WHMIS 2015

Information for Employers

WHMIS.org

www.alberta.ca

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Contents

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CCOHS *WHMIS 2015 Fact Sheets*

Introduction

The letters **W-H-M-I-S** stand for:

Workplace
Hazardous
Materials
Information
System.

WHMIS is Canada's national hazard communication system for hazardous products in the workplace. It applies to suppliers, importers, and distributors of hazardous products that are sold in or imported into Canada and intended for use, handling or storage in Canadian workplaces, as well as to the employers and workers who use those products.

The objective of WHMIS is to ensure that workers and employers have the information they need to work safely with hazardous products. This resource describes the WHMIS 2015 requirements.

The WHMIS requirements are set out in both federal legislation and federal, provincial, territorial (FPT) occupational health and safety (OHS) legislation. In Alberta, these requirements are found in Part 29 of the OHS Code.

The federal legislation, the *Hazardous Products Act* and the Hazardous Products Regulations, set out criteria for the classification of hazardous products and specify what information suppliers are required to provide on labels and safety data sheets (SDSs) upon sale of their products. The FPT OHS legislation requires employers ensure hazardous products in the workplace are properly labelled, that SDSs are made available to workers, and that workers receive education and training to ensure the safe use, handling and storage of hazardous products in the workplace.

WHMIS was originally implemented in 1988 through coordinated FPT legislation. This system was updated in February 2015 to align with the United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS). GHS is an internationally agreed-upon system, which is part of a broader initiative to implement a world-wide system of classification of chemicals and provide information about their hazards. Harmonized rules and regulations will facilitate trade on a provincial, national and international level, as well as enhance worker health and safety through the provision of more consistent hazard information.

Transition from WHMIS 1988 to WHMIS 2015

The Hazardous Products Regulations (HPR) were came into force on February 11, 2015, replacing and repealing the Controlled Products Regulations (CPR). In 2015, suppliers began to use and follow the new requirements for labels and safety data sheets (SDSs) for hazardous products sold, distributed, or imported into Canada.

From June 1, 2018 to August 31, 2018, distributors can continue to sell, and those importing for their own use can continue to use, hazardous products with labels and (M)SDSs that are compliant with WHMIS 1988 or WHMIS 2015.

As of December 1, 2018 manufacturers, importers, distributors must transition to the WHMIS 2015 system.

What is the purpose of WHMIS?

WHMIS was developed to ensure that employers and workers receive adequate information about hazardous products used at their workplace. This is achieved by:

- requiring suppliers (manufacturers, importers and distributors) of hazardous products to classify the hazards of those products and to provide the specified hazard information to the purchaser, and
- by the purchaser (the employer) conveying this information to workers by ensuring that hazardous products are properly labelled, that SDSs are made available, and by providing education and training to workers.

The three WHMIS key elements

The three key elements of WHMIS are listed below.

1. **Labels** - WHMIS labels provide basic information that a worker needs to know in order to handle a hazardous product safely.
2. **Safety Data Sheets (SDSs)** - provide more detailed, technical information about a product's physical and chemical characteristics, its physical and health hazards, the precautionary measures (prevention, response, storage, and disposal) and much more information.
3. **Worker education and training** - worker education provides workers with a general overview of WHMIS, the information they should expect to find on a label and SDS, and what this information means. Worker training provides workers with hazardous product and site-specific information, instructions on how to do their job safely, and what to do in case of an emergency.

Part 1- WHMIS Legislation

WHMIS is implemented through coordinated federal, provincial and territorial (FPT) legislation. Federal legislation, administered by Health Canada, addresses supplier responsibilities to classify their products and provide labels and SDSs. The FPT agencies responsible for occupational health and safety regulate the employer and worker aspects of WHMIS through legislation enacted in each jurisdiction.

Federal WHMIS legislation for labelling and SDSs

Federal legislation related to WHMIS consists of the:

- *Hazardous Products Act* (HPA),
- Hazardous Products Regulations (HPR)
- *Hazardous Materials Information Review Act* (HMIRA)
- Hazardous Materials Information Review Regulations (HMIRR)

The HPA requires a supplier who sells or imports a hazardous product that is intended for use, handling or storage in a workplace in Canada to provide a bilingual (English and French) SDS and label that meet the requirements of the HPR, before or at the time of sale. The HMIRA allows for confidential business information (trade secrets) to be protected.

The individual FPT jurisdictions develop and administer legislation that defines employer and worker responsibilities under WHMIS. Alberta's WHMIS requirements for workers and employers are in Part 29 of the OHS Code.

Specific WHMIS requirements for any FPT jurisdiction can be found at www.WHMIS.org. This website is Canada's national portal to WHMIS information for all WHMIS partners including suppliers, employers, workers, and trainers. WHMIS information on this site can be searched by jurisdiction, audience, and topic. Contact information is also available for each jurisdiction.

WHMIS is not the same as TDG

The federal *Transportation of Dangerous Goods (TDG) Act* is not the same as WHMIS legislation. The TDG law protects the general public from hazards associated with transporting dangerous materials on public roads, in the air, by rail, or on waterways. The two systems often deal with the same products, but TDG addresses their transport and WHMIS addresses their use, handling, and storage at workplaces.

While products are exempt from WHMIS while they are covered by TDG, an SDS must still be readily available to workers who may be exposed to a hazardous product. This could be requested to supplement hazard information that must be provided by TDG during transportation. A hazardous product that bears a TDG label on its outer container is not required to have a WHMIS label on its outer container.

Non-compliance with the WHMIS laws

An employer found violating the WHMIS requirements in Part 29 of the OHS Code is subject to legal procedures under provincial legislation. The outcome of the procedures depends on factors such as the seriousness of the violation and the employer's compliance history.

