



## UBC WHMIS Program

Department of Risk Management Services

[www.rms.ubc.ca](http://www.rms.ubc.ca)

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## Workplace Hazardous Materials Information System Program (WHMIS)

### 1. PURPOSE

The purpose of the Workplace Hazardous Materials Information System (WHMIS) program is to inform employees about hazardous products used in the workplace through a combination of warning labels, hazard symbols, safety data sheets and training. A WHMIS program ensures that the information about hazardous products is effectively communicated to workers. Effective communication of information means that workers understand the WHMIS system, know the hazards of the products they work with, know and apply the safe work procedures specific to their jobs and tasks, and know how to respond in an emergency.

The federal legislation (the [Hazardous Products Act](#) and Hazardous Products Regulations) deals with the importation and sale of hazardous products. Health Canada reviews claims for confidential business information (“trade secrets”). Provincial legislation ([Chapter 5](#) of the Occupational Health and Safety Regulation – OHSR) covers the use of hazardous products in the workplace. The provincial regulation together with resources from the Canadian Centre for Occupational Health and Safety (CCOHS) are used as main references for this document.

### 2. ROLES AND RESPONSIBILITIES

#### Supervisor Responsibilities

- Educate and train workers on the hazards and safe use of hazardous products
- Establish an inventory of hazardous products
- Ensure that hazardous products are properly labeled
- Prepare workplace labels and SDSs (as needed)
- Ensure that up-to-date SDSs are easily available to workers
- Ensure effective control measures are in place to protect workers
- Provide site-specific worker education and training
- Report any incident involving hazardous materials *via* the UBC Centralized Accident / Incident Reporting System ([CAIRS](#))

#### Worker Responsibilities

- Take part in WHMIS training program
- Review WHMIS labels and SDSs prior to using hazardous products
- Ensure all containers of hazardous products are properly labeled and stored
- Follow procedures for safe handling, use, storage and disposal of hazardous products
- Use engineering controls and personal protective equipment (e.g. gloves, safety glasses, goggles, face shield, lab coat, etc.) to minimize contact and control exposures to hazardous products.
- Report hazardous or unsafe chemical incidents or exposures to their supervisor.
- Contact the supervisor if uncertain how to work safely with a hazardous product or require more information.



### Risk Management Services (RMS) Responsibilities

- Develop and review the WHMIS program with the Joint Health and Safety Committee and review and revise the program as required.
- Provide worker education and training
- Respond to or provide advice in the event of an emergency involving a hazardous product.
- Assist departments with the disposal of hazardous waste in accordance with environmental requirements.
- Assist with identification, selection and substitution of non-hazardous or less hazardous products.

### 3. INTRODUCTION

WHMIS system requires suppliers to provide safety information about their products and requires the University to educate and train everyone potentially exposed to hazardous materials.

The key elements of WHMIS 2015 are:

- **Classification** – hazardous products are classified by the types of hazards they present;
- **Labeling** – alerts workers to the identity and dangers of products and to the basic safety precautions;
- **Safety Data Sheets (SDS)** – technical bulletins which provide detailed hazard and precautionary information; and
- **Worker education and training**

WHMIS first came into effect in 1988 across Canada. It was updated in early 2015 to reflect a new set of rules called the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). To allow time for suppliers, employers, and workers to adjust to WHMIS 2015, a three-year transition period was in place. The transition period ended on November 30, 2018 and starting with December 1, 2018 WHMIS 2015 is in full effect.

### 4. CLASSIFICATION OF HAZARDS

Hazardous products are divided into two hazard groups:

- **Physical hazards**, based on the physical or chemical properties of the product (for example, products that are flammable, reactive, or corrosive to metals)
- **Health hazards**, 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)
  - Carcinogenicity (may cause cancer)

#### 4.1 Hazard Classes

The two hazard groups are further divided into **hazard classes**. Hazard classes are a way of grouping together products that have similar properties.

A hazardous product is a product that falls into one or more of the hazard classes described below. Suppliers classify these products and assign one or more **Error! Reference source not found.**

A brief description of the physical hazard classes (Table 1) and health hazard classes (Table 2) can be found below.

**Table 1. Overview of physical hazard classes**

Physical hazards class	General description
Flammable gasses Flammable aerosols Flammable liquids	These four classes cover products that have the ability to ignite (catch fire) easily. The main hazards are fire or explosion.



Physical hazards class	General description
Flammable solids	
Oxidizing gases Oxidizing liquids Oxidizing solids	These three classes cover oxidizers, which may cause or intensify a fire or cause a fire or explosion.
Gasses under pressure	This class included compressed gases, liquefied gases, dissolved gases, and refrigerated liquefied gases. Compressed gases, liquefied gases, and dissolved gasses are hazardous because of the high pressure inside the cylinder or container. The cylinder or container may explode if heated. Refrigerated liquefied gases are very cold. They can cause severe cold (cryogenic) 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.
Pyrophoric liquids Pyrophoric solids Pyrophoric gases	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 long period or when in large amounts.
Substances and mixtures which, in contact with water, emit flammable gases	As the class name suggests, these products react with water to release flammable gases. In some cases, the flammable gases may ignite very quickly (spontaneously).
Organic peroxides	These products are unstable, highly reactive, or explosive. They may cause a fire or explosion if heated.
Corrosive to metals	These products may be corrosive (chemically damaging or destructive) to metals.
Combustible dusts	This class is used to warn of products that are finely divided solid particles. If dispersed in air, the particles may catch fire or explode if ignited.
Simple asphyxiants	These products are gases that may displace (take the place of) oxygen in air and cause rapid suffocation.

