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# Safety Data Sheets (SDS)

## Knowledge Probe (KP) Instructor Guide

### Note to Instructor

Being able to locate and interpret a Safety Data Sheet (SDS) is important to anyone involved in the fabrication of MEMS devices. MEMS fabrication requires several hazardous chemicals. A SDS explains these hazards and provides information necessary to protect one's self and how to respond to an emergency involving a certain chemical. One should always study a chemical's SDS prior to working around or handling a chemical.

The Safety Data Sheets Knowledge Probe (KP) assesses the participant's knowledge on purpose and content of Safety Data Sheets. It does not assess a participant's ability to read or interpret a SDS. It is recommended that this be used as a pre-test to assess the participant's current knowledge and to introduce the material that will be introduced in the primary knowledge (PK) unit and activities.

This SDS KP is the first unit of the Safety Data Sheets Learning Module.

- **SDS Knowledge Probe**
- SDS Primary Knowledge
- SDS Activity
- SDS Activity for KOH
- SDS Assessment for KOH Activity
- SDS Final Assessment (assesses knowledge and skill in locating, interpreting and applying the information on a SDS)

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

### KP Description and Purpose

Being able to locate and interpret a Safety Data Sheet (SDS) is important to anyone involved in the fabrication of MEMS devices. MEMS fabrication requires several hazardous chemicals. A SDS explains these hazards and provides information necessary to protect one's self and how to respond to an emergency involving a certain chemical. One should always study a chemical's SDS prior to working around or handling a chemical. *(Note: Prior to 2013 SDS was called MSDS)*

This knowledge helps you to identify what you do and don't know about the SDS.

**Following are ten (10) knowledge probe questions. Answer them to the best of your knowledge.**

1. What is a SDS?
- a. Standard Data Sheet
  - b. Safety Data Statistics
  - c. Safety Data Sheet
  - d. Supplier Data Sheet

**Answer:**

***c. SDS means Safety Data Sheet.***

2. For which type of chemicals does OSHA require a SDS?
- a. Only those that pose a health hazard
  - b. Only those that are flammable
  - c. Only those that are considered hazardous to health and environment
  - d. All chemicals in a facility

**Answer:**

***d. ALL chemicals on the premises must have a SDS.***

3. Who is responsible for developing a SDS for a chemical?
- a. OSHA
  - b. The chemical manufacturer
  - c. The chemical buyer
  - d. NFPA

**Answer:**

***b. The chemical manufacturer is responsible for creating and updating the SDS.***

4. OSHA requires that SDS's are readily accessible to all employees. This can be through having accessible copies on the premises or having access to the Internet to acquire a copy.
- a. True
  - b. False

**Answer:**

***b. FALSE. Providing access to the Internet to acquire a SDS is not considered "readily accessible".***

5. Which of the following is NOT a mandatory requirement by OSHA to be included in a SDS?
- a. Physical / Chemical Properties
  - b. Handling and Storage requirements
  - c. Control Measures
  - d. Transport information

**Answer:**

***d. Transport information.***

6. In which section of a SDS would you find the safety information listed in Figure 1?
- Health Hazards and First Aid
  - Spill or Leak Procedures
  - Control Measures
  - Fire / Explosion Hazards Data

**Isolate area when spilled**  
**Safety Goggles**  
**Chemical resistant clothing**  
**Use respirator for**  
**Frequent / heavy exposures**

Figure 1.

**Answer:**

*b. These items are found in Spill or Leak procedures.*

7. Which of the following is considered a "product name"?
- Ammonia
  - Chlorine solution
  - Window cleaner
  - Cl<sub>2</sub>

**Answer:**

*c. Window cleaner is a product name, not a chemical name.*

8. The information in Figure 2 would be found in which section of a SDS.
- First-aid measures
  - Hazard Identification
  - Physical and chemical Properties
  - Stability and Reactivity

**Vapor pressure = 760 mmhg @ 13 C**  
**Pungent odor**  
**Colorless**  
**Boiling point = 54.5 F (12.5 C)**

Figure 2

**Answer:**

*c. Physical and chemical properties*

9. PEL stands for \_\_\_\_\_.

**Answer:**

***PEL means permissible exposure limit.***

10. In which section of a SDS would one find "conditions to avoid?"
- Health Hazards
  - Physical / Chemical Properties
  - Fire and Explosion Hazard Data
  - Reactivity Data

**Answer:**

***d. "Conditions to avoid" refers to a chemical's reactivity properties.***

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