A violation of the federal WHMIS legislation by a supplier may result in compliance orders, stopping of sales, seizure of products and/or prosecution. Successful prosecution of a first offence under the HPR or HPA may result in a fine of up to $250,000 and/or six months in prison, and up to $500,000 and/or 18 months in prison for a second offence. Successful prosecution of an indictable offence may result in a fine of up to $5,000,000 and/or imprisonment for up to two years.

Application of WHMIS legislation

WHMIS only applies to products that meet certain criteria. When a product meets the criteria to be classified, it is then referred to as a hazardous product.

Hazard groups and classes

Under the HPR, there are two major groups of hazard classes in which hazardous products may be classified, health hazards and physical hazards. There are 31 hazard classes in total. The health hazard group contains 12 hazard classes and the physical hazard group contains 19 hazard classes.

A product that meets the criteria to be classified in any one (or more) of the 31 WHMIS hazard classes is a hazardous product. A few types of products have been fully excluded (e.g. wood) and partially excluded (e.g. pesticides) from WHMIS requirements because they are covered by other legislation. Exclusions are discussed later in this section.

Table 1: WHMIS 2015 Hazard Classes

Physical Hazard Classes	Health Hazard Classes
Combustible Dusts	Acute Toxicity
Corrosive to Metals	Aspiration Hazard
Flammable Aerosols	Biohazardous Infectious Materials
Flammable Gases	Carcinogenicity
Flammable Liquids	Germ Cell Mutagenicity
Flammable Solids	Reproductive Toxicity
Gases Under Pressure	Respiratory or Skin Sensitization
Organic Peroxides	Serious Eye Damage/Eye Irritation
Oxidizing Gases	Skin Corrosion/Irritation
Oxidizing Liquids	Specific Target Organ Toxicity - Repeated Exposure
Oxidizing Solids	Specific Target Organ Toxicity - Single Exposure
Pyrophoric Gases	Health Hazards Not Otherwise Classified
Pyrophoric Liquids	
Pyrophoric Solids	
Self-Heating Substances and Mixtures	
Self-Reactive Substances and Mixtures	
Simple Asphyxiants	
Substances and Mixtures Which, in Contact with Water, Emit Flammable Gases	
Physical Hazards Not Otherwise Classified	

(Image provided by CCOHS 2015)

Categories and subcategories of hazard classes

Most hazard classes are further divided into categories and sometimes into subcategories. The categories provide more information on the severity of the hazard within each hazard class assigned to the product. Most categories are identified by a number (1, 2 or 3) and the subcategories by a number and letter (1A, 2B). However, in some hazard classes the categories are called “types” which are denoted by a letter (Type A, B, or C) (for example, organic peroxide – type A) or by a name or description (for example, effects on or via breastfeeding).

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 product classified as a flammable liquid – category 2.

Classification

There is no comprehensive list of hazardous products and their corresponding classification. To determine whether a product is hazardous, it is necessary to compare its properties with the criteria in the HPR for each of the 31 hazard classes. Some products present more than one hazard and therefore, fall into more than one hazard class. Within each assigned hazard class, the product will be classified in the appropriate category or subcategory for which it meets the criteria. For some hazard classes, it is possible for a product to be classified in more than one category in the same hazard class, for example, in acute toxicity (inhalation, oral and/or dermal), or respiratory or skin sensitization.

Responsibility for the classification of hazardous products

The supplier must ensure that the hazardous products they sell or import are properly classified.

The employer must ensure that products produced and used at their workplace are properly classified. The employer is also responsible to ensure proper classification of products they import directly to the workplace from a foreign supplier, which have not been classified in accordance with the HPR to meet WHMIS requirements (i.e. the employer assumes the supplier responsibilities).

Hazard classification can be complicated. An employer that does not have OHS personnel or chemists on staff may wish to get outside help. The Canadian Centre for Occupational Health and Safety (CCOHS) can help by providing information on the classification of substances. Private consultants are also available to help with the classification of more complex products (e.g. mixtures). Appendix 1 lists some resources available to help.

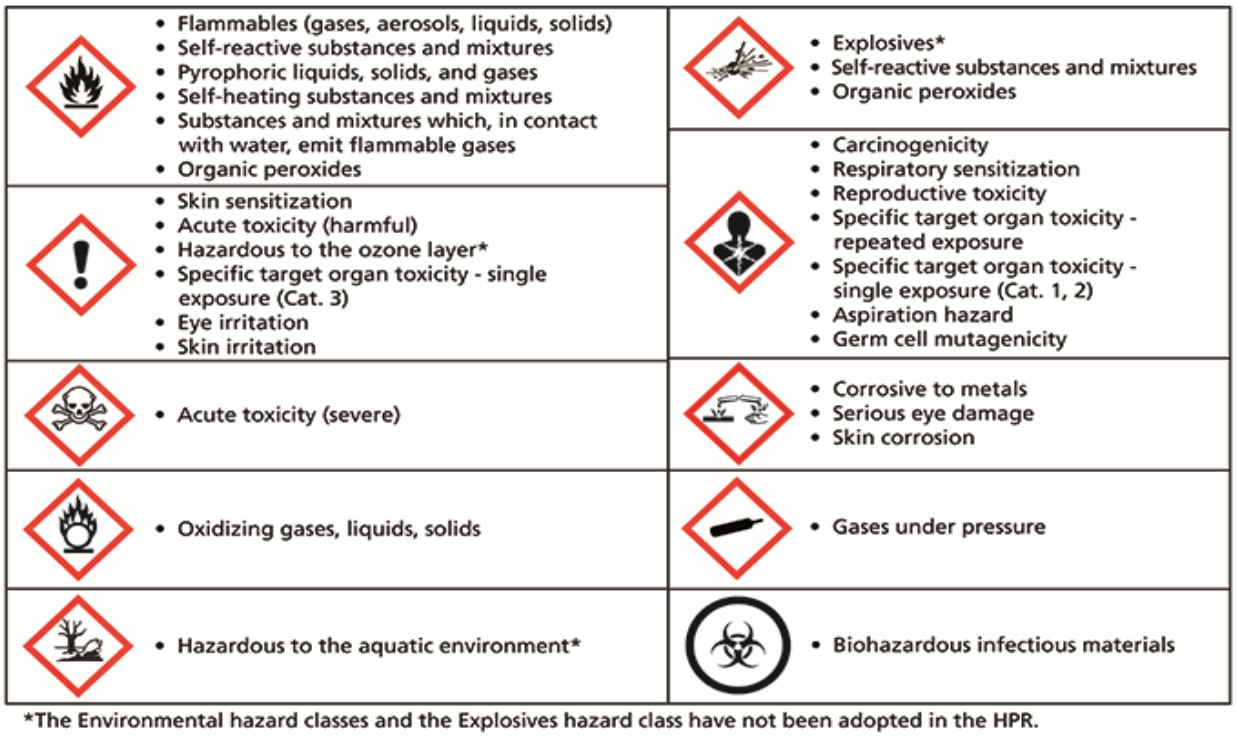
Pictograms are symbols intended to convey information about the hazard of the product. Figure 1 shows each pictogram which contains a black symbol on a white background surrounded by a red border in the shape of a square set on point. One exception is the symbol for biohazardous infectious materials. This pictogram is circular with a black border. The biohazardous infectious materials pictogram is distinct because it is not part of GHS. It was retained from WHMIS 1988, in Canadian federal WHMIS legislation.