**Table 2. Overview of health hazards classes**

Health hazards class	General description
Acute toxicity	These products are fatal, toxic (poisonous), or harmful if they are inhaled (breathed in), if they come into contact with skin, or if they are ingested (swallowed). “Acute toxicity” refers to effects that occur following: <ul style="list-style-type: none"> <li>• Skin contact or ingestion exposure to: <ul style="list-style-type: none"> <li>▪ A single dose, or</li> <li>▪ Multiple doses given within 24 hours</li> </ul> </li> <li>• An inhalation exposure of 4 hours</li> </ul> Acute toxicity could result from exposure to the product itself. It could also result from a product that, upon contact with water, releases a gas that can cause acute toxicity.
Skin corrosion / irritation	This class covers products that cause severe skin burns (corrosion) and products that cause skin irritation.
Serious eye damage / eye irritation	This class covers products that cause serious eye damage (corrosion) and products that cause eye irritation.



Health hazards class	General description
Respiratory or skin sensitization	A respiratory sensitizer is a product that may cause allergy or asthma symptoms or breathing difficulties if inhaled. A skin sensitizer is a product that may cause an allergic skin reaction.
Germ cell mutagenicity	This hazard includes products that may cause or are suspected of causing genetic defects. Genetic defects are permanent changes (mutations) to body cells that can be passed on to future generations.
Carcinogenicity	This hazard class includes products that cause or are suspected of causing cancer.
Reproductive toxicity	This hazard class includes products that may damage or are suspected of damaging fertility (the ability to conceive children) or embryo, fetus, or offspring. Note: there is also a category that 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 (for example, the liver, kidney, or blood) after a single exposure.  This class also includes a category for products that cause respiratory irritation drowsiness, or dizziness.
Specific target organ toxicity – repeated exposure	This hazard class covers products that cause or may cause damage to organs (for example, the liver, kidney, or blood) following prolonged or repeated exposure.
Aspiration hazard	This hazard class is for products that may be fatal if they are swallowed and enter the airways.
Biohazardous infectious materials	These materials are micro-organisms (e.g., viruses, bacteria, or fungi), nucleic acids (e.g., DNA or RNA), or proteins that cause or are probable causes 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 occur following acute or repeated exposure. They have adverse effects on the health of a person exposed to them – including injury or death. If a product is classified in this class, the hazard statement will describe the nature of the hazard.

## 4.2 Hazard Categories

Each hazard class contains at least one category. The hazard categories are assigned a number (1, 2, etc.). Categories may also be called “types”. Types are assigned an alphabetical letter (A, B, etc.). In a few cases, subcategories are also specified. Subcategories are identified with a number and a letter (for example, 1A and 1B).

The category tells you how hazardous the product is (that is, the severity of hazard).

- Category 1 is always the greatest level of hazard. If category 1 is further divided, Category 1A within the same hazard class is a greater hazard than Category 1B.
- Category 2 within the same hazard class is more hazardous than Category 3, and so on.

There are a few exceptions to this rule. For example, for the “Gases under pressure” hazard class, the hazard categories are “Compressed gas,” “Liquefied gas”, “Refrigerated liquefied gas”, and “Dissolved gas”. These classes relate to the physical state of the gas when packaged. They do not describe the degree of hazard.

Also, the “reproductive toxicity” hazard class has a separate category called “Effects on or via lactation” which was not assigned a numbered category. Reproductive toxicity also has categories 1 and 2, which relate to effects on fertility and/or the embryo, fetus, or offspring. “Effects on or via lactation” is considered a different, but related, hazard within the “Reproductive toxicity” class.

**Table 3. Hazard categories and ranking**

Hazard category	Level of hazard
1	More hazardous
2A	
2B	
3	
	Less hazardous

### 4.3 Products not covered by WHMIS 2015

The following types of products are not covered under WHMIS 2015:

**Table 4. Products not covered by WHMIS 2015**

Products	Products
Explosives	Pest control products (pesticides)
Cosmetics, devices, drugs, and foods	Wood or products made of wood
Hazardous waste	Nuclear (radioactive) substances
Manufactured articles	Tobacco and tobacco products
Consumer products (for example, cleaning products, adhesives, and lubricants)	

Many of these products are covered under other laws, and may not require a WHMIS label and SDS. However, if these products are used in the workplace, the supervisor must still provide the workers with education and training on their health effects, safe use, and storage.

## 5. PICTOGRAMS

Pictograms are graphic images that immediately show you what type of hazard a hazardous product presents. Most pictograms have a red, diamond-shaped border. Inside this border is a symbol that represents the hazard, such as fire, health hazard, corrosive, etc. Together, the symbol and the border are referred to as a pictogram. Pictograms are assigned to specific hazard classes or categories.

