructor Guide

Note to Instructor

This activity is to demonstrate the participant's knowledge of the basic safety rules for chemical labs. These rules are covered in the *Chemical Safety Lab Rules Primary Knowledge unit*. The participant is to develop safety checklists for two lab procedures.

The *Chemical Lab Safety Rules Learning Module* consists of three units:

- Chemical Lab Safety Rules Primary Knowledge
- **Chemical Lab Safety Rules Activity**
- Chemical Lab Safety Rules Assessment

For more safety learning modules and instructional modules on microtechnology, visit the SCME website (<http://scme-nm.org>).

Description and Estimated Time to Complete

This activity allows you the opportunity to demonstrate your knowledge of the basic safety rules for chemical labs. These rules are covered in the *Chemical Safety Lab Rules Primary Knowledge unit*.

In this activity you will develop safety checklists for two lab procedures. These checklists should include the safety rules that must be followed in order to safely complete each procedure.

Please review the unit on *Chemical Safety Lab Rules* prior to completing this activity.

Estimated Time to Complete

Allow at least 60 minutes.

Introduction

Employers, employees, students, instructors – anyone working with or around hazardous chemicals

- must understand what they are working with,
- must know how to protect themselves and others, and
- must have access to and be able to interpret information about the chemicals in their work or educational environment.

Everyone must know and practice the safety rules for working in a lab or manufacturing environment and the safety rules for working with and around chemicals.

Several of these safety rules are required in order to be "OSHA Compliant". [OSHA – Occupational Safety & Health Association] In case of an audit, everyone in the facility must be seen applying all safety rules.

In this activity you will develop two safety checklists for employees to follow for two specific procedures.

Activity Objectives and Outcomes

Activity Objectives

- Create a safety checklist for at least two laboratory scenarios.
- Demonstrate your understanding of the safety rules by applying them in a work or laboratory environment.

Activity Outcomes

When finalizing a checklist, ask the following question:

"If a person applies the safety rules included in this checklist, can he or she complete the required procedure safely?"

Attitude & Behavior

When developing the checklist, you are performing a task usually given to a supervisor or manager; therefore, it is your responsibility to ensure that the rules necessary to ensure safety when performing a procedure are included in the checklist.

Dependencies

Knowledge of hazardous materials, and the terminology and characteristics associated with chemicals would add to the effectiveness of this activity.

Resources

SCME's *Chemical Lab Safety Rules Primary Knowledge Unit*.

Chemical Safety Rules Activity Procedure

1. Below are three scenarios for which safety checklists are used in a manufacturing or laboratory environment.
2. Choose two of these scenarios and develop a Safety Checklist for each.
3. Use the Checklist templates provided at the end of this activity. There are twenty lines provided in each checklist. The checklists you develop may require more or less than twenty rules.

Scenarios

Employee Checklist When Entering the Laboratory

Develop a checklist for new employees. The checklist should include safety items that new employees should check prior to entering a chemical lab and upon entry into the lab. This checklist is to be used by both new and existing employees.

Pouring Solvents Checklist

Develop a procedural checklist for transferring solvents from a large manufacturer's container to smaller bottles to be used at the workstations. This checklist should include preparation, performing the procedure, and cleanup. It should also include the procedure for exposure and spill.

Lab Check for End of Shift Checklist

Develop a procedural checklist for the person(s) responsible for turning the lab over to the next shift. The purpose of this checklist is to ensure that the lab is in a clean and safe condition for the next shift of employees.

Disclaimer

The information contained herein is considered to be true and accurate; however the Southwest Center for Microsystems Education (SCME) makes no guarantees concerning the authenticity of any statement. SCME accepts no liability for the content of this unit, or for the consequences of any actions taken on the basis of the information provided.

Support for this work was provided by the National Science Foundation's Advanced Technological Education (ATE) Program.

New Employee Checklist

Develop a checklist for new employees. Your checklist should include safety items to check prior to entering the lab and upon entry into the lab. This checklist would be used by both new and existing employees.

Description (Answer)

The following rules should be included in a new employee checklist. Additional rules may be added according to the specific requirements of the facility.

- Before entering the lab
- Study the SDS (Safety Data Sheets) for the chemical(s) that you will be working with
- Wear clothing appropriate for the facility
- If you wear contacts, remove them
- Do not take food, drinks or gum into the lab
- On entry to the lab
- Locate the emergency exits
- Study the evacuation plan
- Locate the eyewash stations
- Locate the safety shower
- Locate the first aid kits

Pouring Solvents Checklist

Develop a procedural checklist for transferring solvents from a large manufacturer's container to smaller bottles to be used at the work stations. This checklist should include preparation, performing the procedure and cleanup.

Description (Answer)

The following rules and their sequence are the basic rules from the primary knowledge unit that should be included in the "pouring solvents checklist." Additional rules may be included according to the specific requirements of the facility or the detail required by the instructor / supervisor.

- New item
- Review the SDS for the solvent
- Identify the flashpoint and additional information provided by the SDS that would help to ensure a safe procedure
- Solvent station: Is the exhaust working?
- Solvent station: Is it clear of heat and ignition sources?
- Make labels for smaller bottles and affixed to bottles
- Put on proper PPE (Personal Protective Equipment)
- Locate the chemical in the storage cabinet and read the label: Is this the right chemical?
- Properly transfer larger bottle to solvent station
- Twist cap off slowly
- Fill each bottle no more than 75% full
- Cap all the bottles and clean off any drips
- Return bottle to proper storage cabinet. If empty, following the rules of the facility for rinsing and disposing of empty solvent bottles.
- Clean the work station
- Clean your PPE
- Remove your PPE and dispose of or return to proper location

Lab Check for End of Shift Checklist

Develop a procedural checklist for the person(s) responsible for turning the lab over to the next shift. This checklist will help to ensure that the lab is in a clean and safe condition for the next shift of employees.

Description (Answer)

The following rules are the basic rules from the primary knowledge unit that should be included in the "end of shift checklist." Additional rules may be included according to the specific requirements of the facility or the detail required by the instructor / supervisor.

- Eye wash stations clean and in working condition
- Safety shower clean and in working condition
- First aid kits fully stocked
- All chemicals stored in proper locations
- All work stations cleared of tools and chemicals (when applicable)
- No spills, dips, or splashes on work stations or floors
- All work stations cleaned and ready for next shift
- All exhaust systems working properly
- All PPE cleaned and stored in proper locations
- Used chemicals have been properly disposed
- All waste (trash) has been properly disposed

Summary

Before entering a lab in which hazardous materials are used, one should know the general safety rules of the lab, and the safety rules for working around chemicals, with chemicals, and for handling chemicals.

Checklist: _____

Safety Rules	<u>Complete</u>
1.	<input type="checkbox"/>
2.	<input type="checkbox"/>
3.	<input type="checkbox"/>
4.	<input type="checkbox"/>
5.	<input type="checkbox"/>
6.	<input type="checkbox"/>
7.	<input type="checkbox"/>
8.	<input type="checkbox"/>
9.	<input type="checkbox"/>
10.	<input type="checkbox"/>
11.	<input type="checkbox"/>
12.	<input type="checkbox"/>
13.	<input type="checkbox"/>
14.	<input type="checkbox"/>
15.	<input type="checkbox"/>
16.	<input type="checkbox"/>
17.	<input type="checkbox"/>
18.	<input type="checkbox"/>
19.	<input type="checkbox"/>
20.	<input type="checkbox"/>