Many hazard classes share a pictogram. Hazardous products that are flammable, self-reactive, self-heating, pyrophoric, organic peroxides, and that emit flammable gases when in contact with water all use the “flame” pictogram. Certain hazard classes do not require a pictogram, for example, simple asphyxiants, eye irritation – category 2B, and reproductive toxicity – effects on or via breastfeeding. The rules for pictogram use are set by the HPR in accordance with the GHS guidance documents, 5th revised edition, (Section 3 of Annex 3) www.unece.org

For the hazard classes that were not adopted from the GHS, Schedule 5 of the HPR

specifies which pictogram must be used.

Figure 1 - WHMIS Pictograms and their Associated Hazard Classes



(Image provided by CCOHS 2015)

Excluded products

Certain products are totally or partially excluded from the WHMIS requirements. While WHMIS SDS and label requirements do not apply to the following products, under Alberta OHS legislation the employer must provide education and training for workers who use these products and to those who may be exposed to them over the course of their work shift.

Totally excluded products

Products excluded from all aspects of WHMIS (supplier and employer requirements) are:

- wood or products made of wood,
- tobacco and tobacco products as defined in section 2 of the *Tobacco Act*,
- manufactured articles,
- hazardous products while they are covered by TDG legislation (as dangerous goods) that is, while they are in transit or intended to be in transit (except that the SDS must be readily available to workers), and
- hazardous wastes, being hazardous products that are sold for recycling or recovery and are intended for disposal – note that FPT legislation does require hazardous waste to be safely stored and handled, meaning employers must ensure hazardous wastes are identified and workers handling them are trained.

Products made of wood and products made of tobacco do not include products made from wood and products made from tobacco. For example, lumber, which is made of wood, and cigarettes, which are made of tobacco are exempt from WHMIS. On the other hand, turpentine, which is made from wood, and nicotine, which is extracted from tobacco, are included and are subject to WHMIS requirements.

Manufactured articles means:

- any article that is formed to a specific shape or design during manufacture,
- the intended use of which, when in that form, is dependent in whole, or in part on its shape or design, and
- that, when being installed, if the intended use of the article requires it to be installed, and under normal conditions of use, will not release or otherwise cause an individual to be exposed to a hazardous product.

Manufactured articles do not release hazardous products during normal use, which includes installation. A screwdriver is an example of a product that is exempt from WHMIS because of this provision. The materials used during manufacturing may have been hazardous products but they are not released during use of the finished product. Welding rods, on the other hand, are not exempt, because they release hazardous products as welding fume during normal use.

Partially excluded products

Partially excluded products include:

- explosives, as governed by the *Explosives Act*,
- cosmetics, devices, drugs or foods, as governed by the *Food and Drugs Act*,
- products governed by the *Pest Control Products Act*,
- nuclear substances governed by the *Nuclear Safety and Control Act*, that are radioactive,
- consumer products (consumer chemicals) governed by the *Canada Consumer Product Safety Act* (CCPSA)

Under the Alberta OHS legislation, the education and training provided to workers must include any information required by the governing legislation and provided by the supplier that will ensure the health and safety of workers using these products.

Most often the type of partially excluded product that may be found in the workplace will be consumer products. The CCPSA defines a “consumer product” as a product, including its components, parts or accessories that may reasonably be expected to be obtained by an individual to be used for non-commercial purposes, including for domestic, recreational and sports purposes, and includes its packaging.

Roles and responsibilities

Supplier and distributor responsibilities

Distributors of hazardous products have the same responsibilities as suppliers. Canadian suppliers of hazardous products must:

- classify each hazardous product that they sell or import for use, handling or storage in a workplace in Canada,
- provide an appropriate WHMIS supplier label and SDS in both English and French for each hazardous product at the time of sale,
- update WHMIS labels and SDS when significant new data becomes available, and
- provide information, including confidential business information, to a health (or medical) professional, as required, in an emergency.