**Table 5. Pictograms matched to hazard classes and categories**

Pictogram	Hazard classes and categories
	<p>The <b>flame</b> pictogram is used for the following classes and categories:</p> <ul style="list-style-type: none"> <li>Flammable gases (Category 1)</li> <li>Flammable aerosols (Categories 1 and 2)</li> <li>Flammable liquids (Categories 1, 2, and 3)</li> <li>Flammable solids (Categories 1 and 2)</li> <li>Pyrophoric liquids (Category 1)</li> <li>Pyrophoric solids (Category 1)</li> <li>Pyrophoric gases (Category 1)</li> <li>Self-reactive substances and mixtures (Types B, C, D, E, and F)</li> <li>Self-heating substances and mixtures (Categories 1 and 2)</li> <li>Substances and Mixtures Which, in Contact with Water, Emit Flammable Gases (Categories 1, 2, and 3)</li> <li>Organic Peroxides (Types B, C, D, E, and F)</li> </ul>
	<p>The <b>flame over circle</b> pictogram is used for the following classes and categories:</p> <ul style="list-style-type: none"> <li>Oxidizing gases (Category 1)</li> <li>Oxidizing liquids (Categories 1, 2, and 3)</li> <li>Oxidizing solids (Categories 1, 2, and 3)</li> </ul>

Pictogram	Hazard classes and categories
	<p>The <b>gas cylinder</b> pictogram is used for the following classes and categories:</p> <ul style="list-style-type: none"> <li>Gases under pressure (compressed gas, liquefied gas, refrigerated liquefied gas, and dissolved gas)</li> </ul>
	<p>The <b>corrosion</b> pictogram is used for the following classes and categories:</p> <ul style="list-style-type: none"> <li>Corrosive to metals (Category 1)</li> <li>Skin corrosion/irritation – Skin corrosion (Categories 1, 1A, 1B, and, 1C)</li> <li>Serious eye damage/eye irritation – Serious eye damage (Category 1)</li> </ul>
	<p>The <b>exploding bomb</b> pictogram is used for the following classes and categories:</p> <ul style="list-style-type: none"> <li>Self-reactive substances and mixtures (Types A and B)</li> <li>Organic peroxides (Types A and B)</li> </ul>
	<p>The <b>skull and crossbones</b> pictogram is used for the following classes and categories:</p> <ul style="list-style-type: none"> <li>Acute toxicity <ul style="list-style-type: none"> <li>Oral (Categories 1, 2, and 3)</li> <li>Dermal (Categories 1, 2, and 3)</li> <li>Inhalation (Categories 1, 2, and 3)</li> </ul> </li> </ul>
	<p>The <b>health hazard</b> pictogram is used for the following classes and categories:</p> <ul style="list-style-type: none"> <li>Respiratory or skin sensitization – Respiratory sensitizer (Categories 1, 1A, and 1B)</li> <li>Germ cell mutagenicity (Categories 1, 1A, 1B, and 2)</li> <li>Carcinogenicity (Categories 1, 1A, 1B, and 2)</li> <li>Reproductive toxicity (Categories 1, 1A, 1B, and 2)</li> <li>Specific target organ toxicity – Single exposure (Categories 1 and 2)</li> <li>Specific target organ toxicity – Repeated exposure (Categories 1 and 2)</li> <li>Aspiration hazard (Category 1)</li> </ul>
	<p>The <b>exclamation mark</b> pictogram is used for the following classes and categories:</p> <ul style="list-style-type: none"> <li>Acute toxicity – Oral, Dermal, Inhalation (Category 4)</li> <li>Skin corrosion/irritation – Skin irritation (Category 2)</li> <li>Serious eye damage/eye irritation – Eye irritation (Categories 2 and 2A)</li> <li>Respiratory or skin sensitization – Skin sensitizer (Categories 1, 1A, and 1B)</li> <li>Specific target organ toxicity – Single exposure (Category 3)</li> </ul>
	<p>The <b>biohazardous infectious materials</b> pictogram is used for the following classes and categories:</p> <ul style="list-style-type: none"> <li>Biohazardous infectious materials (Category 1)</li> </ul>

## 6. LABELS

Under WHMIS 2015, hazardous products used, handled, or stored in the workplace must be labelled. Labels are your first alert about the major hazards of these products and outline the basic precautions or safety steps you should take.

There are two main types of WHMIS labels:

- Supplier labels
- Workplace labels

Labeling of hazardous products can also be done *via* other means of identification, for example: warning signs, color codes or placards.

Laboratory labels are a particular form of workplace label. For work in a laboratory, use the table below to identify the type of label needed.

**Table 6. Types of laboratory hazardous products and the corresponding required labels**

Type of Hazardous Product	Type of Label Required	Comments
Products purchased for laboratories	Supplier label	Label present on the product at delivery
Small containers	Supplier label (small containers)*	* Not required to have hazard statements or precautionary statements on the label (see 6.1)
Decanted products	Workplace label	Required if: <ul style="list-style-type: none"> <li>The product is not used immediately</li> <li>More than one person will be in control of the product</li> <li>The product is not used up during the shift in which was decanted</li> </ul>
Decanted products	Label of contents	<ul style="list-style-type: none"> <li>Materials transferred from their original container for use by a single individual during a shift must be labelled with the name of the material</li> </ul>
Employer-produced <u>known</u> product	Workplace label	An SDS is available for the product.
Employer-produced <u>new</u> product	Laboratory label	The hazardous product is not available on the market.
Laboratory samples	Laboratory label	Packaged in a container less than 10 kg and intended solely to be tested in a laboratory.

