
KOH (Potassium Hydroxide) SDS Activity

Instructor Guide

Note to Instructor

The KOH Safety Data Sheet Research is an activity for the SDS Learning Module and SCME's MTTC Micro Pressure Sensor Learning Module.

Other units in the SDS Learning Module:

- SDS Knowledge Probe
- SDS Primary Knowledge
- SDS Internet Research Activity
- **KOH SDS Activity**
- SDS Activity Assessment for KOH
- SDS Final Assessment

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

Description and Estimated Time to Complete

This activity allows you to learn more about KOH (Potassium Hydroxide), a chemical used in the fabrication of MEMS. You will study the SDS for KOH and write a safety procedure for process technicians that work with KOH.

Estimated time to complete:

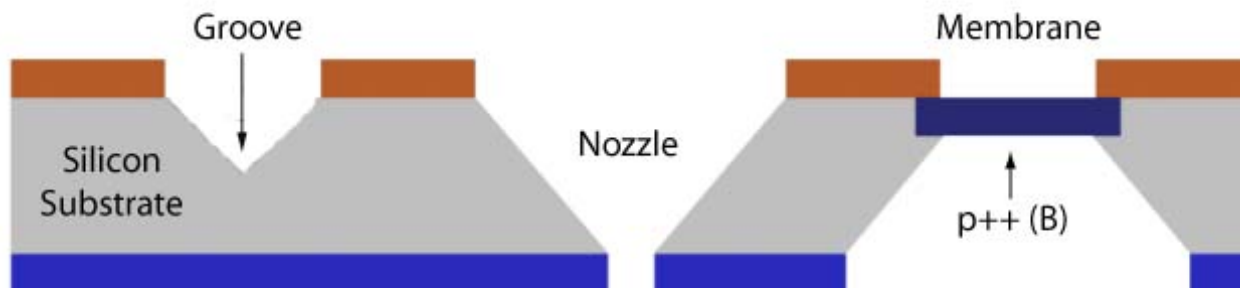
Allow approximately 2 hours

NOTE: Safety Data Sheets (SDS) used to be called Material Safety Data Sheets (MSDS). Some websites and documentation you find in this activity may still use the term MSDS.

Introduction

KOH (Potassium Hydroxide) is one of the most used liquid chemical etchants for creating channels, grooves, and cavities in silicon crystal wafer substrates for microsystems devices.

Wet Etch Pattern



Anyone working within a lab or fabrication environment in which MEMS are made will be working around, if not with KOH. Therefore, it is imperative that one understands the information provided on the SDS and implements all safety precautions and safety rules when working in the cleanroom.

For those technicians actually working with KOH, it is imperative that they have a thorough understanding of the potential hazards of the chemical and how to prevent problems from occurring. They also need to know how to respond to any problem that could arise, such as exposure or spill.

Activity Objectives and Outcomes

Activity Objectives

- Locate a KOH SDS on an Internet site
- Demonstrate your understanding of the safety precautions for working with KOH by writing a safety procedure for KOH process technicians (those technicians that perform or oversee a KOH process)

Activity Outcomes

A process technician should be able to clearly read, understand and implement your safety procedure and use it in the fabrication facility (the cleanroom).

Safety

KOH is a hazardous chemical. In addition to making use of the information provided in the SDS, one should always apply the general safety rules for working with chemicals.

Attitude & Behavior

Chemicals are dangerous and can kill if handled improperly! A small spill of a corrosive could release toxic fumes into the air. Some of the spilled chemical could also come into contact with the skin causing severe burns. This is why it is important to understand the potential dangers of a chemical and know how to identify its hazards.

Use this exercise to become confident in working with and around KOH in a lab environment.

Documentation

- Prepare a written safety procedure that could be used by KOH process technicians to adequately prepare for working with and around KOH. Use the template attached to this activity.
- Be sure to record all sources of your information under Resources.
- Documentation should reflect your understanding of the terminology associated with a SDS.

KOH SDS Internet Research Activity

Complete this procedure to gain familiarity with a KOH SDS.

Work with one or two other students to complete this activity.

Procedure

1. Locate at least two SDS's for KOH.
2. Study the SDSs and highlight the information that one should know before starting to work with or around KOH.
3. Use the highlighted information to create a Technician Safety Procedure for KOH. Use the template provided at this end of this activity.
4. In your safety procedure you should include resources and definitions of terms critical to the understanding of this document.
5. Switch finished procedures with another team. Identify the strengths and weaknesses of their procedure and how their procedure might be stronger than yours in specific areas.
6. With the other team, discuss the comparisons and evaluations.

References

SCME's Safety Data Sheet Primary Knowledge unit

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IMPORTANT STEPS (Identify the critical steps for working with KOH – Before, During, After, and any steps for special procedures such as spills or exposure)	KEY POINTS (List the key points or critical information for each step)	REASON (State the reason for knowing, completing and understanding each step)
<i>BEFORE: Read the SDS for Potassium Hydroxide. Know the potential hazards.</i>		
<i>Know what to do in case of a spill or exposure. Know the symptoms of exposure.</i>		
<i>Check the exhaust fan and make sure it is working. Dress in the require PPE.</i>		
<i>DURING: Wear PPE at all times. Work only under ventilation.</i>		
<i>If KOH comes in contact with skin, go to the emergency shower immediately and rinse for 15 minutes. If inhaled, evacuate to a safe area and call 911.</i>		
<i>AFTER: Wipe down station. Neutralize residue or small spills with a dilute of acetic acid. Wipe down all acid gear before removing.</i>		
Resources SDS - Science lab http://www.sciencelab.com/SDS.php?SDSId=9927230		
Terminology		