

WHMIS

2023

Handbook



KIGGG

Knowledge Integration Group Global Ltd.



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An Introduction to WHMIS

WHMIS is designed to protect workers.

WHMIS stands for Workplace Hazardous Materials Information System. WHMIS is the result of laws put in place to protect workers from hazardous materials they may encounter on the worksite.

Suppliers, employers and workers all have responsibilities under WHMIS law. Because WHMIS is the law, people who do not follow its requirements can be charged with an offence and, if convicted, could be fined or jailed.

Suppliers must label their products and provide detailed information regarding hazards and recommended handling procedures.

Suppliers may need to use and follow new requirements for labels and safety data sheets (SDSs) for any hazardous products sold, distributed or imported into Canada.

Employees must use the WHMIS system to ensure their own safety and the safety of others at the worksite. They must also take part in WHMIS education and training programs in order to protect themselves and others.

As an employee, you must know:

- how to recognize materials that are hazardous to your health and safety
- how to protect yourself and your co-workers against recognized hazards
- how to use workplace labels properly
- how to read and understand the SDSs and supplier labels

Employers must ensure that hazardous products are properly identified, and that workers are properly trained to recognize and handle hazardous materials at the worksite.

WHMIS sets out clear standards for all parties – suppliers, employers and employees. Under the legislation:

- suppliers and employers must ensure hazardous materials at the worksite are labelled
- information about hazards and handling procedures must be available and accessible to everyone at the worksite
- employees must be educated to recognize hazardous materials and manage them safely

WHMIS has three main components:

1. WHMIS Labels:

- identify the hazards of a product
- alert you about the degree or level of hazard of the product
- tell you about precautionary measures to take when handling the product

2. Safety Data Sheets (SDSs):

- provide detailed information about the hazards of a product
- provide advice about safety precautions, handling of the product and emergency procedures

3. Worker Education:

- trains workers about how to use WHMIS labels and SDSs
- lets workers know what hazardous materials are on site
- tells workers how to properly handle hazardous materials

Hazardous Materials

WHMIS applies to any substance that can cause illness, disease or death to unprotected workers.

The dangers of hazardous materials can come from:

- Explosion
- Fire
- Skin Contact
- Inhalation / Aspiration
- Ingestion

WHMIS divides hazards or hazardous materials into two major categories. The materials in each group possess specific hazardous properties.

Physical Hazards

Materials included in this category share physical or chemical characteristics, such as being flammable, reactive or corrosive.

Health Hazards

Materials included in this category have an effect on health, such as causing cancer (that is being “carcinogenic”) or causing allergic reactions.

A third category, **Environmental Hazards**, also exists. WHMIS legislation in Canada, however, does not cover these hazards. Suppliers may voluntarily include information on their labels about environmental hazards, but this is not required. As well, a class specific to Explosive Hazards is covered by other (non-WHMIS) legislation in Canada.

Physical Hazards:

- flammable solids, liquids and gases (including pyrophoric gases and chemically unstable gases)
- substances and mixtures that, in contact with water, emit flammable gases
- oxidizing gases, liquids and solids
- aerosols
- combustible dusts
- self-heating substances and mixtures
- self-reactive substances and mixtures
- gases under pressure
- corrosive to metals
- chemicals under pressure
- pyrophoric liquids and solids
- organic peroxides
- simple asphyxiants
- physical hazards not otherwise identified

Health Hazards:

- acute toxicity
- aspiration hazard
- biohazardous infectious materials
- carcinogenicity
- germ cell mutagenicity
- reproductive toxicity
- respiratory or skin sensitization
- serious eye damage/eye irritation
- skin corrosion/irritation
- specific target organ toxicity - repeated exposure
- specific target organ toxicity - single exposure
- health hazards not otherwise classified

Hazardous materials can pose danger for a number of reasons. To determine whether a material is hazardous, or to determine the degree of danger that might exist, hazardous information systems consider the following questions:

- How much of the hazardous material is present?
- Is the hazardous material toxic, and, if so, to what degree?
- How easily does it enter the body, and in what concentration?
- Is the hazardous material under pressure, and, if so, how much pressure?
- Does the hazardous material burn or explode, and, if so, how easily?