## 6.1 Supplier Labels

The supplier provides a supplier label for each hazardous product. Supplier labels will appear on all hazardous products received at a workplace in Canada. The written information must be shown in both English and French. Supplier labels may be bilingual (as one label) or available as two labels (one in English, and one in French).

A WHMIS 2015 supplier label must include six fields of information (Figure 1). In rare cases, supplier labels may also include *supplemental label information* giving more details about the product (e.g. physical state, route of exposure).

Supplemental label information is only included on supplier label in the following cases:

- A toxic mixture has an ingredient with unknown acute toxicity, or
- A product reacts with water to produce an acutely toxic gas.

There is no set format for a supplier label, but the pictogram(s), signal word, and hazard statement(s) must be grouped together.

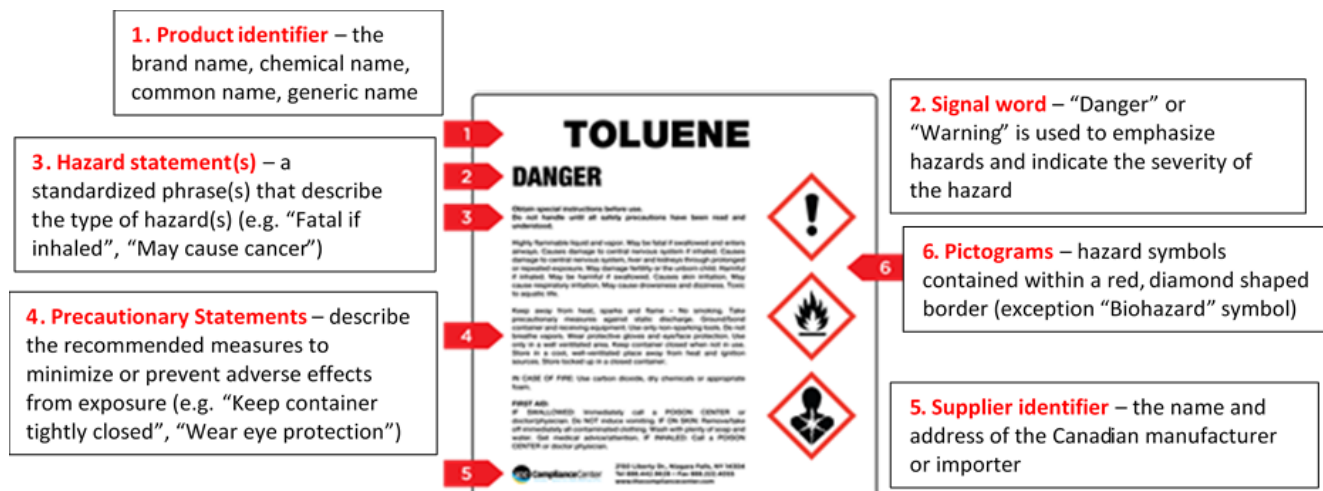
If a supplier label becomes damaged, unreadable, or is accidentally removed, it is your (the user) responsibility to replace the label with either a supplier label or a workplace label (Workplace labels).



For containers of 100 ml or less the supplier label is exempted from the requirement to have precautionary statements on the label. For containers 3 ml or less, where the label will interfere with normal use of the product, the product would be required to have a label that is durable and legible for transport and storage but may be removable during use.



It is possible in the course of your work to come across hazardous products that have a supplier label generated before WHMIS 2015 came in to effect. Before working with the product, replace the label with a WHMIS 2015 compliant label (supplier or workplace label).



**Figure 1. Explanation of mandatory fields on a supplier label**

## 6.2 Workplace labels

A workplace label is needed in the following cases:

- A hazardous product is produced (made) and used in your workplace – laboratory label
- A hazardous product is decanted (transferred or poured) into another container
- A supplier label becomes lost or unreadable.

