

WHMIS Reference Notes

workplace hazardous material information system



This document is intended for use by students who have completed the online-
WHMIS training program.

The document contains reference material only and does not include all
information found in the online-WHMIS training program

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Introduction to WHMIS

Whether we realize it or not, we are constantly coming into contact with hazardous materials in both the home and the work environment.

WHMIS is short form for "Workplace Hazardous Materials Information System". It is a nation wide system that was developed for the control and safe use of hazardous materials in the workplace. WHMIS provides us with a standard classification and information system to help ensure that everyone in the work environment understands his/her role.

With WHMIS, information is provided to us through "Product Labels", "Material Safety Data Sheets" (MSDS) and "Worker Education Programs".

WHMIS applies to a vast variety of products and materials but they must meet certain criteria which are outlined in the Controlled Products Regulations. Products meeting these criteria are referred to as controlled products.

WHMIS came into effect as a result of meetings between knowledgeable representatives of government, labour and industry. These three parties worked together to ensure that the best interests of everyone involved were considered. WHMIS became law in Canada through a series of federal, provincial and territorial legislation that came into effect in October of 1988.

Everyone in the workplace has responsibilities under the WHMIS legislation – suppliers of controlled products, employers, and of course, the worker. The responsibilities of each of these parties will be discussed in greater detail later in the course.

In Canada, each provincial or territorial department is responsible for the administration and enforcement of its Occupational Health and Safety Act and regulations. One of these "regulations" provides for the WHMIS system. All WHMIS regulations are based on the same model. This is done to ensure consistency of WHMIS legislation throughout Canada.

In federal workplaces (i.e. banks, post offices, airports) provisions for WHMIS are found in the Canada Labour Code and the Canada Occupational Safety and Health Regulations.

All other work environments are covered by provincial and territorial WHMIS legislation. In provincial and territorial workplaces the government department responsible for OH&S issues like WHMIS varies. Usually it is called either a ministry or department of labour. In some jurisdictions, the workers' compensation board or commission has the responsibility for occupational health and safety.

Legislation and your Workplace

Under WHMIS legislation, all work environments that use, handle or store any controlled products are required to provide training to staff and to contain a copy of the WHMIS regulations. Be sure to obtain a copy of the regulations for your office.

WHMIS regulations should be stored in a common area that is easily accessible at all times by all employees.

A Three Part System...

WHMIS is a three part information system which consists of the following:

- 1. Product Labels**
- 2. Material Safety Data Sheets (MSDSs)**
- 3. Worker Education Programs**

The purpose of these three components is to ensure that everyone in your office understands everything they need to know about the use, storage and disposal of hazardous materials in the workplace. By the end of this course we will have reviewed these three components and you will have a much better understanding of how they will apply to your safety and your workplace responsibilities.

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PRODUCT LABELS

Product Labels

A WHMIS product label provides the basic information that you will need to know in order to handle a product safely. The WHMIS system standardizes the information that must be contained on the WHMIS product label. There are two types of labels you will find in your work environment:

1. **Supplier Labels**
2. **Workplace Labels**

Supplier Labels

Under the WHMIS system, suppliers of controlled products are required to attach a label to all hazardous materials they supply before the materials are shipped. A “supplier” can be defined as a manufacturer, processor, or packager of a controlled product. A supplier also includes anyone who sells or imports a controlled product.

Supplier Responsibilities

With the WHMIS system, all “suppliers” are required to communicate all hazard information in a standard manner to all purchasers of a controlled product. The WHMIS system requires suppliers to provide a “supplier label” on all controlled products or containers of controlled products.

Suppliers must also provide more detailed information concerning the controlled product in the form of a “Material Safety Data Sheet” (MSDS).

Supplier labels are easily recognized by their distinctive “hatch mark” border. This border is used to allow for ease of identification by the user. The information found on the supplier label must also be bilingual (French / English).

Info Found on a Supplier Label

The supplier must provide the purchaser of a controlled product with package labelling and a Material Safety Data Sheet (MSDS).

The following 7 sections of information are found on a “Supplier Label”:

1. PRODUCT IDENTIFIER
2. MANUFACTURER/ SUPPLIER IDENTIFIER
3. WHMIS HAZARD SYMBOLS
4. PRECAUTIONARY STATEMENTS
5. RISK PHRASES
6. FIRST AID MEASURES
7. A REFERENCE TO THE AVAILABILITY OF A MATERIAL SAFETY DATA SHEET (MSDS)

Info found on Supplier Label - Product Identifier

1. PRODUCT IDENTIFIER:

This section should include all names associated with a controlled product. Proper identification of a product should include the common name, chemical name, trade name, generic name, or brand name of a product.

