



# WHMIS

## Quick Facts

Workplace Hazardous Materials Information System



# What is WHMIS?

As a **worker**, you have the **right to know** about the hazards of chemicals used in your workplace. To support your right to know, laws across Canada require chemical suppliers and your employer to provide you with information about hazardous products and how to protect yourself. WHMIS applies to products specifically for use in workplaces.

### Labels

Controlled products from Canadian suppliers display a WHMIS label like the one shown below. In addition to the hazard symbols, a WHMIS supplier label identifies the product and lists hazards, precautions, and first aid measures. Additional information is provided on the MSDS.

Workplace labels are required on portable containers in the workplace.



### Hazard Classes / Symbols

Hazard symbols appear on product containers as a visual alert. Products are classified by the supplier to identify hazardous properties such as toxicity, flammability and reactivity. A product that has hazardous properties, is called a controlled product, and one or more WHMIS symbols must appear on the product label. These eight symbols alert you immediately to a product's potential hazards.



A-Compressed Gas



B-Flammable/Combustible



C-Oxidizing



D1-Immediate and Serious Toxic Effects



D2-Other Toxic Effects



D3-Biohazardous



E-Corrosive



F-Dangerously Reactive

### Material Safety Data Sheets (MSDSs)

Material Safety Data Sheets are provided by the supplier to give users detailed information about the hazards and safe use of products. Before using any product for the first time review the MSDS for information on health effects, fire hazards, handling, storage, and personal protection.



### Education and Training

If you work with, or may be exposed to, hazardous materials at your workplace, you must be trained. WHMIS training has two aspects:

- 1) Education – understanding the principles of WHMIS, and the meaning of the information on labels and MSDSs, and
- 2) Training – workplace-specific training on how to apply this information to materials in actual use at your workplace, including: procedures for storage, handling, disposal, and personal protection.

The employer is responsible to ensure that workers have been appropriately trained.

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# WHMIS – A shared responsibility where...

## SUPPLIERS

who manufacture, import, distribute, repackage or sell controlled products pursuant to the federal *Hazardous Products Act* and *Controlled Products Regulations*:

- determine which of their products are “controlled products”
- assess applicable health and safety information
- transmit/obtain or prepare the material safety data sheet and apply the label as a condition of sale/importation

## EMPLOYERS

who purchase, use, deploy, manufacture or dispose of controlled products pursuant to federal, provincial and territorial WHMIS occupational health and safety legislation:

- ensure that all controlled products on site are properly labelled and up-to-date MSDSs are readily available to workers
- provide WHMIS worker education and training and apply appropriate workplace control measures to ensure the health and safety of workers

## WORKERS

who use, handle, dispose or are exposed to controlled products pursuant to federal, provincial and territorial WHMIS occupational health and safety legislation:

- participate in the education and training program on controlled products
- take necessary steps to protect themselves and their co-workers
- participate in identifying and eliminating risks

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# Education and Training Requirements

Education and training is essential to make the WHMIS system work. If you have WHMIS-controlled materials on your worksite then you must provide appropriate education and training.

As an employer, you are responsible for ensuring that employees have been appropriately trained **before** they work with controlled products.

WHMIS training has two aspects:

**Education** – understanding the principles of WHMIS, and the meaning of the information on labels and MSDSs; and

**Workplace Specific Training** – knowing how to work safely with hazardous materials at your work site.

## Education

### WHMIS Background

WHMIS and its purpose

Legislation for controlled products (federal, provincial, territorial)

Rights, responsibilities and roles of suppliers, employers, workers, joint health and safety committees, and occupational safety and health regulatory agencies

### Controlled Products and Types of Exemptions

Definition of a controlled product

Which products require Material Safety Data Sheets (MSDSs) and labels

Exemptions:

- **Partial** exemption for regulated products (e.g. consumer products, pesticides). WHMIS labels and MSDSs are not required, but WHMIS information and training are required.
- **Complete** exemption (e.g. for manufactured articles and products subject to the Transportation of Dangerous Goods (TDG) Regulations)

### WHMIS Classes and Hazards

The six WHMIS classes and their symbols

Hazards represented by each Class (including subdivisions of Classes B and D)

### Labels

Supplier label – required elements

Workplace label

Other labels (e.g. coding for pipes, reaction systems, wastes)

### Understanding the MSDS

Purpose of the MSDS

Required MSDS content and its significance:

- Potential hazards (health, fire, reactivity)
- Safe work procedures for storage and handling
- Emergency procedures
- First aid measures

Explanation of common terms on MSDSs (e.g. acute, chronic, Threshold Limit Value (TLV®))

### Sources of additional information

Where to go for further information (e.g. on WHMIS, health effects of chemicals)

Where to go for assistance on enforcement

## Workplace Specific Training

Train and educate workers on hazards and control measures applicable to their particular work area and duties. This training expands on the information provided on the MSDS.

