



10. WHMIS Training

BACKGROUND

The Workplace Hazardous Information System (WHMIS) is Canada's national hazard communication standard. The main components of WHMIS are labelling, Safety Data Sheets (SDS) and worker training. When working with, or near, hazardous materials, a worker must have **local** WHMIS training to ensure that they understand the risks involved.

Each academic term, WHMIS training is provided by Health, Safety and the Environment. To register in a general WHMIS course, go to the training page of the HSE website (<https://hse.ok.ubc.ca/safety/training/>). The course covers the worker's right know, which is protected by the WHMIS legislation and the BC Occupational Health and Safety Legislation.

A lab specific WHMIS orientation is also required. Use this document to ensure that the appropriate information is covered during the lab level orientation. SDSs of chemicals in the lab should be available at all times and should be updated at least every 3 years.

LAB SPECIFIC INFORMATION

Location of SDS or computer for on line access

Online SDS address:

Person Responsible for Maintaining SDS:

<http://ccinfoweb.ccohs.ca/msds/search.html>

WHMIS hazards present in this laboratory are identified in the hazard checklist on the last page of this document.







WHMIS HAZARD GROUPS AND HAZARD CLASSES

The main components of WHMIS are hazard identification and product classification, labelling, safety data sheets, and worker education and training. WHMIS 2015 applies to two major groups of hazards: **physical**, and **health**. Each hazard group includes hazard classes that have specific hazardous properties. Hazard classes are a way of grouping together products that have similar properties. Most of the hazard classes are common to the Global Harmonized System (GHS) are used worldwide by all countries that have adopted GHS. Some hazard classes are specific to WHMIS 2015.




Physical hazards group

This group is based on the physical or chemical properties of the product – such as flammability, reactivity, or corrosivity to metals.



PHYSICAL HAZARDS		
Flammable gases Flammable aerosols Flammable liquids Flammable solids	Products that have the ability to ignite (catch fire) easily and the main hazards are fire or explosion	
Oxidizing gases Oxidizing liquids Oxidizing solids	Products which may cause or intensify a fire or cause a fire or explosion	
Gases under pressure	Include compressed gases, liquefied gases, dissolved gases and refrigerated liquefied gases. These are hazardous because of the high pressure inside the cylinder or container. The cylinder may explode if heated. Refrigerated liquefied gases are very cold and can cause severe cold burns or injury.	
Self-reactive substances and mixtures	These products may react on their own to cause a fire or explosion, or may cause a fire or explosion if heated. * Both the Flame and Explosive pictogram are used for Self-reactive substances and mixtures	
Pyrophoric gases Pyrophoric liquids Pyrophoric solids	These products can catch fire very quickly (spontaneously) if exposed to air	
Self-heating substances and mixtures	These products may catch fire if exposed to air. These products differ from pyrophoric liquids or solids in that they will ignite only after a longer period of time or when in large amounts.	



PHYSICAL HAZARDS		
Substances and mixtures which, in contact with water, emit flammable gases	These products react with water to release flammable gases. In some cases, the flammable gases may ignite very quickly (spontaneously).	
Organic peroxides	These products may cause fire or explosion if heated * Both the Flame and Explosive pictogram are used for Organic peroxides (Type B).	
Corrosive to metals	These products may be corrosive (chemically damage or destroy) to metals.	
Combustible dusts	Products that are finely divided solid particles. If dispersed in air, the particles may catch fire or explode if ignited.	Pictogram not required
Simple asphyxiants	Gases that may displace oxygen in air and cause rapid suffocation	Pictogram not required
Physical hazards not otherwise classified	This class covers any physical hazards that are not covered in any other physical hazard class. These hazards must have the characteristic of occurring by chemical reaction and result in the serious injury or death of a person at the time the reaction occurs. If a product is classified in this class, the hazard statement on the label and SDS will describe the nature of the hazard.	Required to have a GHS pictogram that is appropriate to the hazard identified

* Both the Flame and Explosive pictogram are used for Self-reactive substances and mixtures (Type B) and Organic peroxides (Type B).





NOTE: Physical Hazards Not Otherwise Classified and Health Hazards Not Otherwise Classified classes are required to have a GHS pictogram that is appropriate to the hazard identified.



Health hazards group

This group is based on the ability of the product to cause a health effect – such as eye irritation, respiratory sensitization (may cause allergy or asthma symptoms or breathing difficulties if inhaled), or carcinogenicity (may cause cancer).


GHS also defines an Environmental hazards group. This group (and its classes) was not adopted in WHMIS 2015. However, you may see the environmental classes listed on labels and Safety Data Sheets (SDSs). Including information about environmental hazards is allowed by WHMIS 2015.