Each hazard class contains at least one hazard category. Some classes, such as the class called “corrosive to metals,” contain only one category. Others, such as the “organic peroxides” class, may include up to five hazard categories.

Hazard categories are numbered (Category 1, 2, 3, etc.). If a category is divided into sub-categories, these will be classified with a number followed by a letter (1A, 1B, etc.).

Within the categories, the most hazardous products are identified as Category 1, the second-most hazardous as Category 2, and so on. For sub-categories, the alphabetical order indicates which is more hazardous (1A will be more hazardous than 1B, and so on).

For instance, the Hazard Class Acute Toxicity has associated Hazard Categories 1, 2, 3 and 4, with Category 1 being the most dangerous.

The Hazard Class Skin Corrosion has Hazard Categories 1 and 2, with Category 1 further divided into A, B and C. 1A is more hazardous than 1B or 1C, and all Category 1's are more hazardous than Category 2. So a product that is categorized as 1A, requires the least amount of exposure to be lethal. The lower the number and the lower the letter, the more hazardous the product is.

Exceptions

Some exceptions exist within the classification system. For example, within the Health Hazards category of “reproductive toxicity,” Categories 1 and 2 relate to the effects of the hazardous material on fertility or on the unborn child, but a third potential hazard – representing effects on lactation or risks by way of lactation – has not been assigned a number.

Another example of an exception is seen in the Physical Hazards category of “gases under pressure.” The divisions in this category (that is, compressed gas, dissolved gas, liquefied gas and refrigerated gas) refer to the physical state of the substance when it is being transported, rather than to the degree of hazard it presents.

Roles and Responsibilities

Suppliers must:

- label potentially hazardous materials
- provide Safety Data Sheets (SDSs) for each hazardous product they sell for use on any Canadian worksite
- ensure the appropriate classification of hazardous products

Employers must:

- ensure all hazardous products at their worksite are labelled with appropriate WHMIS labels
- ensure WHMIS SDSs are available for all hazardous products present at the worksite, and that these SDSs are located in a place where they are accessible to everyone who works there
- ensure workers know what hazardous materials are present at the worksite
- ensure proper procedures are established for the handling of hazardous materials
- ensure proper procedures are established for dealing with emergencies involving hazardous materials
- ensure workers at their worksites are properly trained to handle all hazardous products and to deal with emergencies involving hazardous materials

Hazardous products may not be used until proper labels are applied and SDSs are available. Hazardous products without labels may be temporarily stored while the employer seeks information from the supplier. It must be labelled as “do not use”.

As an employee, you must:

- be able to recognize and use WHMIS labels and WHMIS Safety Data Sheets (SDSs)
- co-operate with your employer and take your site-specific WHMIS training
- understand and follow procedures for safe use, storage, handling and disposal of hazardous materials
- understand and follow the emergency procedures to be implemented in case of a spill, explosion, fire or accidental release of a hazardous material
- demonstrate that you understand and can follow procedures
- inform your employer of hazards or of damaged or missing labels

WHMIS Labels

All hazardous materials must be properly labelled.

WHMIS labels are used to identify all hazardous materials in use at the worksite.

They explain what the hazards are, provide instructions for handling the material and provide first-aid information.

There are two kinds of WHMIS labels: supplier labels and workplace labels.

All hazardous materials must have either a supplier label or a workplace label before they can be used at the worksite.

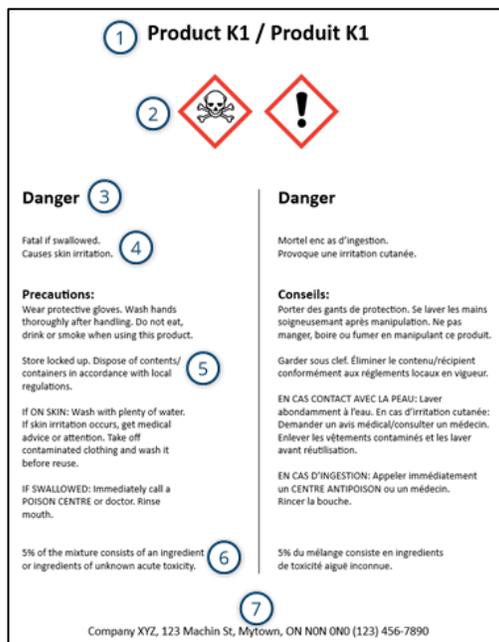
If material is removed from a supplier container and placed in another container for any reason, a workplace label must be placed on the new container.