In some cases, this information may be provided in the form of a number. The product name or number must always be identical to the “Product Identifier” on the Material Safety Data Sheet (MSDS).

2. SUPPLIER IDENTIFIER

The information found on the label for supplier identification will include the name of the supplier, the manufacturer or importer's name, and the location of the principal place of business.

3. HAZARD SYMBOLS

The hazard symbol system used for WHMIS is subject to a number of regulatory specifications. For example, all hazard symbols must have a distinctive circular border, and must be displayed in a colour that will not be confused with the Transportation of Dangerous Goods (TDG) safety marks. The colours which are prohibited for use on controlled product symbols are contained in the WHMIS regulations. In most cases, the hazard symbols for WHMIS are found in black and white.



4. RISK PHRASES

Risk phrases are a short explanation of the potential hazards of a controlled product. The following are examples of risk phrases:

- keep product away from heat and all sources of ignition
- caution. combustible liquid

- product may form explosive vapour-air mixture
- product may cause birth defects

5. PRECAUTIONARY STATEMENTS

Precautionary statements contain the preventative information you must follow when working with or in close proximity to a controlled product:

- Caution. Do not drop, or roll (i.e. any type of compressed gas)
- Keep product away from combustible materials.
- Wear suitable protective clothing when handling product.
- Do not add water to this product.
- Avoid prolonged or repeated contact with skin.

6. FIRST AID PROCEDURES

The first aid procedures on a supplier label outline the immediate general first aid procedures that you should follow when dealing with an accident involving a hazardous material. You will find more detailed first aid information in the Material Safety Data Sheet (MSDS).

7. REFERENCE TO A MATERIALS SAFETY DATA SHEET (MSDS)

If a Material Safety Data Sheet is required, a reference advising of the availability of the MSDS must appear on the WHMIS supplier label:

Workplace Labels

A workplace label is designed to provide the basic information a worker needs to identify and safely handle a controlled product in the workplace. An example of when a workplace label becomes necessary is when a controlled product is transferred from its original container into an unmarked container.

Info Found on a Workplace Label

The format for a workplace label can vary but it must contain the following three components:

1. Product identifier - The name or names associated with a product. To avoid confusion, you must ensure that the “product identifier” on all workplace labels is identical to the product identifier on the Material Safety Data Sheet of a product.
2. Information for the safe handling of the controlled product - this information must include the

precautions necessary to reduce health risks and injury.

3. A statement advising that a Material Safety Data Sheet for the controlled product is available.

The “information for the safe handling of a product” might include the hazard symbols and/or risk phrases associated with a controlled product. Both are acceptable as long as the worker is trained and knowledgeable in the necessary precautions associated with the product.

It is also recommended, but not required, that the workplace label include the distinctive “hash mark” border used for supplier labels. A workplace label may also be in the language of choice in a workplace.

When to use a Workplace Label

When any controlled product is transferred from a supplier container to any other container, the new container must be labelled with a "Workplace Label".

WORKPLACE LABELS MUST BE USED IN THE FOLLOWING SITUATIONS:

- On a storage container for receiving bulk shipments (not necessary if the supplier provides labels).
- On a portable container into which a product has been transferred by a worker where the container is used by other workers or for longer than the worker's shift.
- Piping or tubing systems transporting controlled products are also considered portable containers. In this circumstance a colour coded system is acceptable if the system is thoroughly communicated to all workers.
- On a supplier container that has illegible, damaged or missing labels. In this circumstance, effort should be made to replace the original label.
- On the storage containers of all controlled products produced onsite.

Items on a Workplace Label

Take time to remember the three sections of information that are to be placed on a workplace label.

1. **Product identifier (name)**
2. **Information for the safe handling of the product**
3. **A statement advising of the availability of a Material Safety Data Sheet (MSDS)**

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HAZARD SYMBOLS

Hazard Symbols

Hazard symbols are useful as a visual aid in identifying hazardous materials. All hazardous materials must be labelled with at least one of the eight classes of symbols. Each "class" of hazardous materials has its own hazard symbol which is easily recognizable due to its symbol and the round border.

Note: Some products from the USA may have similar labels without the round border. Be sure to familiarize yourself with this situation.

CLASS A - Compressed Air

This symbol indicates that the contents of the container are under pressure - anything done to weaken the structure of the container could result in an explosion or a dramatic release of pressure.



CLASS B - Flammable/Combustible Materials

"Flammable / Combustible" materials are solids, liquids or gases that will ignite and continue to burn if exposed to a flame or source of ignition. These materials may also be explosive in certain situations or react with other materials to produce a flammable material.



