UNIVERSITY OF LETHBRIDGE

WHMIS 2015 PROGRAM

CAMPUS SAFETY – SAFETY SERVICES

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VERSION 2

The online version is the official version of this document.

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WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS) 2015 PROGRAM

The Workplace Hazardous Materials Information System (WHMIS) is "**right to know**" legislation that ensures workers are informed of the risks associated with the hazardous materials found at the worksite, including laboratories. It is an information delivery system developed by the collective effort of labour, industry and government. WHMIS consists of both federal legislation, which mainly regulates the supplier aspects of the program, and provincial legislation (Part 29 of the AB OHS Code) that regulates WHMIS at the worksite.

This section provides a summary of WHMIS requirements applicable to university laboratories. Contact Campus Safety for further information on **WHMIS and WHMIS training**.

WHMIS 2015

Amendments to the federal Hazardous Products Act and the new Hazardous Products Regulations came into effect February 11, 2015 under the authority of Health Canada. These changes integrate Workplace Hazardous Materials Information Systems (WHMIS) with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) (WHMIS 2015). Full compliance was required by December 1, 2018.

WHMIS 2015 has three components:
1. Labels
2. Safety Data Sheets (SDSs)
3. Worker Education and Training

1.0 Identification (classification) of hazardous products

WHMIS 2015 applies to "hazardous products". A hazardous product is any product that meets the criteria to be classified in a category or subcategory of one or more of the hazard classes as described in the federal Hazardous Products Regulations (HPR).

WHMIS 2015 applies to two major groups of hazards:
- physical hazards, and
- health hazards.

Each hazard group includes hazard classes that address specific hazardous properties. Products in the physical hazards group are classified based on characteristics such as flammability or reactivity. Health hazards are grouped based on their ability to cause a health effect, such as cancer or skin irritation. Both groups are divided into classes of materials with similar properties. There are 19 distinct classes in the physical hazards group and 12 classes in the health hazards group. The WHMIS 2015 hazard classes are listed below.

Classes in the Physical Hazards Group are:
1. Flammable gases
2. Flammable aerosols
3. Oxidizing gases
4. Gases under pressure
5. Flammable liquids
6. Flammable solids
7. Self-reactive substances and mixtures
8. Pyrophoric liquids
9. Pyrophoric solids
10. Self-heating substances and mixtures
11. Substances and mixtures which, in contact with water, emit flammable gases
12. Oxidizing liquids
13. Oxidizing solids
14. Organic peroxides
15. Corrosive to metals
16. Combustible dusts*
17. Simple asphyxiants*
18. Pyrophoric gases*
19. Physical hazards not otherwise classified*

Classes in the Health Hazard Group are:
1. Acute toxicity
2. Skin corrosion/irritation
3. Serious eye damage/eye irritation
4. Respiratory or skin sensitization
5. Germ cell mutagenicity
6. Carcinogenicity
7. Reproductive toxicity
8. Specific target organ toxicity – single exposure
9. Specific target organ toxicity – repeated exposure
10. Aspiration hazard
11. Biohazardous infectious materials*
12. Health hazards not otherwise classified*

** These hazard classes are part of WHMIS 2015 but are not part of the GHS.*

Most hazard classes are further subdivided into categories and subcategories based on the severity of the hazard. Most categories are identified by a number and subcategories by a number and letter.

The lower the category number, the more severe the hazard, for example, a product classified as a Flammable Liquid-Category 1 is more hazardous than a Flammable Liquid-Category 2.

1.1 Labels

There are two types of labels: supplier and work site labels.

1.1.1 Supplier labels

Supplier Labels are attached by the supplier and must contain the following information*:

1. **Product identifier** – the brand name, chemical name, common name, generic name or trade name of the hazardous product.

2. **Initial supplier identifier** – the name, address and telephone number of either the Canadian manufacturer or the Canadian importer*.