Sale - Under the HPA, “sell” has a very broad definition. The sale of the product is the trigger for many of the supplier and employer responsibilities under WHMIS. Sell includes offering for sale, distributing, exposing (e.g. advertising) for sale, distributing without consideration (e.g. a supplier giving free samples of a hazardous product to a potential customer), and having a product in possession where the intent is to sell or distribute it. The definition also includes the transfer of possession of a hazardous product that creates a bailment. Bailment means the transfer of possession without transferring ownership. An example of bailment would be sending a sample to a laboratory to be analyzed; the supplier or employer still owns the sample, but the laboratory has possession while they perform a service for the supplier or employer.

Significant New Data - Is information that results in:

- a change to the classification of the hazardous product in a category or subcategory of a hazard class, or
- a change in hazard class (e.g. classification in a hazard class in which the hazardous product was not previously classified), or
- a change in the requirements for protecting workers against the hazard presented by the hazardous product.

Updating Labels - It is the supplier’s responsibility to ensure the label information is up to date and compliant with the HPR at the time of sale. When significant new data becomes available, the supplier has 180 days to update the affected labels. If sales are made during the time before the label is updated, the supplier must provide this additional information, along with the label, to the purchaser in writing at the time of sale.

Updating SDS - Similarly, the supplier must provide an update-to-date SDS that is compliant with the HPR at the time of sale. When significant new data becomes available, the SDS must be updated within 90 days. If sales are made during this time, this information must also be provided in writing to the purchaser (e.g. as an appendix to the SDS) along with the date that the significant new data became available.

Employer responsibilities

Employers must take all reasonable measures to protect the health and safety of workers at the workplace. WHMIS is one of the tools employers are required to use to achieve this goal.

The employer is responsible for ensuring that:

- labels and work site labels are updated as soon as significant new data is provided to the employer from the supplier or as soon as significant new data is available to the employer,
- all hazardous products at their workplaces are labelled with WHMIS compliant supplier labels, work site labels or other means of workplace WHMIS identification (for example, placards or colour coding),
- the SDS for a hazardous product is the most current version,
- WHMIS compliant SDSs are available for all hazardous products used at the workplace,
- SDSs are readily accessible to workers, and
- workers have received the appropriate WHMIS education and training to protect their health and safety on the job.

Labels and SDSs – A hazardous product cannot be used unless the container has a WHMIS compliant label. It may be stored at the workplace for up to 120 days while the employer is actively seeking the proper label if there are other appropriate means of labelling present (such as a placard over the product) while waiting for the supplier label. Another option may be to apply a WHMIS work site label to the container.

The same restrictions apply if a supplier sends a hazardous product without a WHMIS-compliant SDS. The hazardous product may be stored for up to 120 days, but it may not be used until an SDS is obtained.

Working with foreign suppliers – WHMIS is Canadian law. It applies only in Canada. Foreign suppliers may not be aware of the law or may not be in compliance with the law. If foreign suppliers choose not to comply with WHMIS, Canadian importers must assume these responsibilities if they want to sell the products in Canada. If an employer imports a hazardous product for use in the workplace, they are also responsible for ensuring that the hazardous product has a WHMIS compliant supplier or work site label and SDS.

The Initial Supplier Identifier on the label and SDS must be the name, address and telephone number of the Canadian manufacturer or the Canadian importer of the hazardous product. If an importer (supplier, distributor or employer) distributes a hazardous product imported from a foreign supplier, that distributor/importer must be identified as the “initial supplier” on the label and SDS. If the product is imported only for use at the employer’s workplace, the name, address and telephone number of the foreign manufacturer may appear instead of the initial supplier identifier.

WHMIS labels or SDS for imported products – When a hazardous product is imported into Canada without a WHMIS supplier label, or with a label that is not compliant with the HPR, the importer must put a WHMIS supplier label on the hazardous product that is compliant with the HPR before it can be used or sold.

A supplier or employer who imports a hazardous product that is intended for use, handling or storage in a workplace in Canada is required to obtain or prepare, on or before the importation, an SDS that complies with the HPR. The importer may either prepare the SDS or obtain it from the foreign manufacturer but this must be done prior to or upon importation.

Worker responsibilities

To ensure their own health and safety and the health and safety of others, workers must:

- comply with the requirements of WHMIS,
- participate in WHMIS training and instruction,
- follow the work procedures provided including the use of controls measures and personal protective equipment,
- never use a hazardous product unless they have been trained for its use through WHMIS education and training and the product container is properly labeled, and
- know where SDSs are for the hazardous products they use and what procedures to follow in an emergency.

Role of government

Alberta Labour enforces the requirements of WHMIS at workplaces including worker education and training in Alberta.

Health Canada is responsible for the administration of supplier WHMIS requirements through the HPA and the HPR. Suppliers, distributors and importers of hazardous products can receive assistance from Health Canada regarding their obligations under this legislation.

Alberta OHS officers are designated to inspect workplaces for compliance with the Alberta WHMIS requirements in the OHS Code. Some of these officers are also designated as federal WHMIS Inspectors by Health Canada to enforce the requirements of the HPA and HPR.

PART 2 – Labels

The most common types of WHMIS labels are supplier and work site labels.

Supplier labels

Supplier labels must appear on hazardous products that are in their original (supplier) containers. These products include:

- hazardous products sold by Canadian suppliers and distributors to Canadian workplaces, and
- hazardous products imported into Canada for use at workplaces.

Label information

Different information requirements apply to supplier labels and work site labels.
The WHMIS supplier label must:

- include pictogram(s), signal word and hazard statements grouped together on the label; however, there is no specified format nor specific size requirement,
- include the supplier label information in both French and English as either one bilingual label, or as two, equally visible labels, one in French and one in English,
- include information on the label that is easily legible using no device other than corrective lenses and contrasted with any other information on the hazardous product or container,
- be clearly and prominently located and be on a surface that is visible under normal conditions of use, and
- remain durable and legible.

