

Workplace Hazardous Materials Information System (WHMIS)

What is WHMIS?



WORKPLACE
HAZARDOUS
MATERIALS
INFORMATION
SYSTEM

WHMIS

WHMIS was designed to address employers' and workers' right to know about the hazards and safe work practices related to certain chemicals and infectious biological substances. Materials that are subject to WHMIS legislation is called controlled products

Requires employees to use products safely

Requires the employer to ensure that employees are trained to use products safely and have access to information on safe use

Key Elements to WHMIS

Identification : Labeling/Hazard Symbols

Knowledge: Worker Education & Training

Information: Material Safety Data Sheets



WHMIS Responsibilities

Suppliers

- Determining which products are “controlled” products and classifying appropriately
- Establishing health and safety information regarding a product
- Labelling products with WHMIS labels
- Preparing and providing MSDS’s for customers and updating them

Employers

- Ensure all controlled products at the work sites have WHMIS labels
- Make MSDSs available and accessible to workers
- Train workers to read labels and MSDS’s, recognize WHMIS labels, how to handle, use and store controlled products and, if required, use personal protective equipment

Employees

- Participate in education and training provided by the employer
- Follow prescribed safe work procedures

What is a Controlled Product?

Controlled products are materials, products, or substances that meet any of the criteria for one or more of the six WHMIS Hazard Classes as defined in the Federal Controlled Product Regulation

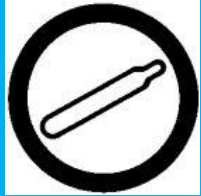
Exclusions

The following are exempt from the suppliers responsibilities of WHMIS (no label or MSDS required):

- Consumer restricted products
- Explosives
- Cosmetics, drug, food, or devices
- Pesticides, herbicides, and insecticides
- Radioactive material

WHMIS Hazard Symbols

These hazard symbols on the label identify the product as controlled by WHMIS and classify the type of hazard.



CLASS A Compressed Gas



CLASS D-2 Poisonous and Infectious Material (material causing other toxic effects)



CLASS B Flammable and Combustible Material



CLASS D-3 Poisonous and Infectious Material (Biohazardous Infectious Material)



CLASS C Oxidizing Materials



CLASS E Corrosive Material



CLASS D-1 Poisonous and Infectious Material (material causing immediate and serious effects)



CLASS F Dangerously Reactive Material

Class A: Compressed Gas

Characteristics

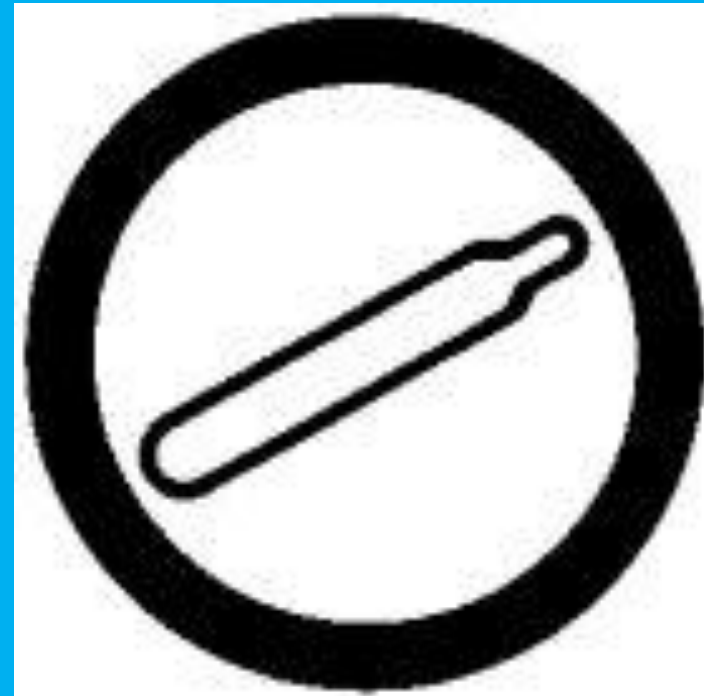
- Gas inside cylinder is under pressure

Hazards

- Cylinder may explode if dropped or heated
- Hazards associated with force of explosion and contents of cylinder