3. **Pictogram(s)** – hazard symbol within a red "square set on one of its points".

4. **Signal word** – a word used to alert the reader to a potential hazard and to indicate the severity of the hazard.

5. **Hazard statement(s)** – standardized phrases which describe the nature of the hazard posed by a hazardous product.

6. **Precautionary statement(s)** – standardized phrases that describe measures to be taken to minimize or prevent adverse effects resulting from exposure to a hazardous product or resulting from improper handling or storage of a hazardous product.

7. **Supplemental label information** – some supplemental label information is required based on the classification of the product. For example, the label for a mixture containing ingredients with unknown toxicity in amounts higher than or equal to 1% must include a statement indicating the percent of the ingredient or ingredients with unknown toxicity. Labels may also include supplementary information about precautionary actions, hazards not yet included in the GHS, physical state, or route of exposure. This information must not contradict or detract from the standardized information. (*source: www.ccohs.ca)

Most hazard classes have a pictogram assigned to them. A few hazard classes have more than one pictogram (i.e. one pictogram is used for certain categories, and a different pictogram is used for other categories). Some hazard classes and some categories within a hazard class do not have a pictogram (for example, combustible dusts, simple asphyxiants, and flammable liquids – Category 4).

The table on the following page provides a list of pictograms and their associated hazards. For the Physical and Health Hazards Not Otherwise Classified hazard classes, the supplier must use a WHMIS 2015 pictogram appropriate for the hazard.

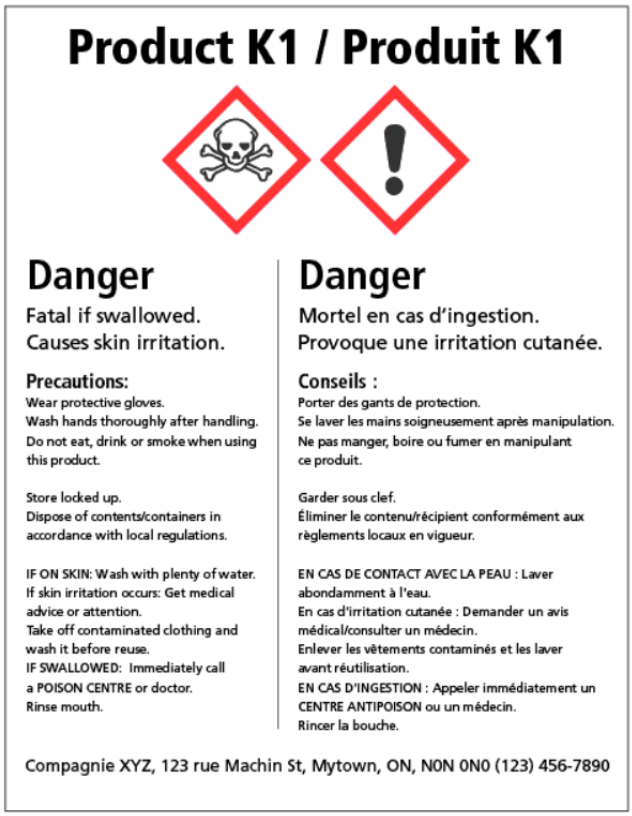
An example of a compliant supplier label is provided on the following page.

WHMIS 2015 PICTOGRAMS

	**Exploding bomb** (for explosion or reactivity hazards)		**Flame** (for fire hazards)		**Flame over circle** (for oxidizing hazards)
	**Gas cylinder** (for gases under pressure)		**Corrosion** (for corrosive damage to metals, as well as skin, eyes)		**Skull and Crossbones** (can cause death or toxicity with short exposure to small amounts)
	**Health hazard** (may cause or suspected of causing serious health effects)		**Exclamation mark** (may cause less serious health effects or damage the ozone layer)		**Environment*** (may cause damage to the aquatic environment)
	**Biohazardous Infectious Materials** (for organisms or toxins that can cause diseases in people or animals)				

