

# Lesson 3A:

Teacher's Copy

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Lesson

## Safety Conventions

	Meaning	Purpose
WHMIS	<b>WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM</b>	To identify dangerous materials used in all workplaces, including schools.
MSDS	<b>MATERIAL SAFETY DATA SHEET</b>	To give information about a particular substance's properties.
HHPs	<b>HAZARDOUS HOUSEHOLD PRODUCT SYMBOLS</b>	To indicate exactly why and to what degree a product is dangerous.

### What is an MSDS?

An MSDS is a **document** containing important information about a hazardous substance and must state:

- a hazardous substance's **PRODUCT** name
- the chemical and generic **NAME** of certain ingredients
- the chemical and physical **PROPERTIES** of the hazardous substance
- **HEALTH** hazard information
- **PRECAUTIONS** for safe use and handling
- the **MANUFACTURER'S** or importer's name, address and telephone number.

The MSDS provides employers, self-employed persons, workers and other health and safety representatives with the necessary information to safely manage the risk from hazardous substance exposure. It is important that everyone in the workplace knows how to read and interpret a MSDS.

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## Safety Conventions

Source: Science 9: Concepts & Connections, NELSON

**Table 1** WHMIS Symbols for Hazardous Materials

WHMIS symbol	Risks	Precautions
 compressed gas	<ul style="list-style-type: none"> <li>could explode due to pressure</li> <li>could explode if heated or dropped</li> </ul>	<ul style="list-style-type: none"> <li>ensure container is always secured</li> <li>do not drop or allow to fall</li> <li>store in a proper area</li> </ul>
 flammable and combustible material	<ul style="list-style-type: none"> <li>may ignite without warning</li> <li>may release flammable products when exposed to water</li> </ul>	<ul style="list-style-type: none"> <li>work in a well-ventilated area</li> <li>avoid heating</li> <li>avoid sparks and flames</li> <li>store in a proper area</li> </ul>
 oxidizing material	<ul style="list-style-type: none"> <li>may cause skin and eye burns</li> <li>increase fire and explosion hazards</li> <li>may cause combustible material to explode</li> </ul>	<ul style="list-style-type: none"> <li>wear body, hand, face, and eye protection</li> <li>store away from combustible materials</li> <li>store in a proper container</li> </ul>
 poisonous and infectious material causing immediate and serious toxic effects	<ul style="list-style-type: none"> <li>may be fatal if swallowed or inhaled</li> <li>may be absorbed through the skin</li> <li>small amounts are toxic</li> </ul>	<ul style="list-style-type: none"> <li>avoid breathing dust or vapours</li> <li>avoid contact with eyes or skin</li> <li>wear protective clothing, and face and eye protection</li> <li>work in a well-ventilated area and wear breathing protection</li> </ul>
 poisonous and infectious material causing other toxic effects	<ul style="list-style-type: none"> <li>may cause death or permanent injury</li> <li>may cause cancer</li> <li>may cause allergic reactions</li> </ul>	<ul style="list-style-type: none"> <li>use hand, body, face, and eye protection</li> <li>avoid direct contact</li> <li>work in a well-ventilated area</li> <li>store in appropriate area</li> </ul>
 biohazardous infectious material	<ul style="list-style-type: none"> <li>may cause anaphylactic shock (severe allergic reaction)</li> <li>includes viruses, yeasts, moulds, bacteria, and parasites that affect humans</li> <li>includes cellular components (e.g., infected blood plasma)</li> </ul>	<ul style="list-style-type: none"> <li>avoid breathing vapours</li> <li>avoid contamination of people and area</li> <li>work and store in special areas</li> <li>special training is required to handle materials</li> </ul>
 corrosive material	<ul style="list-style-type: none"> <li>cause eye and skin irritation on contact</li> <li>severe burns/tissue damage after long period of contact</li> <li>lung damage if inhaled</li> <li>may cause blindness if splashed in eyes</li> </ul>	<ul style="list-style-type: none"> <li>wear body, hand, face, and eye protection</li> <li>avoid all direct body contact</li> <li>use breathing apparatus</li> <li>work in a well-ventilated area</li> <li>use proper storage containers</li> </ul>
 dangerously reactive material	<ul style="list-style-type: none"> <li>may react with water</li> <li>may explode if exposed to shock or heat</li> <li>may release toxic or flammable vapours</li> <li>may burn unexpectedly</li> </ul>	<ul style="list-style-type: none"> <li>handle with care, avoiding vibration, shocks, and sudden temperature changes</li> <li>store in appropriate, sealed containers</li> </ul>