Handling and Use

- Transport with specialized cart
- Use gas specific regulator
- Store away from heat and fire sources
- Test connections for leaks
- Ensure cylinders are properly secured



Class B: Flammable and Combustible

Characteristics

- May burn or explode when exposed to heat, sparks, or flames

Hazards

- May ignite spontaneously
- May ignite upon decomposing or being exposed to water

Handling and Use

- Store away from Class C: Oxidizing Materials
- Avoid storing near sources of heat, sparks, or flames
- Keep containers tightly sealed
- Ground and bond when dispensing from 25 L containers
- Store in flammable cabinets if quantities exceed 100 L
- Transport using secondary containment



Class C: Oxidizing Material

Characteristics

- Can promote burning or explosions of other materials by providing an oxygen source for combustion

Hazards

- May burn skin and eyes on contact
- Increase fire and explosion hazard
- May cause combustibles to explode or react violently

Handling and Use

- Transport and store separately from flammables and organics
- Store in non-corroding containers
- Store away from sources of heat and ignition
- Wear proper personal protective equipment

Examples

- Hydrogen peroxide
- Bleach
- Nitrates



Class D-1: Poisonous and Infectious

Division 1: Materials causing immediate and serious toxic effects (acute)

- Subdivision A: Very toxic material
- Subdivision B: Toxic material

Characteristics

- Poisonous and potentially fatal materials resulting in immediate and severe harm

Hazards

- Small quantities may be harmful or lethal
- May cause immediate death or serious harm if inhaled, swallowed, or absorbed through the skin

Handling and Use

- Avoid skin and eye contact
- Minimize vapor exposure
- Wear the recommended personal protective equipment
- Wash hands after handling

Examples

- Cyanides
- All halogens



Class D-2: Poisonous and Infectious

Division 2: Materials causing other toxic effects (chronic, delayed)

- Subdivision A: Very toxic material
- Subdivision B: Toxic material

Characteristics

- Materials which have harmful effects after repeated exposures over long periods of time

Hazards

- May cause death or permanent injury
- May cause organ damage, cancer, birth defects, or sterility
- May lead to sensitization or allergies

Handling and Use

- Avoid skin and eye contact
- Minimize vapor exposure
- Wear the recommended personal protective equipment
- Wash hands after handling

Examples

- Asbestos
- Benzene



Class D-3: Poisonous and Infectious

Division 3: Biohazardous infectious material

Characteristics

- Infectious agents or biological toxins resulting in serious disease or death

Hazards

- May cause serious disease resulting in illness or death

Handling and Use

- Work with materials in designated area (ie. Biosafety cabinet)
- Disinfect area after cleaning
- Wash hands after handling
- Wear proper personal protective equipment

Examples

- E. Coli
- Tissues
- Viruses



Class E: Corrosive Material

Characteristics

- Materials that will erode metals or destroy tissues

Hazards

- Will burn human tissue upon contact
- Can corrode laboratory materials, in particular metals

Handling and Use

- Store acids and bases separately
- Store chemicals in non-corroding containers
- When possible, work in a fume hood
- Wear recommended personal protective equipment

Examples

- Strong acids and bases
- Hydrogen Fluoride



Class F: Dangerously Reactive

Characteristics

- Materials may undergo unexpected reactions under certain conditions

Hazards

- May be chemically unstable
- May vigorously polymerize
- May react with water to release a toxic or flammable gas
- May explode if exposed to heat or shock
- May burn unexpectedly

Handling and Use

- Follow MSDS recommendations for storage and use
- Wear recommended personal protective equipment
- Examine storage containers frequently
- Store and transport securely

Examples

- Azides
- Hydrazine
- Ether



Identification: Labels/Hazard Symbols

Labels are the first identification to the user that a substance is a WHMIS controlled product.