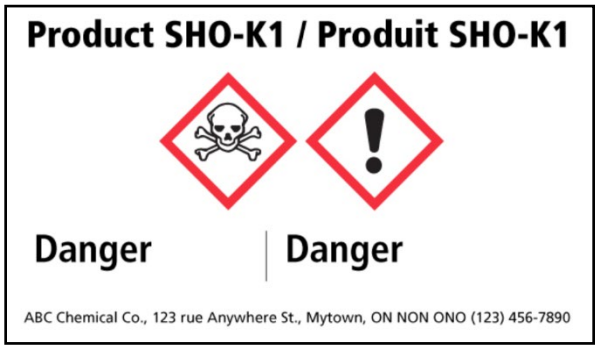
* The GHS system also defines an Environmental hazards group. This group (and its classes) was not adopted in WHMIS 2015. However, you may see the environmental classes listed on labels and Safety Data Sheets (SDSs). Including information about environmental hazards is allowed by WHMIS 2015.

COMPLIANT SUPPLIER LABEL



Small Container Labels

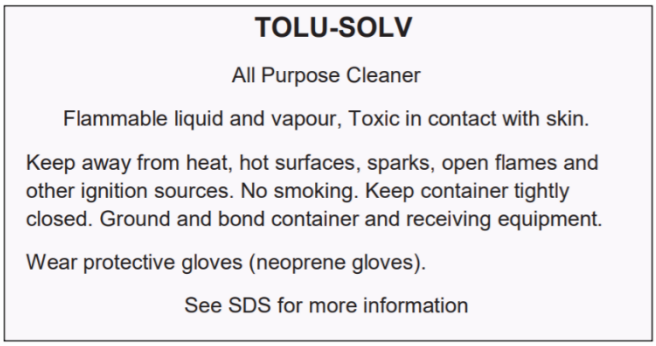
Supplier labels for hazardous products in small containers may carry less information. Containers with a capacity of 100 ml or less are not required to have hazard statements or precautionary statements on the label. An example is provided below:



1.1.2 Work Site Labels

These labels are to be placed on secondary containers when **decanted** from supplier containers and must contain the following information:
1. Product name that matches the product name on the SDS or original supplier label.
2. Safe handling precautions (may also include pictograms, hazard or precautionary statements or other supplier label information.
3. A reference to the SDS

Work site labels must also be used on **hazardous products produced for use** on the worksite and on supplier containers to **replace missing or illegible supplier labels**.



(Image provided by CCOHS 2015)

There are two situations when a work site label is not necessary. When a hazardous product is:

- poured into a container and it is going to be used immediately, or
- "under the control of the person who decanted it".

For example, when the person who poured the product into another container will be the only person who will use it, and the product will be used during one shift, a full workplace label may not be required. However, the container must still be identified with the product identifier (name).

If the product is not used right away or if more than one person will be in control of the product, a full work site label is required.

A WHMIS label can also be a mark, sign, stamp, sticker, seal, ticket, tag, or wrapper. It can be attached, imprinted, stencilled or embossed on the hazardous product or its container. Workers must be trained to be able to identify these alternate systems if they are used in the workplace.

Hazardous Products Produced in the Lab

If products developed in the laboratory will be used, handled, or stored in a workplace and if these products meet any of the criteria for the WHMIS 2015 hazard classes, the laboratory must classify the product hazards and provide a label and SDS.

For many newly created products, the hazards of the product may be unknown until testing is completed. In this case, the newly created product may be treated as a **laboratory sample** until it is analyzed and evaluated.

Laboratory Sample Label

For hazardous products sent to the laboratory for analysis or for products that are in the process of being developed, exemptions could apply if certain conditions are met. A laboratory sample is defined as a sample of a hazardous product that:

- is packaged in a container that contains less than 10 kilograms of the hazardous product,
- is intended solely to be tested in a laboratory, and
- does not include a sample that is to be used by a laboratory for testing other products or for educational or demonstration purposes.