In Canada, supplier labels must be:

- bilingual (in English and French)
- clear and easy to read
- durable, to retain their legibility in all environments over time

On the basis of a product's classification, labels may need to include additional or supplemental information as well as the standard product information.

Supplier Labels



1. Product Identifier

The Product Identifier must identify the hazardous substance in exactly the same way in which it is identified on the substance container and on the Safety Data Sheet (SDS).

2. Hazard Pictograms

Hazard Pictograms provide immediate and easily understood information about the hazard classification of the product or material. They are especially useful where language might be a barrier.

3. Signal Words

The words “Danger” or “Warning” are used as Signal Words or indicators of especially hazardous products. “Danger” is used for high-risk hazards, while “Warning” is used for less severe hazards. They emphasize the severity of the hazardous material.

4. Hazard Statements

Hazard Statements provide a brief standardized statement of all the product's hazards, based on the hazard classification of the material or product.

5. Precautionary Statements

Precautionary Statements communicate the measures that should be taken to minimize or avoid adverse effects from exposure to the hazardous material or substance. They include first-aid information and may recommend emergency measures or appropriate personal protective equipment (PPE).

6. Supplemental Information

Supplemental Information may be required based on the classification of the product. This information must not contradict or detract from the standardized information.

7. Supplier Identifier

The Supplier Identifier provides the name of the company that made, packaged and sold or imported the product, and that produced the supplier label and the SDS. Further product information may be obtained from this company.

Supplier labels on small containers show less information and must be bilingual in English and French.

WHMIS small container labels appear on containers that hold 100 ml or less of the hazardous material. These labels must show:

- the product identifier
- the applicable pictograms
- a signal word
- the supplier identifier



Workplace labels contain less information than the original supplier labels.

Workplace labels are used when a portion of a hazardous product has been taken from the original container, or when the original supplier label cannot be read. They should be in English and/or in the main language of the workplace.

The workplace label must:

- include the full product name, exactly as it appears on the original label and in the SDS
- describe safe handling procedures and precautions
- refer to the SDS, which provides more detailed information

Product T9

Precautions: Store away from heat and open flames. Avoid sparks. Wear chemical resistant gloves when working with product. If burns to skin occur, seek medical aid. Use emergency shower in the event of skin contact, or wash affected skin with water immediately. If swallowed, call poison control.

See SDS for further information

Piping Systems

When hazardous products are contained or transferred in a piping system, the use of labels, placards, colour coding, or any other method of identification is allowed, along with worker training.

Pictograms

 <p>Gas Cylinder (for gases under pressure)</p>	 <p>Skull and Crossbones (can cause death or toxicity with short exposure to small amounts)</p>
 <p>Biohazardous Infectious Materials (for organisms or toxins that can cause diseases in people or animals)</p>	 <p>Flame Over Circle (for oxidizing hazards)</p>
 <p>Exploding Bomb (for explosion or reactivity hazards)</p>	 <p>Exclamation Mark (may cause less serious health effects or damage to the ozone layer)</p>
 <p>Health Hazard (may cause or suspected of causing serious health effects)</p>	 <p>Environment (may cause damage to the aquatic environment)</p>
 <p>Corrosion (for corrosive damage to materials as well as skin and eyes)</p>	 <p>Flame (for fire hazards)</p>

Warning!

If you see any hazardous material container that does not have a label, or if you see a label that is unreadable, tell your employer immediately!

Safety Data Sheets (SDSs)

Safety Data Sheets (SDSs) provide detailed information about hazardous materials. In Canada, SDSs must include 16 sections of information. This 16-section SDS is also the standard throughout Europe and the United States.

Although SDSs require 16 sections, sections 12 through 15 require headings to be present, but suppliers have the option to not provide information in these sections.