The WHMIS supplier label must contain:

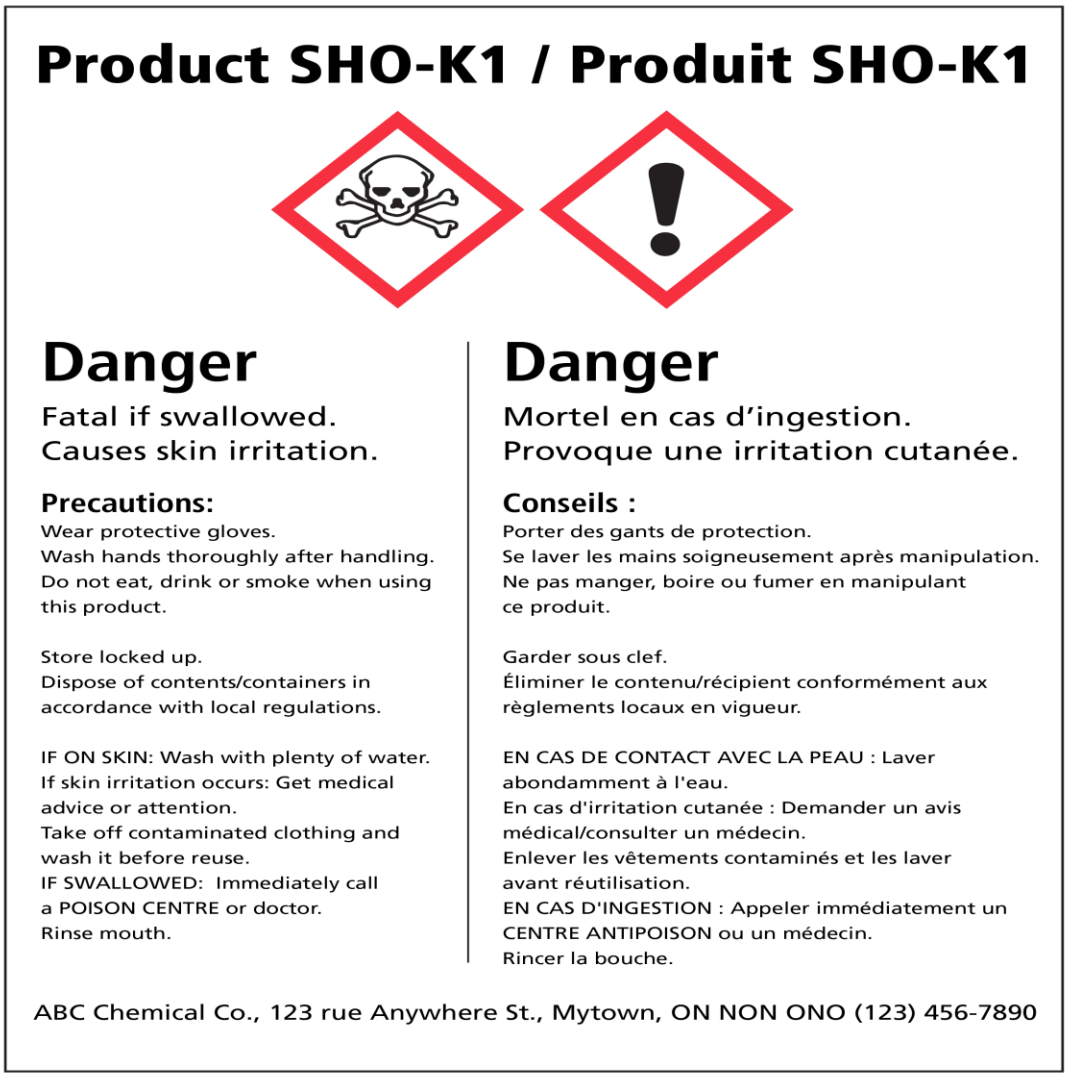
1. *Product Identifier:* the product name exactly as it appears on the SDS.
2. *Initial Supplier Identifier*: the name, address and telephone number of the Canadian manufacturer (the company who made, processed, packaged, or labelled the product and sold it) or the Canadian importer. The initial supplier identifier is responsible for the information provided on the label and SDS. Canadian supplier information is required unless the product is from foreign supplier and for use at the importers' (or employers') own workplace.
3. *Signal Word**: "danger" or "warning" is used to draw attention to the hazards and is based on the severity of the hazard. Danger is used for more severe hazards.
4. *Hazard Pictogram(s)**: Are determined by the hazard classification of the product. For some hazard classes and some categories within a hazard class, no pictogram is required (for example, simple asphyxiants, eye irritation – category 2B and Reproductive toxicity - effects on or via breastfeeding).
5. *Hazard Statement(s)*:* brief standardized statements which are based on the hazard classification of the product.
6. *Precautionary Statements*:* standardized statements based on the hazard classification of the product that describe recommended measures to minimize or prevent adverse effects from exposure to the product, including protective

equipment, control measures and emergency measures.

7. *Supplemental Information:* for example, for hazardous products classified for Acute Toxicity, a supplemental statement indicating the percentage of ingredients with unknown acute toxicity may be required.

*The labels elements are prescribed in Section 3 of Annex 3 of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS), 5th revised edition, for the hazard classes adopted from the GHS, and in Schedule 5 of the HPR for all other hazard classes.

Figure 2 – Example of a Compliant WHMIS Supplier Label



(Image provided by CCOHS 2015)

Significant new data

If a Canadian supplier becomes aware of information which changes the classification of the hazardous product or changes the hazard control methods (defined as “significant new data”), they must update the supplier label within 180 days. The supplier must provide this information, in writing, to a purchaser who buys the hazardous product within this 180 time period. It is the employer’s responsibility to update the affected label as soon as the information is received and train workers on the significant new data.