Examples of laboratory samples include:

- samples for quality control testing,
- samples provided for the development of industrial processes,
- diagnostic specimens (e.g., blood or tissue samples), and
- industrial hygiene samples.

Laboratory samples do not require an SDS and have reduced label requirements if they are **'bailed'** and:

- the chemical name and concentration of the hazardous product or its ingredients are not known, or
- the hazardous product is not yet available on the market (i.e., has not been offered or exposed for transfer of ownership).

'Bailed' means transfer of possession without transfer of ownership. In this situation, the laboratory does not own the laboratory sample, but has possession of the sample while conducting testing on behalf of the owner.

When products are sent to a laboratory for analysis, it is not always clear how to label the samples because the owner of the sample may not yet know if a product is a hazardous product. It is expected that the owner of the sample will use their best judgement based on known information, and will label the sample accordingly.

At a minimum, a laboratory sample must be labelled with the following information:

- the product identifier,
- the chemical name or generic chemical name* of any material or substance in the sample that would have to be disclosed on an SDS, if it is known,
- the initial supplier identifier, and
- 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 a SDS.

*The generic chemical name may only be used when a claim for Confidential Business Information (CBI) has been filed or granted.

This is for use on samples sent to an outside laboratory for analysis. Whenever possible, these should have a basic supplier label. In instances where there is not enough information about the composition of the sample to prepare a full supplier label, it should be labeled with the following information:

Laboratory Sample Label

- Sample Identifier
- Identity of Known Ingredients
- Sender's Name and Address

Statement of, "Hazardous Laboratory Sample. For hazard information or in an emergency call ____"

- An emergency telephone number

XYZ Sample

XYZ Company, 123 Anywhere St., Toronto, ON

Contains: Toluene and Sulfuric Acid

Hazardous Laboratory Sample
For hazard information or in an emergency call: (306) 555-5555

2.0 Safety Data Sheets (SDS)

Safety Data Sheets (SDS) are documents that provide detailed hazard, precautionary and emergency information on the product. SDSs provide more detailed hazard information about the product than the label. They are an important resource for workplaces and workers to help you learn more about the product(s) used. Use this information to identify the hazards of the products you use and to protect yourself from those hazards, including safe handling and emergency measures.

SDSs tell users what the hazards of the product are, how to use the product safely, what to expect if the recommendations are not followed, how to recognize symptoms of exposure, and what to do if emergencies occur.

Every SDS must provide a date of last revision in Section 16 – Other Information. You will know if an SDS has been updated by checking this date, and comparing it to any previous SDS you have.

A SDS must be available for each hazardous material regulated under WHMIS that is present in the laboratory, except in the following cases:

- Chemicals from a laboratory supply house that are labelled with all the information required on an SDS.
- Controlled products produced in the laboratory that will remain in the laboratory.
- Intermediate products in reaction vessels.

The **CHEMATIX Chemical Inventory Management System** includes a provision for linking inventoried chemicals to the supplier SDS. Inventories and SDS must be updated whenever new products are brought into the laboratory or are no longer used.

Consumer products that are used in the workplace are also partially exempt from the WHMIS legislation. In practice, however, Campus Safety recommends that there be access to SDS for all hazardous products, including consumer products, in the lab.

SDSs cannot be kept in locked cabinets/rooms/desks, they must be accessible to anyone that works on or near the controlled product. An SDS may be kept in either hard (i.e. paper) or soft (i.e. electronic) format as appropriate, with the following requirements.