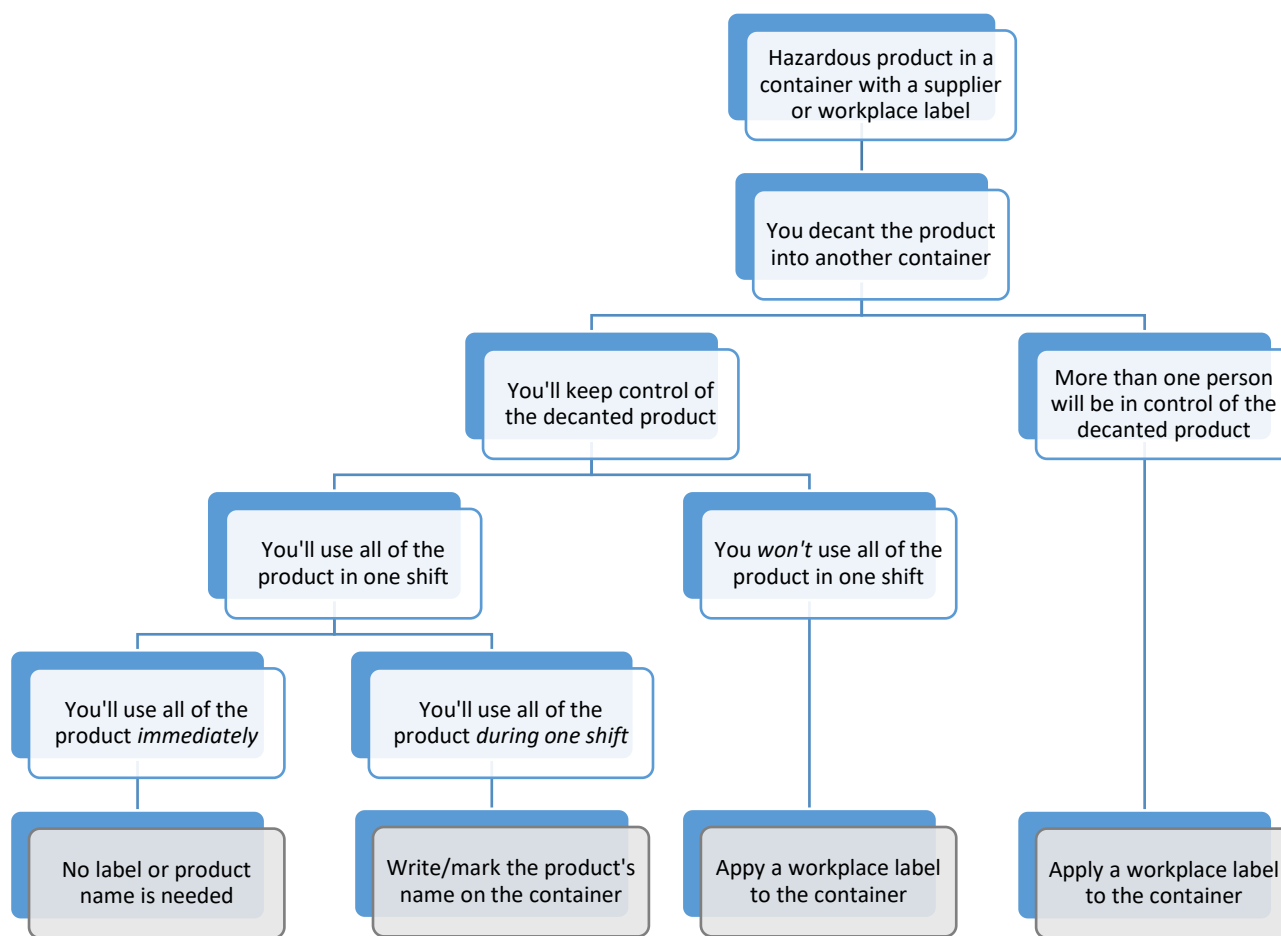
Workplace labels are not needed in two specific cases. The first case is when a hazardous product is decanted from a container that has a supplier or workplace label on it into another container and:

- The decanted product stays under the control of the person who decanted it, and
- The decanted product’s name (product identifier) is marked on the container, and
- All of the decanted product will be used during that same shift.

The second case is when you’ll use the decanted product immediately and completely. In this situation, you don’t need to apply a workplace label or write the product’s name on the container.

The following flow chart underlines the steps you need to follow in order to decide if a workplace label is needed when you decant a product.





**Figure 2. Decision process for labelling decanted products**

The format of workplace labels is flexible. The information can be written directly onto the container using a permanent marker and the wording, language(s) used can be chosen to fit the workplace.

At minimum, a workplace labels must include:

- The product identifier (name)
- Safe handling information (PPE information can be included as well)
- Reference to safety data sheet



**Figure 3. Workplace labels – various designs**

A laboratory label is required for new compounds made in a laboratory. Most hazards associated with such a new product are not known yet and an SDS is not available. Laboratory labels are also necessary for laboratory samples. These include samples for quality control testing, diagnostic specimens, and industrial hygiene samples.

A laboratory label must include:

- the product identifier

- if it is known: the chemical name or generic chemical name of any material or substance in the sample that would have to be disclosed on an SDS
- the statement “Hazardous Laboratory Sample - for hazard information or in an emergency call...” followed by an emergency telephone number for the person who can provide information that would be required on an SDS.

Refrigerators and freezers need content hazard (i.e. toxic, flammable, etc.) and explosion-proof identification.

- Chemical storage cabinets are required to have content identification signage indicating one or more of the WHMIS Hazardous Classes (pictograms or words warning i.e. corrosive, toxic, etc.).
- Cleaning baths and pipes require chemical name and/or WHMIS Hazardous Class identification.

Other hazardous products (e.g. biological agents, asbestos containing materials) have specific labeling requirements.



**Figure 4. Examples of other types of labels (non-WHMIS): a) label on a fridge storing biohazardous materials, b) labeled storage cabinet (oxidizer and acute toxic), c) label part of the UBC Asbestos Management Program, d) labels on pipes indicating the content and direction of flow.**

### 6.3 How to generate a workplace label

The inventory of hazardous materials on the UBC campus is extensive. Chemicals used in research laboratories represent a large percentage of this inventory. It is possible in course of your work to come across hazardous materials that have a supplier label generated before WHMIS 2015 came in to effect.