### Legislation for your jurisdiction and industry

WHMIS

Workplace occupational health and safety law

Other federal legislation (e.g. TDG, *Canadian Environmental Protection Act* (CEPA))

Other provincial/territorial/municipal legislation

### Controlled Products in your workplace

Workers must be able to:

- Identify the controlled products and understand their hazards
- Recognize warning properties and adverse health effects
- Access MSDSs and other in-plant information on controlled products

### Specific Procedures for Controlled Products

Workers must understand:

- Safe procedures for storage, handling and disposal for the products that they work with
- Protective measures (including ventilation and other engineering controls; Personal Protective Equipment (PPE))
- Use and maintenance of PPE, if required
- Appropriate measures for fugitive emissions, hazardous wastes
- Warning systems (if control systems fail)
- Emergency procedures for fires, spills, and leaks

### Training Tips for Employers

USE methods of instruction and evaluation appropriate for workers' language and literacy level

KEEP records of training and evaluations

USE workplace-specific MSDSs in training

CONSULT Occupational Safety & Health (OSH) Committee or Representative regarding WHMIS training, annually or if conditions change

PROVIDE additional training when MSDS information changes, when process or process controls change and when a new hazardous material is introduced

For additional information and resources, visit [www.whmis.gc.ca](http://www.whmis.gc.ca) and/or [www.ccohs.ca](http://www.ccohs.ca)

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## Quick Facts

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# Classes of WHMIS Controlled Products

## CLASS A - Compressed Gas



## CLASS B - Flammable and Combustible Material

*Division 1: Flammable Gases*

*Division 2: Flammable Liquids*

*Division 3: Combustible Liquids*

*Division 4: Flammable Solids*

*Division 5: Flammable Aerosols*

*Division 6: Reactive Flammable Materials*



## CLASS C - Oxidizing Material



## CLASS D - Poisonous and Infectious Material

*Division 1: Materials Causing Immediate and Serious Toxic Effects*

*Subdivision A: Very Toxic Material*

*Subdivision B: Toxic Material*



*Division 2: Materials Causing Other Toxic Effects*

*Subdivision A: Very Toxic Material*

*Subdivision B: Toxic Material*



*Division 3: Biohazardous Infectious Material*



## CLASS E - Corrosive Material



## CLASS F - Dangerously Reactive Material



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# Do You Know These Vital Signs?

*The hazard symbols of WHMIS*

WHMIS provides you with information on the safe use, storage, handling and disposal of hazardous materials at Canadian workplaces.

### CLASS A

Compressed Gas



### CLASS D2

Poisonous and Infectious Material (material causing other toxic effects)

### CLASS B

Flammable and Combustible Material



### CLASS D3

Poisonous and Infectious Material (Biohazardous Infectious Material)

### CLASS C

Oxidizing Material



### CLASS E

Corrosive Material

### CLASS D1

Poisonous and Infectious Material (Material causing immediate and serious effects)



### CLASS F

Dangerously Reactive Material

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# MSDS Checklist

*Questions to consider when reading an MSDS*

An MSDS is a starting point in developing safe handling practices and procedures for a product. It is not a complete source of health and safety information on its own. Always refer to your company's safety rules and detailed procedures for more information. Whenever you use an MSDS, ask yourself the following questions:

### Product Identification

- Does the product name on the MSDS match the name on the container label? Check for product codes and other identifiers.
- Does the description of the material (colour, physical state) match the material you have?
- Is the MSDS up-to-date?

### Recognizing Potential Hazards

- Can this material harm your health?
- What short-term (acute) health effects does the product have?
- Are there symptoms that may warn you of short-term overexposure? Report any symptoms you experience to your supervisor.
- Does the product have any serious long-term health effects?
- Have you told your doctor about the materials you work with, especially if you are pregnant, or wish to have children?
- Have you discussed with your doctor any potential long-term health concerns (for example, liver toxicity, cancer or respiratory sensitization) associated with the material?
- Can this material burn or explode? If yes, are fire prevention measures in place?

Is this material unstable (could it decompose or explode on its own)? If yes, under what conditions? Could these conditions occur in your workplace?

Can this material react with other chemicals? If yes, do you work with any of the incompatible substances?