1. Identification

The Identification section of the SDS supplies:

- the product identifier
- other means of identification (e.g., product family, synonyms, etc.)
- the recommended use of the product
- restrictions on product use
- supplier contact information
- an emergency phone number

2. Hazard Identification

The Hazard Identification section of the SDS supplies:

- the classification (hazard class and category or subcategory)
- label elements (including pictogram, signal word, hazard statement and precautionary statements)
- other hazards (such as thermal or corrosive hazards)

3. Composition/Information on Ingredients

The Composition/Information on Ingredients section of the SDS identifies:

- the product's ingredients (common chemical name, synonyms, CAS {Chemical Abstracts Service} number, EC {European Community} number, etc.)
- impurities and stabilizing additives, where classified
- the concentration of ingredients in the product mixture

4. First-Aid Measures

The First-Aid Measures section of the SDS identifies:

- first-aid measures by route of exposure
- the most significant symptoms and effects of exposure
- if necessary, the required medical attention and special treatment

5. Firefighting Measures

The Firefighting Measures section of the SDS identifies:

- suitable and unsuitable extinguishing media
- specific hazards, special equipment and precautions for firefighters

6. Accidental Release Measures

The Accidental Release Measures section of the SDS identifies:

- necessary protective equipment
- emergency procedures and methods
- containment and cleanup materials

7. Handling and Storage

The Handling and Storage section of the SDS identifies:

- safe handling procedures and precautions
- safe storage conditions (including any incompatibilities with other materials or substances)

8. Exposure Controls/Personal Protection

The Exposure Controls/Personal Protection section of the SDS identifies:

- exposure limits
- engineering controls
- personal protective equipment (PPE)

9. Physical and Chemical Properties

The Physical and Chemical Properties section of the SDS provides information about a product's:

- physical state
- colour
- solubility
- flash point
- odour
- pH
- flammability
- vapour pressure
- kinematic viscosity
- particle characteristics
- boiling point and range
- relative vapour density
- auto-ignition temperature
- melting and freezing points
- partition coefficient – n-octanol/water
- density and relative density
- decomposition temperature
- upper and lower flammable or explosive limits

10. Stability and Reactivity

The Stability and Reactivity section of the SDS identifies:

- a material's chemical stability
- possible hazardous reactions
- conditions to avoid
- materials with which the hazardous product is incompatible
- hazardous decomposition products

11. Toxicological Information

The Toxicological Information section of the SDS identifies:

- the various toxic effects of the hazardous material by route of entry
- the effects of acute or chronic exposure
- how carcinogenic the product is
- the reproductive effects
- the respiratory sensitization and effects

12. Ecological Information

The Ecological Information section of the SDS identifies:

- the aquatic and terrestrial toxicity of the hazardous product (where that information is available)
- the persistence of the substance in the environment
- the degradability of the substance
- the material's bio-accumulative potential and soil mobility
- other adverse effects

13. Disposal Considerations

The Disposal Considerations section of the SDS identifies:

- safe handling methods
- safe disposal methods
- waste packaging

14. Transport Information

The Transport Information section of the SDS supplies:

- the UN {United Nations} number
- the correct shipping name of the hazardous product
- the hazard class and packing group of the material being transported
- the environmental hazards
- special precautions

15. Regulatory Information

The Regulatory Information section of the SDS identifies the product-specific:

- safety regulations
- health regulations
- environmental regulations

16. Other Information

The Other Information section of the SDS provides:

- other information (including, for example, the preparation date of the latest SDS revision)

Suppliers must provide an accurate Safety Data Sheet for every hazardous product they sell. This SDS provides additional information that cannot be contained on a supplier label.

The SDS should be kept in a location where it can be seen and read by everyone who uses the hazardous product. If you don't know where an SDS is located, ask your supervisor.

DO NOT USE a hazardous product for which the SDS is missing or incomplete! Store the product in a safe place until a proper SDS can be obtained, and mark it clearly as unusable, with a notation or placard placed on, above or near the hazardous product.

It's up to the employer to ensure that SDSs are up-to-date and accurate at the time of the sale of the product. The supplier must update the SDS when changes to the information occur.