

EXPERIMENT HANDOUT: Material Safety Data Sheet

Chemicals and other hazardous materials are an integral component of the laboratory environment. A Material Safety Data Sheet (MSDS) provides both workers and emergency personnel with the proper procedures for handling a particular substance. MSDS's include information such as physical data, toxicity, health effects, first aid, reactivity, storage, disposal, protective equipment, and spill/leak procedures. MSDS's vary in length from 1 to 10 pages, with most being 2 to 4 pages. MSDS's are not intended for use by the general consumer that occasionally works with a substance. Rather, MSDS's are for employees who may be occupationally exposed to a hazard at work (40 hrs/week or confined spaces), employers who need to know proper storage and handling, and emergency responders. In the U.S., the Occupational Safety and Health Administration (OSHA) requires that MSDS's be available to employees for potentially harmful substances handled in the workplace under the Hazard Communication regulation. OSHA defines a hazardous chemical as any liquid, solid, or gas that could present a physical or health hazard to an employee. OSHA requires each department such as chemistry, biology, photography, and ceramics to maintain Material Safety Data Sheets readily available for employee viewing. There are numerous websites that offer MSDS's; some are free while most charge. When chemicals are shipped, they are accompanied by a MSDS. Also note that the National Fire Protection Association (NFPA) ratings are the blue, red, yellow, and white diamond labels you see on many hazardous chemical containers.

HEALTH HAZARD-BLUE:

- 4 – Deadly
- 3 – Extreme Danger
- 2 – Hazardous
- 1 – Slightly Hazardous
- 0 – Normal Material

REACTIVITY-YELLOW:

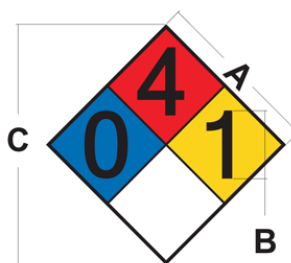
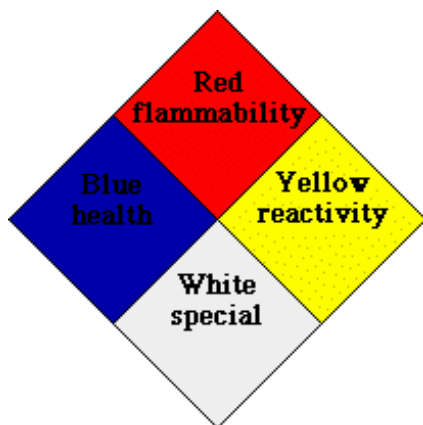
- 4 – May Detonate
- 3 – Shock and Heat May Detonate
- 2 – Violent Chemical Change
- 1 – Unstable if Heated
- 0 – Stable

FIRE HAZARD (flash points)-RED:

- 4 – Below 73°F
- 3 – Below 100°F
- 2 – Above 100°F not Exceeding 200°F
- 1 – Above 200°F
- 0 – Will Not Burn

SPECIFIC HAZARD-WHITE:

- OX – Oxidizer
- ACID – Acid
- ALK – Alkali (Base)
- COR – Corrosive
- W – Use NO Water



How do you read the middle Label? _____

Draw the correct symbols for concentrated hydrochloric acid on the last label after you have collected the data from your MSDS search. Include this cover sheet with the rest of the report.

NAME: _____

Use the MSDS found on the internet to answer the following questions, check several sources:

1a. List the other names that are synonyms of sodium hydroxide:

_____.

1b. List the other names that are synonyms of hydrochloric acid:

_____.

2. Look up the following data:

	Sodium hydroxide	Hydrochloric acid
What is its melting point?		
What is its boiling point?		
What is its density?		
What is it soluble with?		
Chemical formula		
Molar mass/molecular weight		

3. What is done in case of contact with eyes? (for both compounds)

4. How should a small spill be handled?

5. What procedure should be done if the substance is swallowed?

6. What are the NFPA Ratings for Health? Fire? Reactivity? Specific Hazard?

7. List three chemicals that should not be stored with hydrochloric acid.

8. How should solid sodium hydroxide be properly stored?

9. Describe the toxicity of each compound.

10. Find the MSDS for NaHCO_3 .

a) What is its chemical name: _____

b) What are some common names: _____

c) Are there any toxicity warnings? If so, what are they?

How would you create a safety label for NaHCO_3 .