### Preventive Measures

- Does the MSDS recommend local exhaust ventilation or other engineering controls? If yes, are the recommended controls operating at your worksite?
- Does this material require special handling precautions? If yes, have you had worksite-specific training on the safe handling procedures for this material?
- Does the MSDS recommend that you wear protective equipment? If yes, do you have the equipment and have you had training on the proper use of this equipment.
- Are there specific chemicals that this material should not come in contact with?
- Are there special storage recommendations on the MSDS? If yes, have you had worksite-specific training on the safe storage of this material?

### Emergency Measures

- Do you know what to do in case of a fire or explosion?
- Do you know the first aid measures needed in case of an exposure?
- Do you know what to do in case of a spill or leak?
- Do you know where the emergency response equipment (fire extinguishers, spill cleanup materials) is and how to use it?

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# Supplier Labels

The product label is your first source of information about the hazards of a product and how to protect yourself. Controlled (hazardous) products from suppliers must display a WHMIS label with a hatched border and the following seven categories of information.

## 1. Product Identifier

The product name exactly as it appears on the container and on the Material Safety Data Sheet

## 2. Supplier Identifier

The company which made or packaged the product, and is responsible for the label and MSDS information. Contact the supplier for additional information on the product

## 3. Hazard Symbols

One or more WHMIS symbols, depending on the WHMIS classification of the product

## 4. Risk Phrases

Brief statements of major hazards, based on the WHMIS classification of the product

## 5. Precautionary Measures

Brief descriptions of essential precautions, specific protective equipment, and emergency measures

## 6. First Aid Measures

Immediate steps to be taken by trained first aiders at the scene of an incident

## 7. MSDS Reference

Labels provide key information to alert you about critical hazards, precautions and first aid measures. The MSDS contains much more information on the safe use of the product. Always read the MSDS before working with a hazardous product.

## What to look for...

When reading a supplier label, look for consistency between the information elements. Do the hazard symbols match the risk phrases, and the information on the MSDS? Are the precautions and first aid measures consistent with the hazards? If you have questions, contact the supplier.

Sample Supplier Label

**1** SOL 27 CLEANER  
**2** X-Y-Z CHEMICAL CO.

**5** Precautions: Eliminate all ignition sources. Keep away from sparks and open flames. Bond and ground transfer containers and equipment to avoid static accumulation. Ventilate area. Empty containers are hazardous, may contain flammable, liquid residue or vapours. Wear suitable eye protection (chemical safety goggles).

**3** **4** **Extremely Flammable Liquid**  
**Liquide extrêmement inflammable**

**6** First Aid: Flush contaminated eyes or skin with water. If overcome by vapours, move victim to fresh air. If ingested, do NOT induce vomiting. Obtain medical attention.

**7** See Material Safety Data Sheet (MSDS) for more information.  
Pour de plus amples renseignements, consulter la Fiche signalétique (FS).

Toxic - Eye Irritant  
Toxique - Irritant oculaire

Précautions : Éliminer toute source d'inflammation. Tenir éloigné des étincelles et des flammes. Brancher à la terre les contenants de transfert et l'équipement pour éviter l'accumulation d'électricité statique. Bien aérer le secteur. Les contenants vides présentent un danger, car ils peuvent contenir un résidu de liquide ou de vapeur inflammable. Porter un dispositif de protection oculaire (lunettes protectrices contre les agents chimiques).

Premiers soins : Rincer la peau ou les yeux contaminés avec de l'eau. Changer d'environnement pour donner de l'air frais à la personne incommodée. Si avalé, NE PAS faire vomir. Contacter un médecin.

Supplier labels must be bilingual (English/French), easy to read, and durable. If the label is lost, damaged, or no longer readable, the product must be relabeled.

## Special Provisions

1. Controlled products may be imported without a supplier label. The importer or purchaser must provide the required label information.
2. Certain categories of controlled products (containers under 100 mL, laboratory products, and laboratory samples) may legally show less (or a variation from the) information than indicated above.

**Always read the MSDS before working with a hazardous product.**

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# Workplace Labels

Labels and other systems used in the workplace to **identify hazardous materials** when a supplier label is not applicable or not available.

All containers of hazardous materials (controlled products) in the workplace must be labeled. This supports the workers' **right to know** about hazards to their health or safety at work.

Employers and workers both have legal responsibilities to help ensure that labels remain attached as required and that label information is understood.

### Employer's Responsibilities

✓ ENSURE that products are labeled as required with supplier labels, workplace labels, or other identifiers\*.

PROVIDE training so that workers understand information on labels.

PROVIDE training on the specific identification system\* for hazardous materials used in the workplace.

### Worker's Responsibilities

✓ PARTICIPATE in training.

UNDERSTAND how to apply information disclosed on labels and MSDSs in the workplace.

