

Science 9
Unit 2: Chemical Reactions
Worksheet 2 : WHMIS



WHMIS The **Workplace Hazardous Materials Information System** is a national system designed to ensure that employers and employees have the information needed to handle hazardous materials safely and thus reduce the incidents of illness and injury.

The main components of WHMIS:

- hazard identification and product classification,
- labelling,
- material safety data sheets (MSDS)
- worker training and education



Controlled Product are those substances which fall into one or more of six classes.

Class A

Compressed Gas

Contents under high pressure. Cylinder may explode or burst when heated, dropped or damaged



Class B

Flammable and Combustible Materials

May catch fire when exposed to heat, spark or flame. May burst into flames.



Class C

Oxidizing Materials

May cause fire or explosion when in contact with wood, fuels or other combustible material.



Class D

Poisonous and Infectious Materials

D1 - Immediate and serious toxic effects

Poisonous substance. A single exposure may be fatal or cause serious or permanent damage to health.



D2 - Other toxic effects

Poisonous substance. May cause irritation. Repeated exposure may cause cancer, birth defects, or other permanent damage.



D3 - Biohazardous infectious materials

May cause disease or serious illness. Drastic exposures may result in death.



Class E

Corrosive Materials

Can cause burns to eyes, skin or respiratory system.



Class F

Dangerously Reactive Materials

May react violently causing explosion, fire or release of toxic gases, when exposed to light, heat, vibration or extreme temperatures.



MSDS - Material Safety Data Sheets

are information sheets on the hazards, safe handling, and first aids measures for controlled products. (Refer to Handout to identify nine categories)

PART A: MULTIPLE CHOICE

1. What does the acronym WHMIS stand for?
- (A) Workplace transportation guide
 - (B) Environmental system
 - (C) Workplace hazardous materials information system
 - (D) Workplace hazardous waste disposal system
2. Why is it important for you to be trained in WHMIS?
- (A) To get your job done faster
 - (B) To have information to protect your health and safety
 - (C) To serve our customers better
 - (D) To become aware of the dangers in your household
3. What are the 3 main communication components of WHMIS?
- (A) Labels, MSDS, and training
 - (B) Reading, writing and labeling
 - (C) Heating, waste and storage
 - (D) Stickers, shipping and storage

4. What does the symbol below mean:
- (A) Is biohazardous
 - (B) Is corrosive
 - (C) Produces toxic effects immediately upon exposure
 - (D) Produces toxic effects after prolonged exposure



5. What does the symbol below mean:
- (A) Corrosive
 - (B) Flammable and combustible
 - (C) Biohazardous
 - (D) Oxidizing material



6. What does this symbol tell you about the hazardous material?
- (A) The cylinder is too heavy to lift
 - (B) The material may eat through metal
 - (C) The material is under pressure
 - (D) The material may catch fire



7. What does this symbol tell you about the hazardous material?
- (A) It can not harm anyone
 - (B) It will Evaporate quickly
 - (C) It can be used in cleaning
 - (D) It can cause tissue damage



8. What does the symbol below indicate?
- (A) Could harm you now or in the future
 - (B) Give you an infectious disease
 - (C) Be used without having a MSDS
 - (D) Cause cancer



9. The WHMIS symbol for compressed gas is:
- (A) "T" in a circle
 - (B) a cylinder in a circle
 - (C) a flame in a triangle
 - (D) "G" in a circle
10. Supplier and workplace labels must have
- (A) The name of the product
 - (B) Safe handling or precautions
 - (C) Reference to MSDS
 - (D) All of the Above.
11. How could you protect yourself while you work with hazardous material?
- (A) Talk to your supervisor about safe work procedures
 - (B) Wear the proper protective equipment when working with this material
 - (C) Read the label and MSDS to find out how to work safely with this material
 - (D) All of the above
12. Material Safety Data Sheets should be:
- (A) Read before using a product
 - (B) Kept in a locked file
 - (C) Taped on containers
 - (D) Sent to all departments
13. A Material Safety Data Sheet (MSDS) contains information on the following:
- (A) Hazardous ingredients
 - (B) Toxicological Information
 - (C) Physical Properties
 - (D) All of the above
14. A chemical's characteristics (odor, appearance, etc) will be listed on the MSDS under:
- (A) Reactivity data
 - (B) Physical data
 - (C) Product identifier
 - (D) Toxicological properties
15. Personal protective equipment (PPE) that is recommended on a MSDS:
- (A) Should be ignored
 - (B) Does not have to be maintained
 - (C) Must be available and used by employees when required
 - (D) Does not have to be available on the unit

Use the MSDS sheet on Copper (II) Sulfate to answer the following questions. Answer must be recorded on the Scantron sheet.

16. How many sections would you find on a MSDS?
- (A) 8
 - (B) 9
 - (C) 10
 - (D) 11
17. Which section would you find the chemical formula for Copper (II) Sulfate?
- (A) Ingredients of Mixtures
 - (B) Name
 - (C) Physical Data
 - (D) Reactivity Data
18. Where would you look to find the boiling point of Copper (II) Sulfate?
- (A) Ingredients of Mixtures
 - (B) Name
 - (C) Physical Data
 - (D) Special Precautions
19. Copper (II) Sulfate is non-flammable.
- (A) True
 - (B) False
20. What should you do if Copper (II) Sulfate gets into your eyes?
- (A) Remove to Fresh air
 - (B) Flush eyes thoroughly with water for at least 15 minutes
 - (C) Wash with mild soap and water
 - (D) Give artificial respiration
21. The Reactivity Section of the MSDS indicates that Copper (II) Sulfate is unstable?
- (A) True
 - (B) False
22. Copper(II) Sulfate should not be mixed with acetylene because it may create an explosive material.
- (A) True
 - (B) False
23. Which section would you look on a MSDS to find the steps to take is the material is spilled?
- (A) 5
 - (B) 6
 - (C) 7
 - (D) 8
24. How do you dispose of Copper (II) Sulfate?
- (A) Pour it down a sink
 - (B) Put is back in the original container
 - (C) Give it to a waste disposal agency
 - (D) Put in a refrigerator

25. What protective gear should you wear when using Copper (II) Sulfate?
- (A) Just gloves
 - (B) Just a laboratory jacket
 - (C) Both gloves and a laboratory jacket
 - (D) You do not have to wear any protective gear.
26. Where should Copper (II) Sulfate be stored?
- (A) In a cool, dry place
 - (B) In a cool, damp place
 - (C) In a warm, dry place
 - (D) In a warm, damp place
27. What are some of the side effects of being overexposed to Copper (II) Sulfate?
- (A) Cause vomiting
 - (B) Burns of the cornea
 - (C) Allergic skin reaction
 - (D) All of the above

PART B: WRITTEN RESPONSE.

Instructions: Use the MSDS on Copper (II) Sulfate to answer the following questions

1. Identify the nine sections of the material safety data sheet (MSDS).

Section I: _____

Section II: _____

Section III: _____

Section IV: _____

Section V: _____

Section VI: _____

Section VII: _____

Section VIII: _____

Section IX: _____

2. What is the name of the chemical described on the data sheet assigned to you?

3. State its chemical formula. _____

4. Complete the following table:

Boiling point	
Melting point	
Appearance	
Solubility in water	

5. What would happen to you if you were overexposed to the chemical?

6. How would you give first aid to a person who has come into contact with this chemical?

7. How would you deal with this chemical if you spilled it on the lab counter?

8. When you are using this chemical, how must you protect yourself?

9. How must this chemical be stored?