If you find and need to work with a hazardous product not labelled according to WHMIS 2015 take the following steps:

- Contact the supplier and ask for an updated label that will be applied over the old label.
- In the interim, find the current SDS for the hazardous product and generate a workplace label (see instructions below); place the label on the hazardous product.
- If you need assistance with creating the workplace label or for any other questions regarding the hazards of the product, contact your supervisor.

When generating a workplace label, the information can be copied from the supplier’s label or taken from the Safety Data Sheet.

1. Review the following:
  - Existing workplace label if there is one

- Supplier label
  - Safety Data Sheet
2. Copy relevant information from the above sources and record the following of the workplace label:
    - Product identifier (this must be identical to the one used on the SDS)
    - Information for safe handling
    - “See Safety Data Sheets”
  3. Attach the workplace label to the container

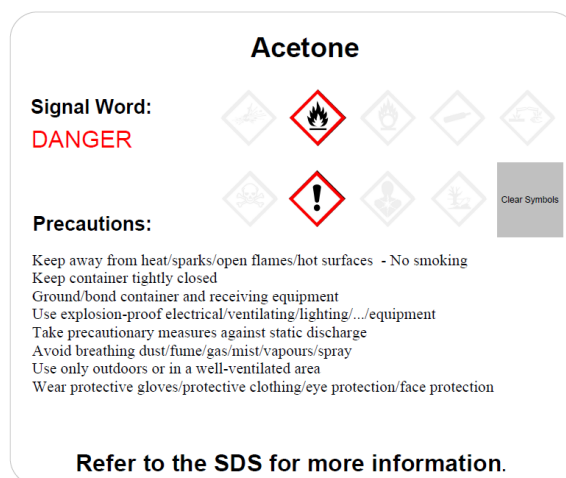
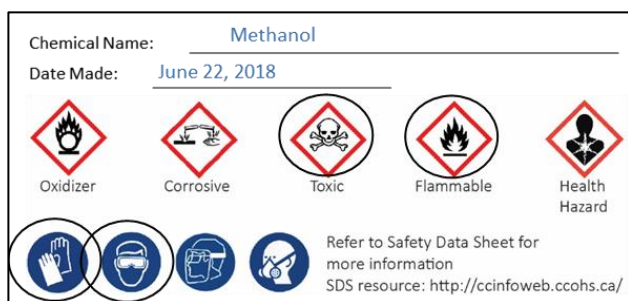
### Workplace label templates

Workplace label templates are available on the RMS website (under [Chemical Safety Resources](#)) in three sizes corresponding to Avery labels # 05163 (small - 10 per page), # 5164 (medium – 6 per page), # 22827 (large - 4 per page).

To use the templates, follow instructions below:

- Print the small labels blank and add the name of the chemical (product identifier) and date made (if applicable) by hand using a permanent marker. Using the SDS and/or the supplier label identify on the label the pictograms and PPE appropriate for the hazardous product. When searching for the SDS (using <https://chemicalsafety.com/sds-search/> or <http://ccinfoweb.ccohs.ca/>) make sure you select the correct one by double-checking the manufacturer’ name and the CAS #.
- The medium and large labels are saved as fillable pdf files therefore the information can be typed on the computer. The SDS at the link <https://chemicalsafety.com/sds-search/> allows you to copy and paste the hazard statements/precautions into the template. Make sure you select the correct SDS by double-checking the manufacturer’ name and the CAS #. Alternatively, you can use the corresponding supplier label as a source of information. The pictograms in the template are greyed out but you can click whichever ones that are appropriate to make them appear/disappear or you can clear them all with the “clear symbols” button (button does not print).

The medium and large labels are particularly useful when generating multiple labels at the same time (e.g. when updating the inventory). All labels can be secured in place and protected from damage by covering them with transparent tape.



**Figure 5. Workplace labels created with templates**

For small containers (100 mL or less) the label only requires the “**Product Name**” and the words “**See SDS**”.

It is not mandatory to use the provided templates: as long as the workplace label has all the required three items (see 6.2), the label is WHMIS compliant.

## 7. SAFETY DATA SHEETS

Safety data sheets (SDSs), formerly called Material Safety Data Sheets (MSDSs), are documents that provide information about hazardous products and advice about safety precautions. SDSs provide more information about products than labels do and are important resources. An SDS has four main purposes. It provides information on the following:

- **Identification** – for the product and supplier
- **Hazards** – physical (fire and reactivity) and health
- **Prevention** – steps you can take to work safely and reduce or prevent exposure
- **Response** – what to do in various emergencies (for example, first aid, a fire, or a spill)

SDSs are complex and technical. If you find some of the information difficult to understand, your supervisor needs to be able to explain the content of each SDS to you so that you can work safely with or near hazardous products.

WHMIS 2015 requires a standard 16-section SDS. All information on the SDS must appear in the order shown in the table below.