CLASS C - Oxidizing Materials

These materials produce oxygen or another oxidizing substance which can cause or contribute to the combustion of another substance.



CLASS D1 - Immediate and Serious Toxic Effects

The effects of Class D1 materials are very harmful based on short-term exposures. Very little exposure can produce serious toxic effects or possibly death. These materials are classified for toxicity based on information such as the lethal dose and the lethal concentration.



CLASS D2- Materials Causing Other Toxic Effects

Class D2 substances can produce many different toxic effects based on the material. They are classified as carcinogens, teratogens, reproductive toxins, respiratory tract sensitizers, irritants, or chronic toxic hazards. Exposure effects range from short term (e.g. dizziness, difficulty breathing), to long term (cancer, lung disease).

**CLASS D3 - Biohazardous Infectious Materials**

Class D3 materials refer to any organism or the toxins produced by these organisms that have been shown or believed to be a biological hazard in either humans or animals.

**CLASS E - Corrosive Materials**

Class E materials are corrosives which can cause decomposition of other materials (e.g. metals) or damage human tissue.

**CLASS F - Dangerously Reactive Materials**

Class F materials may react with other substances to produce a wide range of negative reactions. These can range from decomposition to condensation. The stability of these materials may be adversely affected by exposure to certain elements such as water, pressure, or temperature.



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MATERIAL SAFETY DATA SHEETS (MSDSs)

What are MSDSs?

A **Material Safety Data Sheet (MSDS)** is a technical document that provides the information everybody needs to know about a controlled product. The MSDS is the main source of information for obtaining knowledge on a controlled product.

All controlled products have MSDS information. If you are unsure about any product ask the supplier/manufacturer for more info, and of course, an MSDS sheet.

All “controlled products” must have an MSDS that is specific to each individual product or material. The products name and the suppliers name on the MSDS must correspond with the material in use in the workplace.

Certain sections of the MSDS will be more important to some than others. However, everyone should know the name of the chemicals they are handling, the hazards associated with use, the safe handling, storage and disposal procedures, and, what to do in the event of an emergency.

MSDS – Responsibilities

It is the supplier’s responsibility to produce and supply an up to date and comprehensive Material Safety Data Sheet for all controlled products. Be sure that you have all MSDSs for all controlled products in your office.

It is the employer’s responsibility to obtain all MSDSs from their suppliers' for all controlled products found in their work environment. They must be available to all employees at all times, at all worksites. This information can be provided on computer providing all employees have access to and are trained on using the computer system. A hard copy must also be provided to any employee upon request.

To comply with legislation, the employer must ensure that all MSDSs are updated if there are any changes to a product, and, that they are no more than three years old. If a controlled product is made in the workplace the employer has a responsibility to produce an MSDS.

Everyone in the workplace is responsible for taking the time to familiarize themselves with the information found on an MSDS for each controlled product found in their work environment.

Information on an MSDS

An MSDS can be provided in varying formats but it must comply with WHMIS regulation by containing the necessary information for nine sections. No section can be omitted. The MSDS is separated into these nine sections so that the user can easily and quickly find the information needed.

Nine Sections on an MSDS

1. Product Identification and Use
2. Hazardous Ingredients
3. Physical Data
4. Fire and Explosion Data
5. Reactivity Data
6. Toxicological Properties (Health Effects)
7. Preventative Measures
8. First Aid Measures
9. Preparation Information

MSDS / SECTION 1 - Product Identification and Use

Information in this section of the MSDS will include the product name, identification number and the intended use of the product. The info should include all names used to identify a product - trade names, generic names, common names, chemical names, brand names, code names or code numbers used in the products identification.

In this section of the MSDS you will also find important information about contacting the supplier or manufacturer including business name, address, and a 24 hour emergency telephone number. The person who prepared the MSDS will also be identified.

All MSDSs contain the date on which the document was prepared. Remember, by law an MSDS for a controlled product is obsolete if it is more than three years old. If the MSDS date of preparation is more than three years old the supplier should be immediately contacted for an updated MSDS.

MSDS / SECTION 2 - Hazardous Ingredients

In this section, all hazardous ingredients as well as the concentration of the ingredient must be identified. When available, a Chemical Abstracts Registry Number (CAS) will be included to help identify hazardous ingredients. This section also contains information on lethal doses (ingested or applied to skin) and lethal concentrations (inhalation) of the ingredients.

MSDS / SECTION 3 - Physical Data

The physical data section contains detailed information on the physical description of a product. Providing this information is important for safe handling, storage, and transportation of controlled product because how a chemical reacts is subject to change according to the environment.

