
Interpreting Chemical Labels Activity

Participant Guide

Introduction

Microsystems fabrication facilities use a variety of chemicals. Some of these chemicals are very safe to work with. However, some chemicals have characteristics that introduce potential health and physical hazards to the environment and personal. Therefore, it is important to know what you are working with and what potential hazards exist.

When working with a chemical, the first information that you might see is contained on the chemical's label. This information is intended to warn you of any immediate hazards associated with the chemical. Once warned, you should consult the Safety Data Sheet (SDS) for additional information.

OSHA (Occupational Safety and Health Association) requires that all in-plant / in-lab containers of chemicals be labeled, tagged, or marked with the chemical's identity and any applicable hazard warnings. Many suppliers place the NFPA (National Fire Protection Association) diamond on the chemical label to indicate the physical and health hazards of a chemical. The manufacturer's address must also be on the original chemical bottle.



*Chemical Bottle with
Manufacturer's Label*

You should know the terminology associated with hazardous materials and the rules when working with and around chemicals BEFORE completing this activity.

Description and Estimated Time to Complete

This activity is a Scavenger Hunt – a scavenger hunt that allows you to demonstrate your knowledge and understanding of chemical labels, their terminology and symbols.

You will locate specific information commonly found on chemical labels. You will demonstrate your ability to locate and extract information from various chemical labels. Using this extracted information, you will develop a NFPA diamond for at least two chemicals.

Estimated Time to Complete

Allow at least 60 minutes

Objectives

- Locate specific chemical characteristics or warnings on at least 4 different common household or laboratory chemicals
- List the required items for each chemical label
- Develop NFPA diamonds for at least two chemicals

Activity Outcomes

You should be able to extract important information from a chemical's label and estimate the level of hazard for each of the NFPA categories.

Safety

While completing this activity,

- Wear vinyl or latex gloves
- Wear safety glasses
- Do NOT open any container
- Apply the safety rules associated with working with and around chemicals

Attitude & Behavior

Chemicals can harm you and can cause serious injury or death. Do NOT handle unless you have a reason to do so and are properly trained.

Team

Use the buddy system. Make sure that everyone is applying the rules of chemical and lab safety. For each chemical, test each other to make sure that you each understand the hazards of the chemical.

Facilities

If this activity is completed in a laboratory or manufacturing facility, follow the dress requirements and safety rules of the facility.

Supplies

- Safety glasses
- Chemical gloves (if you have a need to handle the chemical). Have both acid and solvent gloves available.
- Chemical Labels Scavenger Hunt Checklist (attached to the end of this activity)

Resources

These resource and other learning modules pertaining to microtechnologies can be downloaded from the SCME website (<http://scme-nm.org>) .

Hazardous Material Learning Module
Chemical Lab Safety Rules Learning Module
Interpreting Chemical Labels Primary Knowledge Unit
NFPA Ratings Primary Knowledge Unit

Documentation

The documentation for this activity can be divided into three parts:

- Scavenger Hunt Checklist
- Written report / NFPA diamonds
- Post-Activity Questions

Scavenger Hunt Checklist

For each item on the checklist, document the specific chemical or product name and the OSHA required information from the chemical's label.

Written report of findings

Write a final report that lists

- each of the chemicals used to complete this scavenger hunt,
- the OSHA required information from each chemical label, and
- the scavenger hunt items found on each chemical's label.

For two of the chemicals, develop a NFPA diamond indicating the hazard level for each NFPA category. Justify your ratings with information extracted from the chemical's label.

Post-Activity Questions

Answer the Post- Activity Questions at the end of this activity.

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.

Scavenger Hunt Procedure

- Put on chemical gloves (you may be handling the chemical bottles) and wear safety glasses (always). If working in a lab or manufacturing facility, dress appropriately.
- Review the "items" required on the scavenger hunt checklist: "Chemical Labels Scavenger Hunt Checklist"
- Using the various chemicals found in your home, laboratory or work environment, locate each of the items on the checklist on at least one chemical label.
- For each chemical that you use to complete the scavenger hunt, record the OSHA required information from the label as part of your documentation.
- Extract 5 additional hazard warnings from chemical labels for scavenger hunt items 16 – 20.
- Documentation: Write a final report that lists each of the chemicals used to complete this scavenger hunt, the OSHA required information from each chemical label, and the scavenger hunt items found on each chemical's label.
- For two of the chemicals, develop a NFPA diamond indicating the hazard level for each NFPA category. Justify your ratings with information extracted from the chemical's label.
- Answer the Post- Activity Questions at the end of this activity.

Post-Activity Questions

Questions

1. What information is required by OSHA to be on a manufacturer's chemical label?
2. Based on your findings, what additional information is commonly found on chemical labels.
3. For the corrosive, what additional items were found on the chemical label that would be important to the user?
4. For the flammable, what additional items were found on the chemical label that would be important to the user?

References

The MSDS Hyperglossary (<http://www.ilpi.com/msds/ref/index.html>)
SCME Interpreting Chemical Label Learning Module
SCME Hazardous Materials Learning Module

Name:	Date:
Procedure:	
Chemical Labels Scavenger Hunt Checklist	
SCME [02/16/10]	

Item	Chemical Identity	OSHA Required Information
1. Corrosive		
2. Solvent		
3. Flammable		
4. Poison		
5. Gloves are required		
6. Label lists at least two PPE items (record the PPE listed)		
7. Eye irritant		
8. If contact with skin, place skin under running water for 15 – 20 minutes.		
9. Do not inhale		
10. Active ingredient: (chlorine / chloride)		

11. Active ingredient: Ammonia		
12. Do not mix with Ammonia		
13. Warning on the maximum storage temperature (record temperature)		
14. Do not puncture		
15. Use in well ventilated area		
16.		
17.		
18.		
19.		
20.		

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