**Table 7. Overview of information required in each section of an SDS**

SDS Section and heading		Information requirements (partial list)
1	Identification	<ul style="list-style-type: none"> <li>• Product identifier</li> <li>• Recommended use and restrictions on use</li> <li>• Supplier contact information</li> <li>• Emergency phone number</li> </ul>
2	Hazard identification	<ul style="list-style-type: none"> <li>• Classification (hazard class and category)</li> <li>• Label elements (including precautionary statements)</li> <li>• Other hazards (e.g. dust explosion hazard)</li> </ul>
3	Composition/information on ingredients	<ul style="list-style-type: none"> <li>• For a hazardous product that is a substance: <ul style="list-style-type: none"> <li>• The chemical name and synonyms</li> <li>• Chemical Abstract Service Number (CAS No.)</li> <li>• The chemical name of impurities, stabilizing solvents, and stabilizing additives, when required</li> </ul> </li> <li>• For a hazardous product that is a mixture: the chemical names, synonyms, CAS numbers, and concentrations for ingredients that present health hazards</li> </ul> <p>Note: Confidential business information (CBI) rules may apply</p>
4	First-aid measures	First-aid procedures by route of exposure (inhalation, skin contact, etc.), as well as most important symptoms/effects.
5	Fire-fighting measures	<ul style="list-style-type: none"> <li>• Suitable (and unsuitable) extinguishing media</li> <li>• Special equipment and precautions for fire fighters</li> <li>• Specific hazards</li> </ul>
6	Accidental release measures	<ul style="list-style-type: none"> <li>• Protective equipment</li> <li>• Emergency procedures</li> </ul>



SDS Section and heading		Information requirements (partial list)
		<ul style="list-style-type: none"> <li>• Methods and materials for containment and clean up</li> </ul>
7	Handling and storage	Precautions for safe handling, conditions for storage including any incompatibilities
8	Exposure controls / personal protection	Exposure limits, engineering controls, personal protective equipment
9	Physical and chemical properties	<ul style="list-style-type: none"> <li>• Appearance</li> <li>• Odour</li> <li>• Odour threshold</li> <li>• pH</li> <li>• Melting/freezing point</li> <li>• Boiling point and range</li> <li>• Flash point</li> <li>• Upper and lower flammable or explosive limits</li> </ul>
10	Stability and reactivity	<ul style="list-style-type: none"> <li>• Reactivity</li> <li>• Chemical stability</li> <li>• Possible hazardous reactions</li> <li>• Conditions to avoid</li> <li>• Incompatible materials</li> <li>• Hazardous decomposition products</li> </ul>
11	Toxicological information	<ul style="list-style-type: none"> <li>• Description of various toxic effects by route of entry, including:</li> <li>• Effects of acute (short-term) or chronic (long-term) exposure</li> <li>• Carcinogenicity</li> <li>• Respiratory sensitization</li> <li>• Reproductive effects</li> </ul>
12	Ecological information*	<ul style="list-style-type: none"> <li>• Aquatic and terrestrial toxicity (if available)</li> <li>• Persistence and degradability</li> <li>• Bioaccumulative potential</li> <li>• Mobility in soil</li> </ul>
13	Disposal considerations*	Safe handling and methods of disposal including waste packaging
14	Transport information*	UN number and proper shipping name, hazard classes, packing group
15	Regulatory information*	Safety, health and environmental regulations specific to the product.
16	Other information	Other information including date of the latest revision of the SDS

\*Sections 12 to 15 require the headings to be present. The supplier has the option to not provide information in these sections.

### When you should use SDSs

Always be familiar with the hazards of a product **before** you start using it.

- Look at the SDS and match the name of the product on the container to the one on the SDS (Section 1)
- Know the hazards (Section 2)
- Understand safe handling and storage instructions (Section 7)
- Understand what to do in an emergency (sections 4, 5 and 6)
- Ask your supervisor for more information and/or clarifications

### Employers

Employers must ensure that current SDS are received for all controlled products supplied to the workplace. If the employer produces a controlled product for use at the workplace, the employer must develop an SDS to accompany workplace labeling for it (WorkSafeBC Regulations [5.14](#)).

Copies of supplier and employer SDS must be accessible to employees, close to their work areas and available during each work shift. SDS may be hard copies or available on a computer if the employer takes all reasonable steps to keep the system in active working order (e.g. if the power goes out, the system is still accessible).



Workers must know how to access SDS and must be educated in the content required on the data sheet and the applicable information in it.

When necessary, UBC RMS can assist with obtaining additional information about a hazardous product.

## 8. EDUCATION AND TRAINING

The employer is responsible for education about WHMIS and training in safe work procedures. The worker must be educated and trained so he understands the hazards and know how to work safely with hazardous products.

You need to receive WHMIS education and training if one or more of the follow applies to you:

- May be exposed to a hazardous product due to your work activities (including normal use, maintenance activities, or emergencies).
- Use, store, handle, or dispose of a hazardous product.
- Supervise or manage other workers who may be exposed, or use, store, handle, or dispose of a hazardous product.
- Are involved in emergency response.

The supervisor must assess the training needs of a worker at least annually or when granted by changes in the work place (e.g. new equipment, different job duties, and new processes).