**Table 2** Hazardous Household Product Symbols

HHP symbols	Risks	Examples of household products
 corrosive	<ul style="list-style-type: none"> <li>can burn your skin or eyes</li> <li>will damage your throat and stomach if swallowed</li> </ul>	<ul style="list-style-type: none"> <li>battery acid (household and automotive)</li> <li>drain openers</li> <li>oven cleaners</li> <li>acids</li> </ul>
 flammable	<ul style="list-style-type: none"> <li>can catch fire quickly (keep this product away from heat, flames, and sparks)</li> </ul>	<ul style="list-style-type: none"> <li>gasoline</li> <li>motor oil</li> <li>barbecue starter fluid</li> <li>Varsol and other solvents</li> <li>nail polish</li> </ul>
 explosive	<ul style="list-style-type: none"> <li>container will explode if heated or punctured</li> <li>metal or plastic can fly out and hurt your eyes or other parts of your body</li> </ul>	<ul style="list-style-type: none"> <li>aerosol spray cans (e.g., hair spray)</li> <li>barbecue propane tanks</li> </ul>
 poison	<ul style="list-style-type: none"> <li>may cause serious illness or death if swallowed or licked</li> <li>fumes (vapours) may be dangerous if inhaled</li> </ul>	<ul style="list-style-type: none"> <li>paint</li> <li>pesticides</li> <li>motor oil</li> <li>over-the-counter and prescription medicines</li> <li>household cleaners (e.g., bleach)</li> </ul>



# MATERIAL SAFETY DATA SHEET

**Scholar™**  
Chemistry

5100 W. Henrietta Rd.  
West Henrietta, NY 14586  
TEL: (866) 260-0501

MSDS No. 9423303  
Effective Date: October 1, 2002

## SECTION I NAME 24 HOUR EMERGENCY ASSISTANCE

Product	Potassium Iodide, 1.0M Solution	416-984-3000 
Chemical Synonyms	Potassium Iodide, Water Solution	
Formula	Mixture.	HAZARD RATING LEAST SLIGHT MODERATE HIGH EXTREME 0 1 2 3 4
CAS No.	Mixture.	WHMIS HIGH EXTREME 3 4

## SECTION II DANGEROUS INGREDIENTS

Name	%	TLV Units
Potassium Iodide: CAS # 7681-1-1-0	16.6%	N/A
Water: CAS # 7732-18-5	83.4%	N/A

## WARNING!

## SECTION III PHYSICAL DATA

Melting Point (°C)	Freezes @ -0°C	Specific Gravity (H <sub>2</sub> O = 1)	~ 1.0
Boiling Point (°C)	~ 100°C	Percent Volatile by Volume (%)	83.4%
Vapor Pressure (mm Hg)	14 (water)	Evaporation Rate (Water = 1)	> 1
Vapor Density (Air=1)	0.7 (water)		
Solubility in Water	Complete.		
Appearance & Odor	Clear liquid; ammonia odor.		

## SECTION IV FIRE AND EXPLOSION HAZARD DATA

Flash point	Non-flammable.	Flammable Limits in Air % by Volume	N/A	Lower	Upper
Firefighting Procedures	Use dry chemical, CO <sub>2</sub> , alcohol foam, or water spray. In fire conditions, fire-fighters should wear an appropriate mask or a self-containing breathing apparatus.				

## Flammability and Explosion Hazards

In fire conditions, water may evaporate from this solution which may cause hazardous decomposition products to be formed as dust or fume.

## TDG Not controlled under TDG.

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. For laboratory use only. Not for drug, food or household use. Keep out of reach of children. Printed on recycled paper.

## SECTION V REACTIVITY DATA

Chemical Stability	Yes	No	If no, under what conditions?
Incompatible with Other products	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Alkaline metals, acids, oxidizers, bromine and chlorine trifluorides, perchlorate.
Hazardous Decomposition Products	<input type="checkbox"/>	<input type="checkbox"/>	Iodine fumes.
Reactive under what conditions	<input type="checkbox"/>	<input type="checkbox"/>	Excessive temperature may cause evaporation.

## SECTION VI TOXICOLOGICAL PROPERTIES

Route of Entry	Ingestion.
TLV	N/A
Toxicity for animals	N/A
Chronic effects on humans	Repeated or prolonged exposure to the substance can produce target organ damage. Target organs: Thyroid.
Acute effects on humans	Harmful if swallowed. May cause eye irritation, skin irritation.

## SECTION VII PREVENTIVE MEASURES

Waste Disposal	Discharge, treatment, or disposal may be subject to local laws. Consult your local or regional authorities.
Storage	Keep container dry. Keep in a cool place. Keep container tightly closed.
Precautions	Avoid contact with skin and eyes. DO NOT breathe vapor or spray. DO NOT ingest. If ingested, seek medical advice immediately.
Spill or leak	Dilute with water and mop up, or absorb with an inert DRY material and place in an appropriate waste disposal container.
Protective Clothing	Splash goggles, lab coat, vapor respirator, gloves.

## SECTION VIII FIRST AID MEASURES

**Specific first aid measures**

**Ingestion:** Call physician or Poison Control Center immediately. Induce vomiting only if advised by the appropriate medical personnel. Eye contact: Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek medical attention. Skin contact: Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Inhalation: Move victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Allow victim to rest in a well ventilated area. Seek immediate medical attention.

## SECTION IX PREPARATION OF THE MSDS

Rev. No.	2	Date	October 1, 2002	Approved	Michael Raszeja
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