REPORT situations where labels have become detached, damaged, or unreadable.

PREPARE and/or attach workplace labels or other identification to containers under their control, as directed.

Sample Workplace Label

<b>PAINT REMOVER</b>	Product Name
Very Toxic. Combustible. Keep away from heat and flames.	Safe Handling Procedures
Wear respirator (organic vapour cartridge), goggles and neoprene gloves. Use with local exhaust ventilation.	
See MSDS: Castle Paints #2012	Reference to MSDS

WHMIS regulations prescribe the labels or other identifiers which must be used on containers of hazardous materials.

### Where WHMIS Workplace Labels are required:

- A controlled product is delivered to the workplace in bulk and a supplier label is not available.
- A controlled product is transferred to a smaller portable container for use in the workplace.

*Exception:* a label is not required if the product is used immediately.

- The supplier label on a container of a controlled product becomes unreadable, damaged, or detached, and a replacement supplier label is not available.

### Where other forms of identification\* may be used

- Piping, reaction vessels, and transfer systems which contain controlled products must be identified by colour coding, labels, or other means of identification.
- Hazardous wastes must be identified, but WHMIS workplace labels are not required.
- Detailed rules apply to labels for samples and other materials used in laboratories

### \* GLOSSARY OF TERMS \*

**\*Identification System** The method used to identify hazardous materials in the workplace (labeling, colour coding, etc.)

**Protect yourself and your co-workers.  
Make sure that workplace products are properly identified.**

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## Risk versus Hazard

“Risk” and “hazard” are two words that you may hear used interchangeably, but there is a very important difference in the meaning of these two little words.

WHMIS is a hazard-based classification system. Read on to learn what this means and the importance of doing a risk assessment for materials that have WHMIS hazards.

### What is Hazard?

“Hazard” is the harm that something can cause. The harm may be physical injury, damage to health, property and/or the environment. Hazard is an intrinsic or “built-in” characteristic. In WHMIS we talk about hazardous materials, materials that can produce harm.

The WHMIS hazard classes (and possible harm they can cause) are:

- Compressed gas (exploding containers)
- Flammable and combustible material (fire)
- Oxidizing material (feeds a fire)
- Material causing immediate and serious toxic effects (e.g. death)
- Material causing other toxic effects (e.g. irritation, respiratory sensitization or cancer)
- Corrosive material (destruction of skin or metals)
- Dangerously reactive material (e.g. explosive reaction)

### What is Risk?

“Risk” is the likelihood that a hazardous material will cause harm to people, property or the environment.

There are two factors that can increase or decrease risk:

1. The seriousness of the **hazard**. For example, one material may cause skin cancer, while another may cause skin irritation. Cancer is a much more serious effect than irritation.
2. How much **exposure** there is to the hazard. Exposure is the extent to which people or objects are subjected to the hazard. Exposure can be influenced by factors such as the length or duration of exposure (short *versus* long), how much exposure (high concentration *versus* low) and/or the route of exposure (inhalation *versus* skin contact *versus* ingestion).

It is commonly accepted that:

$$\text{Risk} = \text{hazard} \times \text{exposure}$$

This is a simple way of saying that the degree of risk depends on both the nature of the hazard *and* the nature of the exposure. A material with a low hazard can pose a high risk if exposure is high. A material with a high hazard can pose less risk if exposure is low.

### Controlling hazards by reducing risk

Consider the following example:

“Not Too Safe” is used as a rust inhibitor on metal piping. An ingredient of “Not Too Safe” can cause cancer if inhaled. This is the **hazard** of “Not Too Safe”.

Company K8 has carefully evaluated various types of rust inhibitors and has determined that to get the performance they require, “Not Too Safe” is the best product. The supplier sells “Not Too Safe” in an aerosol container or as a liquid in a can, with brush application. The job can be done more quickly with aerosol application.

#### *Should Company K8 buy this material as an aerosol or as a liquid?*

This material should be purchased as a liquid. Spray application of the aerosol will result in more airborne exposure. With brush application, inhalation exposure will be reduced or eliminated. The company should also consider implementing engineering controls (e.g. ventilation) and providing respiratory protection for workers depending on how much and how frequently “Not Too Safe” is used.

If the company controls inhalation **exposure** to this material, they will minimize **risk**.

K8 should also continue to evaluate alternatives to “Not Too Safe” – with the ultimate goal of purchasing a less hazardous product.

**Many chemicals have hazardous properties. A risk assessment considers the hazards, use and potential exposure to the product. Appropriate workplace controls can reduce or eliminate risk by reducing or eliminating exposure.**

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