It is important to have a thorough understanding of how the chemicals you use can react differently due to environmental changes (temperature, pressure, etc.) For example, it is important to understand when a liquid can become a gas because it could then pose a breathing or explosion hazard.

The information provided in this section will include terms used to physically describe a controlled product such as appearance (colour/texture), physical form (solid, liquid or gas) specific gravity, vapour pressure, boiling point, freezing point, or melting point.

MSDS / SECTION 4 - Fire and Explosion Data

This section contains information on the conditions of flammability – the circumstances in which a controlled product may catch fire or explode. Fire and explosion data is designed to provide you with the knowledge on how to avoid these situations, what to expect if the information is not followed, as well as information for properly extinguishing a fire. Be sure to understand the situations in which any material in your work environment may become a fire and/or explosion hazard as well as the proper techniques and equipment for extinguishing different types of fires.

MSDS / SECTION 5 - Reactivity Data

This section of the MSDS contains information on the conditions under which a controlled product may become chemically unstable, as well as the substances it may react with. For example, some controlled products become dangerous when they are mixed with water. This section contains the name of any substance, or class of substance, with which a product is incompatible. Also you will find the conditions of reactivity and any hazardous decomposition products associated with the product.

MSDS / SECTION 6 - Toxicological Properties (Health Effects)

This section contains information on how hazardous materials enter the body, as well as the health effects associated with exposure. Information can be found on the following

- **ROUTES OF ENTRY** - potential routes include skin contact, skin absorption, eye contact, inhalation and ingestion information
- **TOXIC EFFECTS OF ACUTE EXPOSURE** – Toxic effects of acute exposure are changes experienced within a short period of time following an exposure (e.g. minutes, hours)
- **TOXIC EFFECTS OF CHRONIC EXPOSURE** - Toxic effects of chronic exposure are changes experienced over a long period of time following repeated exposure (e.g. months, years)
- **EXPOSURE LIMITS**
- **IRRITANCY OF PRODUCT/ SENSITIZATION OF PRODUCT**
- **CARCINOGENICITY** – this term refers to the ability of a product to cause cancer.
- **REPRODUCTIVE TOXICITY** – this term refers to the ability of a product to affect reproductive processes upon exposure.

- **TERATOGENICITY** - this term refers to a products ability to cause congenital birth defects.
- **MUTAGENICITY** – this term refers to a products ability to cause changes to the genes of the user upon exposure.
- **NAME OF TOXICOLOGICALLY SYNERGISTIC PRODUCTS** – these product names may be necessary due to lack of information on a product. The information provided may include a comparison of the toxic effects other products have in common with the product you are using.

MSDS / Section 7 - Preventive Measures

This section of the MSDS contains information on the "control measures" associated with a products handling. For example, here you will find info on personal protective equipment (e.g. gloves, respirators) and the work procedures associated with a products use.

In addition to personal protective equipment, the preventative measures section will also provide information on:

- Handling procedures
- Specific engineering controls (e.g. ventilation system requirements)
- Containment of leaks or spills
- Waste disposal and waste container design
- Storage requirements
- Special shipping information

MSDS / SECTION 8 - First Aid Measures

This section of the MSDS sheet contains the information you will need to know on immediate first aid treatment in case of an accident.

MSDS / SECTION 9 - Preparation Information

This section contains information on who prepared the MSDS, when the MSDS was prepared, and/or a revision date. Remember - an MSDS, in order to be considered up to date, must be no more than three years old!

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RESPONSIBILITIES AND ROLES

Who is Responsible for WHMIS training?

Everyone in the work environment has a responsibility in the WHMIS education process.

The Employer

With respect to worker education, the employer has the duty of providing WHMIS training to all employees who work "with" a controlled product, or "in proximity" of a controlled product. The employer must also be educated to understand the WHMIS system themselves.

Employer Responsibilities

The employer must meet the following responsibilities in the development of a WHMIS program:

- On each controlled product in the workplace, the employer must provide the worker with all hazard information received from the supplier, and any additional information they have available concerning the use, storage and handling of a controlled product.
- If an employer makes Material Safety Data Sheets (MSDSs) available on a computer terminal, the employer must provide access to a working computer at all times, as well as training in the use of the computer.
- Employees are responsible for receiving, learning and applying the information that the employer provides on controlled products.
- Employees are also responsible for informing the employer of any circumstance where they do not have adequate information on a controlled product.
- Employees must work with the employer in the development and review of a WHMIS program when acting as a health and safety representative, or if they are a member of the joint health and safety committee.