### 8.1 WHMIS Education

General WHMIS education, as it pertains to the workplace, is provided to the workers on the:

- Elements of the WHMIS program,
- Major hazards of the hazardous products used in the workplace,
- Rights and responsibilities of employers and workers, and
- Content required on labels and SDS, and the significance of this information.

It is the responsibility of the supervisor to direct employees to the appropriate course for their job duties.

WHMIS education is part of several courses offered by RMS. The New Worker Safety Orientation and the Chemical Safety Courses are identical for the two campuses. To register for this courses refer to [RMS Training](#) (Vancouver) or UBCO RMS [Course Registration](#) (Okanagan).

[New Worker Safety Orientation](#) - covers general safety information that all workers must be aware of before beginning to work at UBC. The first part of the course is online and contains information on the WHMIS courses available at UBC. Part 2 is a site-specific orientation completed with the supervisor or a designated person who is familiar with the hazards of the site.

[Chemical Safety Course](#) - is mandatory for all faculty, staff, visiting scientists and students prior to applying for or having access to areas where chemical hazards are being handled or stored. The course consists of seven online modules ending in quizzes, one final exam and one practical session. The second module of the chemical safety course covers WHMIS.

Courses below are available for the Vancouver campus users.

[WHMIS and Other Hazard Identification Systems](#) - is required for all workers who work with a hazardous product or may be exposed to a hazardous product in the course of their work activities. This includes faculty, staff, paid students, volunteers, visiting scholars, visiting students and non-paid students. The course is offered online and certification requires passing a knowledge exam.

[Introduction to Laboratory Safety Course](#) – mandatory for undergraduate students volunteering or undertaking a project under the constant and direct supervision of a senior lab member and who will never be working





independently in the lab. The course has eight online modules ending in quizzes and module 3 covers WHMIS and labeling.

Several UBC units (Student Housing and Hospitality Services, Building Operations) provide in person WHMIS education for their employees either as part of New Employee Orientation or as a WHMIS course.

## 8.2 WHMIS Training

WHMIS training must ensure that a worker who works with a hazardous product or may be exposed to a hazardous product in the course of his or her work activities is trained in the following:

- The content required on a supplier label and workplace label, and the purpose and significance of the information contained on those labels (also covered by the WHMIS education component)
- The content required on an SDS and the purpose and significance of the information contained on the SDS (also covered by the WHMIS education component; supervisors must be able to explain SDSs on a case-by-case basis)
- Procedures for the safe use, storage, handling and disposal of the hazardous product
- Procedures for the safe use, handling and disposal of the hazardous product contained or transferred in
  - A pipe or a piping system including valves
  - A process or reaction vessel or
  - A tank car, tank truck, ore car, conveyor belt or similar conveyance
- Procedures to be followed where fugitive emissions are present if workers may be exposed to those fugitive emissions
- Procedures to be followed in case of an emergency involving the hazardous product

All the above instructions must be specific to the workplace and cover the safe work procedures and emergency response procedures to be used in the workplace.

Several elements of the training component are covered by the WHMIS educational component (general labeling and SDS information) but most of them are site specific.

It is the responsibility of the supervisor or designated person to provide **workplace specific** WHMIS training.

If you have been successfully educated and trained in WHMIS, you must be able to answer the following four questions for every hazardous product you work with:

- What are the hazards of the product?
- How do I protect myself from those hazards?
- What do I do in case of an emergency?
- Where can I get more information?

## 9. ADDITIONAL RESOURCES

While both the Vancouver and Okanagan UBC campuses work under identical provincial and federal legislation, site-specific details (e.g. contact information) are different. From the list of resources below, choose the one(s) corresponding to your campus.

If working with biological material and toxins, consult the [RMS Biosafety \(Vancouver\)](#) / [RMS Biosafety \(Okanagan\)](#) information page. The [RMS Chemical Safety \(Vancouver\)](#) / [Chemical Safety and Hygiene \(Okanagan\)](#) page contains information about working with, storing and disposing chemicals.

Radioactive substances are not covered under WHMIS 2015. Work with radioactive substances is regulated by the Canadian Nuclear Safety Commission and requires a UBC Radioisotope Permit. More information can be found on the [RMS Radiation, X-Ray and LASER Safety \(Vancouver\)](#) / [Radioisotope Safety \(Okanagan\)](#) page.





Any UBC faculty, staff or student dealing in the movement of materials classified as “Dangerous Goods” is required to take a TDG course under Transportation Canada regulations. More information can be found on the [RMS Transportation of Dangerous Goods \(Vancouver\)](#) / [Transportation of Dangerous Goods \(Okanagan\)](#) page.

For information on asbestos on UBC campus, consult the [Asbestos Management Program](#) (Vancouver) or [RMS Okanagan](#).

Many of the WHMIS controlled products will eventually become hazardous waste. RMS coordinates the disposal of hazardous waste materials at the UBC Vancouver campus through the Environmental Services Facility (ESF) located on South Campus. Consult the [RMS Hazardous Waste Management \(Vancouver\)](#) / [Hazardous Materials Management \(Okanagan\)](#) page for more information.

## 10. DOCUMENT INFORMATION

Written / Reviewed by: RMS Advisor, Chemical Safety

Contact: [researchsafety@rms.ubc.ca](mailto:researchsafety@rms.ubc.ca)

604-827-3409