SDS can be made available in several ways, as long as they are readily accessible. Labs may have:

- Paper copies of SDS on hand
- Access to a central file of SDS
- Computer access to SDS
- A combination of these three options

If a laboratory is relying on computer access to provide SDS, it must ensure that:

- A computer is accessible at all times to lab personnel
- All lab personnel know how to access and retrieve the SDSs
- Hard copies can be produced if necessary

The WHMIS legislation normally requires that the SDS available for a controlled product be from the supplier of that product. Since many common reagents may be ordered from several different suppliers, there is a slight variation in SDS requirements for lab reagents:

- The reagents have exactly the same composition
- The product identifier on the SDS matches that on the label
- The hazard information does not vary from the suppliers SDS (e.g. one SDS states the reagent is carcinogenic, while the other does not)
- The original suppliers SDS can be produced upon request

Ensure there are website links to several SDS sources in case the primary source's server is not available. If a password / login are required, ensure this is set up in advance. An emergency situation is not the time to be setting up a user account.

3.0 Worker Education & Training

WHMIS legislation requires employers to educate anyone who works with or in proximity to controlled products. New staff and students must be trained before using any controlled products, and periodic refresher training is highly recommended. The legislation requires workers to participate in the training provided.

WHMIS Training at the University of Lethbridge is delivered in two stages:

1. Campus Safety offers **generic** WHMIS training. This training includes information about WHMIS labeling and SDSs, other requirements under the legislation, and practical advice on implementing and administering WHMIS at the departmental level.

2. In order to meet the legislated training requirements, generic training must be supplemented by **specific worksite WHMIS training** dealing with the hazards in individual laboratories. Such training covers hazard information for the controlled products used and lab-specific procedures for safe use, storage, handling, spill cleanup and disposal. Because it is so specific, this training will need to be provided by the Principle Investigator, laboratory supervisor or instructor.

Worker education must be documented, and a record kept of all those who have received WHMIS and other related training.

4.0 Chemical Inventory

In order to protect the health and safety of the University community, a chemical inventory is necessary for identification of chemical hazards. The University has implemented the **CHEMATIX** chemical inventory system to facilitate the management and inventory of chemicals used for various academic and operational needs within its campus.

CHEMATIX uses barcodes as a unique identifier to track chemical containers. The system tracks hazardous materials from "cradle to grave" and will assist the University in achieving good business practices as well as meeting its regulatory requirements to maintain an inventory of all chemicals being used and stored within its facilities.

University departments using chemicals are **required to register their chemical use and storage locations in CHEMATIX** and ensure all chemicals are barcoded and entered into the inventory. CHEMATIX training is available on the Safety Services Training webpage. Safety Services also provides hands-on training for CHEMATIX.

Contact Safety Services for further information.

5.0 Chemical Waste Disposal

In compliance with Government regulations, Safety Services coordinates the collection and transportation of hazardous wastes generated by Departments within the University Community. The CHEMATIX is an online system used to manage chemical inventory and waste disposal for the University.

Hazardous waste products intended for disposal are exempt from WHMIS requirements; however, many of these products are covered under other legislation. Note that while a product may be exempt from the requirement to have a WHMIS label and SDS, the same safe handling and storage requirements apply. All waste containers must be made of materials that are compatible with the contents and have a legible label identifying the contents, its hazardous properties and the contact information for the person responsible for the waste. Appropriate labels are available from Safety Services.

5.0 Chemical Release (Spill) Response Guidelines

Personnel using chemicals while performing their work duties must be trained on how to respond in the event of a spill or release. Spill kits must be available wherever chemicals are used. Spills and releases must be reported to Campus Safety – Security Services who will initiate the appropriate emergency response and contact the Chemical Release Officer and Safety Services personnel for assistance. Refer to the University's Chemical Release (Spill) Response Guidelines for on prevention and mitigation information.

REFERENCES

- Canadian Centre for Occupational Health and Safety (CCOHS) – WHMIS 2015
- AB OHS - WHMIS 2015

RELATED PROCEDURES AND FORMS

- Chemical Safety Standard
- CHEMATIX Chemical Inventory Management System
- Hazardous Chemical Waste Disposal Procedure
- Chemical Release (Spill) Response Guidelines