5 Parts of WHMIS TRAINING

WHMIS TRAINING - The employer is responsible for implementing a program of instruction on controlled products. This program needs to include the following five components:

1. WHMIS training for employees on labelling and MSDSs.
2. Training in the procedures for safe use, storage, handling, and disposal of controlled products.
3. Training in the procedures to be followed in the case of an emergency involving a controlled product.

4. Training in the use of the “methods of identification” used in each workplace that involve controlled products not found in a typical container.

Products which are being “held” or “transferred” need to be identified and a system of identification must be developed. Methods may include warning signs, symbols, or colour, number, or letter codes.

These methods are typically used when transferring controlled products in pipes, piping systems, process and reaction vessels, tank cars and tank trucks, conveyor belts, etc.

5. Instruction on the procedures to be followed when “fugitive emissions” are present. A fugitive emission is a term used to describe a small amount of a controlled product that is known to escape from process equipment or emission control equipment.

EMPLOYER RESPONSIBILITIES - Development and Review

If your organization has more 20 or more employees, the employer must consult with the joint health and safety committee, or the health and safety representative, about the content and delivery of a WHMIS program in their workplace. This is to help ensure that the training program is meeting the needs of the work environment and results in a worker being able to apply the information they learn.

Regardless of the number of employees, the employer is responsible for reviewing the office WHMIS program at least once a year. This must be done more often if conditions at the workplace change, or if new hazard information becomes available.

The Supplier

As we discussed earlier in the course, a supplier has no direct responsibilities for the education of workers. However, the supplier does play an important role in the education process by providing up to date and comprehensive supplier labels and Material Safety Data Sheets to the employer.

The Employee

The employee has the responsibility of receiving WHMIS training and applying it in the workplace. The employee plays an important role in the WHMIS process. Part of your responsibilities is being fulfilled by taking this course. Another part of your responsibilities will be fulfilled by using the information you learn in the course in your workplace.

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EXEMPTIONS AND RESTRICTED APPLICATIONS

Exemptions / Restrictions / Hazardous Waste

The Workplace Hazardous Materials Information System regulations apply to all workplaces that use, store, or handle controlled products. There are a few circumstances where the WHMIS regulations do NOT apply. They are as follows:

- "WHMIS Exemptions"
- Restricted Applications
- Hazardous Wastes

WHMIS Exemptions

WHMIS legislation, both federally and provincially, does not apply to:

- **WOOD OR PRODUCTS MADE OF WOOD** – this includes products such as lumber, plywood, particle board, and wood products coated with additives such as paint or preservatives. Additives may however be subject to WHMIS legislation before they are included in the finished product
- **TOBACCO OR ANY PRODUCT MADE OF TOBACCO** – these materials are governed by their own federal legislation
- **MANUFACTURED ARTICLES** - A "manufactured article" refers to any item that is formed to a specific shape or design during its manufacture, whose intended use depends on its shape or design, and under normal conditions of use will not expose people to a controlled product
- **PRODUCTS WHICH ARE BEING TRANSPORTED or HANDLED UNDER the REQUIREMENTS of the TRANSPORTATION of DANGEROUS GOODS ACT (T.D.G.)** - These materials are covered by the T.D.G. act and regulations while in transit, but become subject to the WHMIS regulations at the point of loading and unloading.

Restricted Applications - Partially Exempt Products

Partially exempt products are materials which are exempted from the federal WHMIS legislation because they are subject to labelling and information requirements under other federal legislation.

As a result of this federal exemption, the employer is not required to obtain supplier labels or MSDSs to use these materials. An employer must still deliver training on the safe handling of these materials and apply workplace labels when these materials are present or used in the workplace or transferred to different containers. If an MSDS sheet is available for the product it should be provided. The guidelines for the use, storage, handling and disposal of these products are covered under their respective acts.

PARTIALLY EXEMPT PRODUCTS FALL INTO THE FOLLOWING CATEGORIES:

- Products within the meaning of the Explosives Act (explosives)

- A cosmetic, device, drug or food within the meaning of the Food and Drug Act (cosmetics and prescriptions)
- A controlled product within the meaning of the Pest Control Products Act (pesticides)
- A controlled product within the meaning of the Atomic Energy Control Act (radioactive substances)
- A restricted material that is packaged as a consumer product

Hazardous Waste

The WHMIS regulations have limited applications to hazardous wastes.

Where any hazardous waste is generated or stored in the workplace, the employer is expected to:

- Identify all containers containing hazardous waste
- Develop a method of hazardous waste container identification that is understood by all workers. This may include a number of methods (e.g. colour coding, or a warning sign)
- Train any worker who may be exposed to hazardous waste regarding the materials safe handling and storage

While the employer is required to comply with the above, they are not required to provide workplace labels or Material Safety Data Sheets for containers of hazardous waste.