Variations on the supplier label

There are some situations when the supplier label might vary, for example when labelling:

- small containers
- products purchased in bulk, and
- laboratory samples

Labels for small containers

Labels for small containers may carry less information than usual supplier labels. Containers with a capacity of 100 ml or less are not required to have hazard statements or precautionary statements on the label.

Labels on containers with a capacity of 3 ml or less may be designed to be removed at the workplace if the label interferes with the normal use of the product; however, the label must remain durable and legible while the product is transported.

Figure 3 – Example of a Small Container Label

(Image provided by CCOHS 2015)

Supplier labels for products purchased in bulk

Under the HPR, a bulk shipment is defined as a shipment of a hazardous product that is contained in any of the following, without intermediate containment or intermediate packaging:

- a vessel with that has a water capacity equal to or greater than 450 litres,
- a freight container, road vehicle, railway vehicle, or portable tank,
- the hold of a ship, or
- a pipeline.

Bulk shipments, regardless of whether they are shipped or picked up at the supplier's location, and hazardous products sold without packaging, are exempt from supplier WHMIS labelling requirements under the HPR.

When purchasing hazardous products in bulk, employers may satisfy the WHMIS labelling requirements in the following ways. Employers can:

- receive a supplier label from the supplier – this supplier label can be supplied separately when the product is delivered or before delivery,
- create a label that contains the same information as is required on a supplier label by referring to the information provided in the SDS, or
- use other means of effective identification such as placards or colour coding if the product is stored in bulk at the work site or transferred in piping systems.

The supplier is allowed to choose if they will provide labels for bulk shipments. If the supplier sends a supplier label, it must be attached to the container of the product. If the supplier chooses not to provide the label, the information provided in Sections 1 and 2 of the SDS must be used to make a supplier label which is applied to the product's container. If an alternative method of labelling is used, workers must be provided with appropriate training so that they understand the system used in the workplace.

Work site labels

Work site labels are used in the workplace when it is not practical to use a supplier label or when a supplier label is not available. They are applied to:

- containers into which hazardous products are transferred (decanted),
- containers of hazardous products that are produced at the workplace for use at the workplace, and
- for hazardous products that are imported only for use at the employer's workplace.

Work site labels are also used to replace supplier labels (and labels that are accepted as supplier labels, such as labels on pesticides and consumer products) that have been damaged or defaced when new supplier labels are not available.

Work site label content is "performance-based." This means that the content of the labels must provide workers with the information they need to handle the product safely. There are no format or language requirements outlined in the legislation.

The following information must be present on a work site label:

1. name of the hazardous product (must match the SDS product identifier),
2. information for the safe handling of the hazardous product (may include pictograms, signal word, hazard statements, precautionary statements or other supplier label information), and
3. a reference to the SDS for further information, if it is available.

Figure 4 - Example of a Compliant WHMIS Work Site Label

(Image provided by CCOHS 2015)

Other approved identification methods

There are a few situations in which you may use any method of clear identification to label hazardous products. They apply to:

- hazardous products in on-site transport or in reaction systems such as pipes, tanks, tank trucks, ore cars, conveyor belts, reaction vessels,
- mixtures and substances undergoing analysis, tests or evaluation in a laboratory, and
- hazardous wastes produced in the workplace.

These hazardous products may be identified by any clear means, such as painted-on, stenciled-on, hand-written identifiers or colour codes.

Hazardous products that do not require a workplace WHMIS label

Only three types of hazardous products in the workplace do not require a WHMIS label:

- hazardous products that are being transferred from other (adequately labelled) containers, kept under the control of the person who is making the transfer, and used up during the work shift in which the container is filled,
- hazardous products decanted for immediate use, and
- fugitive emissions.

A “hazardous product for immediate use” is one that is transferred from one properly labelled container to another container, and is then transferred immediately from the second container for use in a chemical process where it will be totally consumed. The transfer container need not have any type of label.

PART 3 –Safety Data Sheets (SDSs)

Required format for SDSs

SDSs must have sixteen (16) sections of information, as shown in Table 2. Each of the sixteen sections must be identified by a heading, identical to and in the exact order of those presented in Table 2. The heading must be accompanied by a corresponding item number (1-16) placed immediately before the heading.

Other than the headings, there are no specific formatting rules with respect to the appearance of the SDS (for example font type or size, borders, margins, footnotes, spacing).

Table 2 – Information Elements on SDS

Item	Heading	Specific information Elements
1	**Identification**	• Product identifier (name exactly as on the label) • Other means of identification • Recommended use and restrictions on use • Initial supplier identifier (name, address and telephone number of manufacturer or importer who operates in Canada)* • Emergency telephone number and any restrictions on the use of that number, if applicable

2	**Hazard Identification**	• Classification (hazard class and category or subcategory) of the hazardous product, or a description of the identified hazard for Physical or Health Hazards Not Otherwise Classified
		• Label elements:
		  ○ Symbol (symbol image or name of the symbol (e.g. flame))
		  ○ Signal word
		  ○ Hazard statement(s)
		  ○ Precautionary statement(s)
		• Other hazards known to the supplier which do not result in classification (e.g. molten metal)

3	**Composition/Information on Ingredients**	When a hazardous product is a material or substance:

Item	Heading	Specific information Elements
		• its chemical name • its common name and synonyms • its Chemical Abstract Service (CAS) registry number and any unique identifiers • the chemical name of impurities, stabilizing solvents and/or stabilizing additives** When a hazardous product is a mixture, for each material or substance in the mixture that, individually, is classified in a health hazard class***: • its chemical name • its common name and synonyms • its CAS registry number and any unique identifiers • its concentration Note: Confidential business information rules can apply
4	**First-aid Measures**	• First-aid measures by route of exposure (inhalation, ingestion, skin and eye contact) • Most important symptoms and effects (acute or delayed) • An indication of immediate medical attention and special treatment, if necessary
5	**Fire-fighting Measures**	• Suitable and unsuitable extinguishing media • Specific hazards arising from the hazardous product (e.g. hazardous combustion products) • Special protective equipment and precautions for fire-fighters
6	**Accidental Release Measures**	• Personal precautions, protective equipment and emergency procedures • Methods and materials for containment and cleaning up
7	**Handling and Storage**	• Precautions for safe handling • Conditions for safe storage (including incompatibilities)
8	**Exposure**	• Control parameters, including

Item	Heading	Specific information Elements
	controls/Personal Protection	occupational exposure limit values or biological limit values and the source of those values • Appropriate engineering controls (e.g. ventilation) • Individual protection measures (e.g. personal protective equipment)
9	**Physical and Chemical Properties**	• Appearance (e.g., physical state, colour) • Odour • Odour threshold • pH • Melting point and freezing point • Initial boiling point and boiling range • Flash point • Evaporation rate • Flammability (for solids and gases) • Upper and lower flammability or explosive limits • Vapour pressure • Vapour density • Relative density • Solubility • Partition coefficient – n-octanol/water • Auto-ignition temperature • Decomposition temperature • Viscosity
10	**Stability and Reactivity**	• Reactivity • Chemical stability • Possibility of hazardous reactions • Conditions to avoid (e.g. static discharge, shock or vibration) • Incompatible materials • Hazardous decomposition products
11	**Toxicological Information**	Concise but complete description of the various toxic health effects and the data used to identify those effects, including: • Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact) • Symptoms related to the physical, chemical and toxicological characteristics • Delayed and immediate effects, and

Item	Heading	Specific information Elements
		chronic effects from short-term and long-term exposure • Numerical measures of toxicity, including Acute toxicity estimates (ATEs)
12	**Ecological Information** (Heading required; specific information elements optional)	• Ecotoxicity • Persistence and degradability • Bioaccumulative potential • Mobility in soil • Other adverse effects
13	**Disposal Considerations** (Heading required; specific information elements optional)	• Information on safe handling for disposal and methods of disposal, including any contaminated packaging
14	**Transport Information** (Heading required; specific information elements optional)	• United Nations (UN) number • UN proper shipping name • Transport hazard class(es) • Packing group • Environmental hazards • Transport in bulk, if applicable • Special precautions
15	**Regulatory Information** (Heading required; specific information elements optional)	• Safety, health and environmental regulations, made within or outside Canada, specific to the product
16	**Other Information**	Date of the latest revision of the SDS

(Chart provided by CCOHS 2015)

Notes

*The supplier that must be identified on an SDS is the initial supplier identifier (i.e. the name, address and telephone number of either the Canadian manufacturer or the Canadian importer). There are two exceptions to this requirement.

1. When an importer imports a hazardous product for use in their own workplace in Canada (i.e. the importer is not selling the hazardous product) the importer may retain the name, address and telephone number of the foreign supplier on the SDS instead of replacing it with their own contact information.
2. When a hazardous product is being sold by a Canadian distributor, the distributor may replace the name, address and telephone number of the initial supplier with their own contact information.

** These impurities and stabilizing solvents and/or stabilizing additives are those that are at individually classified in a health hazard class and that contribute to the classification of the material or substance.

*** The SDS must disclose each ingredient in the mixture that is classified in a category or subcategory of a health hazard class and is present above the concentration limit that is designated for that category or subcategory OR is present in the mixture at a concentration that results in the mixture being classified in any health hazard class.

Supplier requirements

Obtaining SDSs for hazardous products

Canadian suppliers, including distributors, must provide purchasers with SDSs for hazardous products they sell. The SDSs must be provided in both English and French. This requirement also applies to hazardous products imported from foreign suppliers. The employer is responsible for ensuring that SDSs for hazardous products they purchase from Canadian suppliers or import from foreign suppliers are available at their workplace. The employer must ensure that they receive from the supplier the most current SDS each time they purchase a hazardous product. The employer is also responsible for preparing and providing an SDS for a hazardous product produced at their workplace. Exceptions to this requirement are discussed in Part 4.

Obtaining and maintaining a current SDS for hazardous products that are bought only once or irregularly may be complicated. The employer can contact the supplier and request a current SDS, but the supplier is not legally obligated to provide it unless more of the product is purchased by the employer. Alternatively, the supplier can be asked for sufficient information to update the SDS, a professional consultant in this field of work can be engaged, or use of the product can be stopped.

As a best practice, the employer should review the workplace WHMIS program on a regular basis. This review is a good opportunity to ensure that SDSs are examined (for example for any available significant new data) and updated as necessary.

Variations to the SDS

Generic SDS **-** A generic SDS may be used for a group of hazardous products with similar chemical composition and that share the same hazard classification. These are products that very similar but have small variations in ingredients from one product to another such as a line of paints.

The generic SDS must provide the product identifiers for each individual product in the group. Any information that is different for an individual product (i.e. not the same as what was disclosed for the group of products) must also be included on the SDS. Information that might vary from product to product within a group may include additional ingredient(s), ingredient concentration(s) or range of concentration(s), and any of the physical and chemical properties or hazard information relevant to the variations.

SDS information for items (sections) 12-15 – With the exception of sections 12-15, information relevant to each heading must appear on the SDS. If the information is not available or not applicable, the supplier may indicate this on the SDS, as appropriate. For sections 12-15, the section numbers and headings must be present, but Canadian legislation allows suppliers the option to omit information in these sections.