HEALTH HAZARDS		
Acute toxicity	<p>These products are fatal, toxic or harmful if inhaled, following skin contact, or if swallowed. Acute toxicity refers to effects occurring following skin contact or ingestion exposure to a single dose, or multiple doses given within 24 hours, or an inhalation exposure of 4 hours.</p> <p>Acute toxicity could result from exposure to the product itself, or to a product that, upon contact with water, releases a gaseous substance that is able to cause acute toxicity.</p>	
Skin corrosion / irritation	<p>This class covers products that cause severe skin burns (i.e., corrosion) and products that cause skin irritation.</p>	
Serious eye damage/eye irritation	<p>This class covers products that cause serious eye damage (i.e., corrosion) and products that eye irritation.</p>	
Respiratory or skin sensitization	<p>A respiratory sensitizer is a product that may cause allergy or asthma symptoms or breathing difficulties if inhaled. Skin sensitizer is a product that may cause an allergic skin reaction.</p>	



HEALTH HAZARDS		
Germ cell mutagenicity	This hazard class includes products that may cause or are suspected of causing genetic defects (permanent changes (mutations) to body cells that can be passed on to future generations).	
Carcinogenicity	This hazard class includes products that may cause or are suspected of causing cancer.	
Reproductive toxicity	This hazard class includes products that may damage or are suspected of damaging fertility or the unborn child (baby). Note: There is an additional category which includes products that may cause harm to breast-fed children.	
Specific target organ toxicity – single exposure	This hazard class covers products that cause or may cause damage to organs (e.g., liver, kidneys, or blood) following a single exposure. This class also includes a category for products that cause respiratory irritation or drowsiness or dizziness.	
Specific target organ toxicity – repeated exposure	This hazard class covers products that cause or may cause damage to organs (e.g., liver, kidneys, or blood) following prolonged or repeated exposure.	
Aspiration hazard	Aspiration is defined as the entry of a liquid or solid into the trachea or lower respiratory system directly through the oral or nasal cavity, or indirectly by vomiting. In other words, aspiration occurs when instead of something going from your mouth or nose to your stomach (other than air), it enters the lungs. Serious health effects can occur such as chemical pneumonia, injury to the lungs, and death.	



HEALTH HAZARDS		
Biohazardous infectious materials	These materials are microorganisms, nucleic acids or proteins that cause or is a probably cause of infection, with or without toxicity, in humans or animals.	
Health hazards not otherwise classified	This class covers products that are not included in any other health hazard class. These hazards have the characteristic of occurring following acute or repeated exposure and have an adverse effect on the health of a person exposed to it - including an injury or resulting in the death of that person. If a product is classified in this class, the hazard statement will describe the nature of the hazard.	Required to have a GHS pictogram that is appropriate to the hazard identified

REFERENCES










Canadian Centre for Occupational Health and Safety (https://www.ccohs.ca/oshanswers/chemicals/whmis_ghs/general.html)

HAZARDS PRESENT IN THIS LABORATORY

The following hazardous substances are present in this laboratory:



THE FOLLOWING HAZARDS ARE PRESENT IN THIS LAB: BUILDING ROOM

Check if present:	WHMIS Classification:		Pictogram:
	Hazard Class	Hazard Group	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Gases under pressure Compressed gas Liquefied gas Refrigerated liquefied gas Dissolved gas	Physical	 Gas Cylinder
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Flammable gases (Category 1) Flammable aerosols (Category 1 & 2) Flammable liquids (Category 1, 2 & 3) Flammable solids (Category 1 & 2) Pyrophoric liquids (Category 1) Pyrophoric solids (Category 1) Pyrophoric gases (Category 1) Self-heating substances and mixtures (Category 1 & 2) Substances and mixtures which, in contact with water, emit flammable gases (Category 1, 2 & 3) Self-reactive substances and mixtures (Types B*, C, D, E and F) Organic peroxides (Types B*, C, D, E and F)	Physical (Flame)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Oxidizing gases (Category 1) Oxidizing liquids (Category 1, 2 & 3) Oxidizing solids (Category 1, 2 & 3)	Physical (Flame Over Circle)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Corrosive to metals (Category 1) Skin corrosion/irritation – Skin corrosion (Category 1, 1A, 1B & 1C) Serious eye damage/eye irritation – Serious eye damage (Category 1)	Physical (Corrosion)	
<input type="checkbox"/> <input type="checkbox"/>	Self-reactive substances and mixtures (Types A & B*) Organic peroxides (Types A & B*) <small>* Both the <u>Flame</u> and <u>Explosive</u> pictogram are used for Self-reactive substances and mixtures (Type B) and Organic peroxides (Type B).</small>	Physical (Exploding Bomb)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Acute toxicity – Oral (Category 1, 2 & 3) Dermal (Category 1, 2 & 3) Inhalation (Category 1, 2 & 3)	Health (Skull and Crossbones)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Respiratory or skin sensitization – Respiratory sensitizer (Category 1, 1A & 1B) Germ cell mutagenicity (Category 1, 1A, 1B & 2) Carcinogenicity (Category 1, 1A, 1B, & 2) Reproductive toxicity (Category 1, 1A, 1B & 2) Specific Target Organ Toxicity – Single exposure (Category 1 & 2) Specific Target Organ Toxicity – Repeated exposure (Category 1 & 2) Aspiration hazard (Category 1)	Health (Health Hazard)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Acute toxicity – Oral, Dermal, Inhalation (Category 4) Skin corrosion/irritation – Skin irritation (Category 2) Serious eye damage/eye irritation – Eye irritation (Category 2 & 2A) Respiratory or skin sensitization - Skin sensitizer (Category 1,1A &1B) Specific target organ toxicity – Single exposure (Category 3)	Health (Exclamation Mark)	
<input type="checkbox"/>	Biohazardous Infectious Materials (Category 1)	Health (Biohazardous Infectious Materials)	

In addition to the materials listed above, this lab contains the following unusual or highly hazardous materials (e.g. Hydrofluoric acid, risk group 2 biohazards, methyl mercury, or chlorine gas):

- _____
- _____
- _____