Labels must be:

- Visible in normal conditions of storage
- Easy to see
- Durable
- Attached in such a manner that they will remain in good condition

The three types of labels in the WHMIS system are:

- Supplier Label
- Workplace Label
- Other means of identification

Supplier Labels

Must be attached by the supplier when the material arrives at the workplace to identify shipments that include controlled products

Supplier labels must contain:

1. Product Identifier
2. Suppliers Identifier
3. Hazard Symbols
4. Risk Phrases
5. Precautionary Measures
6. First Aid Measures
7. MSDS Reference

Sample Supplier Label

1 SOL 27 CLEANER
X-Y-Z CHEMICAL CO

2

3  **3**

4 **4** **4**

5 **5** **5**

6 **6** **6**

7 **7**

Toxic - Eye Irritant
Toxicité - Irritant oculaire

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

Workplace Labels

Workplace labels must be used when:

- 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
- The supplier label on the container becomes unreadable, damaged, or detached, and a replacement supplier label is not available

Workplace labels need to show:

- The product identifier
- Safe handling procedures
- Reference to an MSDS



What is MSDS?

MSDS is an acronym for: **Material Safety Data Sheet**

Material Safety Data Sheet must be obtained at the time of purchase

A MSDS must be less than 3 years old

MSDS's must be available for use and reference at all times

MSDS provides information on:

- health effects of overexposure
- health evaluation related to product handling, storage and use
- measures to protect workers at risk of overexposure
- emergency procedures

MSDS

The MSDS must contain the following sections and information:

- Section 1: Product identification and use
- Section 2: Hazardous ingredients
- Section 3: Physical data
- Section 4: Fire and explosive data
- Section 5: Reactivity data
- Section 6: Toxicology properties
- Section 7: Preventative measure
- Section 8: First Aid measures
- Section 9: Preparation date



WHMIS 2015

In February 2015, Canada amended the Hazardous Products Act and published the Hazardous Products Regulations in order to incorporate the GHS into WHMIS

To allow time for suppliers, employers and workers to adjust, implementation will take place over a multi-year transition period where both WHMIS (WHMIS 1988) and WHMIS 2015 may be used in the workplace



WHMIS 2015 – What are the Changes?

WHMIS has aligned with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) and the goal is to have a common set of rules used worldwide

Aligning WHMIS with GHS helps to:

- Enhance the protection of worker health and safety by having improved and consistent hazard information
- Encourage safe transport, handling, and use of hazardous products
- Promote better emergency response
- Promote regulatory efficiency and compliance
- Facilitate international trade

GHS will not replace WHMIS, however, will create some important changes to WHMIS

New classification rules and hazard classes

A standardized format for Safety Data Sheets (formerly MSDS)

New hazard pictograms

New label requirements

Hazard Group

WHMIS 2015 applies to two major groups of hazards: physical, and health. Each hazard group includes hazard classes that have specific hazardous properties.

- **Physical hazards group:** based on the physical or chemical properties of the product - such as flammability, reactivity, or corrosivity to metals
- **Health hazards group:** based on the ability of the product to cause a health effect - such as eye irritation, respiratory sensitization (may cause allergy or asthma symptoms or breathing difficulties if inhaled), or carcinogenicity (may cause cancer)

Hazard Class and Category

Hazard classes are a way of grouping together products that have similar properties. Most of the hazard classes are common to GHS and will be used worldwide by all countries that have adopted GHS. Some hazard classes are specific to WHMIS 2015











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

Some hazard classes have only one category (e.g., corrosive to metals), others may have two categories (e.g., carcinogenicity (cancer)) or three categories (e.g., oxidizing liquids). There are a few hazard classes with five or more categories (e.g., organic peroxides)

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

Category 1 is always the greatest level of hazard. If Category 1 is further divided, Category 1A within the same hazard class is a greater hazard than category 1B

GHS Pictograms

| | | | |
|--|---|--|--|
|  | <ul style="list-style-type: none"> Flammables (gases, aerosols, liquids, solids) Self-reactive substances and mixtures Pyrophoric liquids, solids, and gases Self-heating substances and mixtures Substances and mixtures that in contact with water emit flammable gas Organic peroxides |  | <ul style="list-style-type: none"> Carcinogenicity Respiratory sensitization Reproductive toxicity Specific target organ toxicity – repeated exposure Specific target organ toxicity – single exposure (category 1, 2) Aspiration hazard Germ cell mutagenicity |
|  | <ul style="list-style-type: none"> Skin sensitization Acute toxicity (harmful) Specific target organ toxicity – single exposure (category 3) Eye irritation Skin irritation Hazardous to the ozone layer |  | <ul style="list-style-type: none"> Corrosive to metals Serious eye damage Skin corrosion |
|  | <ul style="list-style-type: none"> Acute toxicity (severe) |  | <ul style="list-style-type: none"> Gases under pressure |
|  | <ul style="list-style-type: none"> Oxidizing gases, liquids, solids |  | <ul style="list-style-type: none"> Biohazardous infectious material |
|  | <ul style="list-style-type: none"> Self-reactive substances and mixtures Organic peroxides Explosives |  | <ul style="list-style-type: none"> Hazardous to the aquatic environment Canada will not be implementing |

Safety Data Sheets (SDS)

Updated terminology for the MSDS

Will consist of 16 sections and variable number of pages

Will not need to be updated every 3 years

Must be current at time of sale/import

| Section | Hazardous Product Regulations Heading |
|---------|---|
| 1 | Identification |
| 2 | Hazard identification (including classification and label text) |
| 3 | Composition/information on ingredients |
| 4 | First-aid measures |
| 5 | Fire-fighting measures |
| 6 | Accidental release measures |
| 7 | Handling and storage |
| 8 | Exposure controls/personal protection |
| 9 | Physical and chemical properties |
| 10 | Stability and reactivity |
| 11 | Toxicological information |
| 12-15 | Ecological, transport and regulatory information, disposal considerations |
| 16 | Other information |

Safety Data Sheets (SDS)

- Remember the four basic questions that the SDS should answer
 - **Identify** of the product and supplier?
 - **Hazards** of the product?
 - **Precautions** you should take?
 - What to do in an **emergency**?

Labels

- Suppliers Labels will require the following:
 - The pictogram, signal word, and hazard statement are to be grouped together
 - To be clearly and prominently displayed on the container
 - To be easy to read, and
 - To be in contrast with other information on the product or container
- Workplace Labels will require the following:
 - Product name
 - Safe handling precautions, may include pictogram or other supplier label information
 - Reference to the SDS (if available)

An example of a supplier's label

Product K1 / Produit K1



| | |
|--|--|
| <h3>Danger</h3> <p>Fatal if swallowed. Causes skin irritation.</p> <p>Precautions: Wear protective gloves. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product.</p> <p>Store locked up. Dispose of contents/containers in accordance with local regulations.</p> <p>IF ON SKIN: Wash with plenty of water. If skin irritation occurs: Get medical advice or attention. Take off contaminated clothing and wash it before reuse. IF SWALLOWED: Immediately call a POISON CENTRE or doctor. Rinse mouth.</p> | <h3>Danger</h3> <p>Mortel en cas d'ingestion. Provoque une irritation cutanée.</p> <p>Conseils : Porter des gants de protection. Se laver les mains soigneusement après manipulation. Ne pas manger, boire ou fumer en manipulant ce produit.</p> <p>Garder sous clef. Éliminer le contenu/récipient conformément aux règlements locaux en vigueur.</p> <p>EN CAS DE CONTACT AVEC LA PEAU : Laver abondamment à l'eau. En cas d'irritation cutanée : Demander un avis médical/consulter un médecin. Enlever les vêtements contaminés et les laver avant réutilisation. EN CAS D'INGESTION : Appeler immédiatement un CENTRE ANTIPOISON ou un médecin. Rincer la bouche.</p> |
|--|--|

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Label Requirements – Comparison

| Current WHMIS | WHMIS after GHS |
|---------------------------------|---|
| Product identifier | Product identifier |
| Supplier identifier (name only) | Supplier identifier (name, address, and telephone numbers) |
| Hazard symbols (circle) | Hazard pictograms (symbol within a square on a point) |
| Risk phrases | Hazard statements (suppliers must use standardized wording) |
| Precautionary measures | Precautionary statements (response, prevention, storage and disposal) |
| First aid instructions | Precautionary statements (response) |
| Reference to MSDS | |
| | Signal word (Danger or Warning) |