WHMIS SDS – items of note

Section 1 – Supplier's Identity - The initial supplier identifier provided must be the name, address and telephone number of the Canadian manufacturer or the Canadian importer. Canadian distributors may list their own identity (name, address and telephone number) instead of the initial supplier. An importer may retain the name and contact information of a foreign supplier, instead of replacing it with their own name and contact information on the SDS, if the hazardous product is only used in their own workplace (i.e. the importer does not sell or distribute the hazardous product). If the importer sells or distributes that hazardous product, the initial supplier identifier must be changed to that of the importer. Similarly, the employer can import a hazardous product following the rules as they are outlined above for an importer (i.e. the employer can be an importer).

Section 2 – The SDS must include the hazard classification and the supplier label information in this section. Workers will be able to compare the information to the supplier label. Employers will be able to create a supplier label using this information, if a WHMIS label was not provided by the supplier (for example, in the case of bulk shipments).

Acute Toxicity – Hazardous products classified in the acute toxicity hazard class, which contain one or more ingredient(s) of unknown acute toxicity, are required to have a supplemental statement on their label and SDS, as follows: "[Insert the total concentration in percentage of ingredients with unknown acute toxicity] % of the mixture consists of an ingredient or ingredients of unknown acute toxicity". For example, if a hazardous product contains an ingredient at 10% that does not have any oral acute toxicity data (e.g. no LD50 (oral)), the SDS and label must contain a statement that says "10% of the mixture consists of an ingredient or ingredients of unknown acute toxicity (oral)."

Water-Activated Toxicity – It is a Canadian requirement for products which, upon contact with water release a toxic gas, to provide a supplemental hazard statement on the label and SDS, as follows: "In contact with water, releases gases which are fatal/toxic/harmful if inhaled".

Section 3 – All impurities, stabilizing solvents and additives that are known to the supplier and that individually are classified in any category or subcategory of health hazard and contribute to the hazard classification of the product must be listed on the SDS. For mixtures, only ingredients that individually are classified as health hazards and are present above the concentration limit for that health hazard class and category (or contribute to the classification of the mixture in a health hazard class) need to be listed.

Biohazardous Infectious Materials – These materials are microorganisms, nucleic acids or proteins that cause or are a probable cause of infection in people or animals (such as bacteria, viruses, fungi and parasites). These materials do not include hazardous wastes contaminated by biohazardous infectious materials. In Canada, hazardous products that meet the criteria for classification in this hazard class must have a nine (9) heading appendix to the SDS to provide information specific to the biohazard, as shown in Table 3.

Table 3 – Additional Information Elements on SDS – Biohazardous Infectious Materials

Item	Heading	Specific Information Element
1	**Section I - Infectious Agent**	• Name • Synonym or cross-reference • Characteristics
2	**Section II - Hazard Identification**	• Pathogenicity/toxicity • Epidemiology • Host range • Infectious dose • Mode of transmission • Incubation period • Communicability
3	**Section III - Dissemination**	• Reservoir • Zoonosis • Vectors
4	**Section IV - Stability and Viability**	• Drug susceptibility/resistance • Susceptibility to disinfectants • Physical inactivation • Survival outside host
5	**Section V - First Aid/Medical**	• Surveillance • First aid/treatment • Immunization • Prophylaxis
6	**Section VI - Laboratory Hazard**	• Laboratory-acquired infections • Sources/specimens • Primary hazards • Special hazards
7	**Section VII - Exposure Controls /Personal Protection**	• Risk group classification • Containment requirements • Protective clothing • Other precautions
8	**Section VIII - Handling and Storage**	• Spills • Disposal • Storage
9	**Section IX - Regulatory and Other Information**	• Regulatory information • Last file update *(date)* • Prepared by *(name of author)*

(Provided by CCOHS 2015)

Employer requirements

An employer must have an SDS for every hazardous product included under WHMIS 2015 used in the workplace, and to make SDSs readily available to workers. A worker cannot use a product if there is no SDS. Employers must also prepare SDSs for any hazardous product they produce. An employer can provide an SDS in a format different from the supplier SDS as long as it includes the information required for a supplier SDS and must state that the supplier SDS is available at the work site.

The SDS must include the “Initial Supplier Identifier” and “Date of Latest Revision”. These details allow the user to get more information from the supplier about the product, and helps an employer know if they have the most recent SDS available.

Significant new data

The employer must ensure that the SDS for a hazardous product provided at the time of sale is the most current version.

The supplier must update the SDS as soon as reasonably practicable and not more than 90 days after the significant new data becomes available. If the product is sold before the SDS is updated, the supplier must provide this information in writing along with the SDS. When significant new data is received from the supplier, as an appendix to the SDS, as additional documents, or as a revised SDS, the employer must:

- train the worker on the significant new data,
- make the new SDS and its appendix or additional documents available to the workers when it is received, and
- immediately update the affected label, if required.

Worker accessibility to SDS

SDSs must be “readily available” to workers who might want to review them. There is no specific rule about where they should be kept; however, any system adopted for the workplace for maintaining and accessing SDSs should be developed in consultation with the joint work site health and safety committee (HSC) or the health and safety representative, if there is one. Worker training must include training on the system used in the workplace to access SDSs.

A “readily available” SDS can be provided electronically or as a paper copy, as long as it can be quickly accessed at all times (e.g. on a dedicated computer work station). Workers must be trained in accessing the electronic information and how to print out paper copies as required. If an electronic system is chosen to store SDSs, a contingency plan in the event of a power failure is required for quick access in case of an emergency. Similarly, if workers use a device to access SDSs, there must be a contingency plan where there is no service.

PART 4: Some Special Circumstances for Labels and SDSs

Transportation

As noted previously, hazardous products are exempt from WHMIS while being offered for transport or transported. When a hazardous product is packaged for transportation, to be transferred in possession but not in ownership, the supplier is not required to provide an SDS to the person transporting the product (e.g. a courier driver). In these circumstances the transport company is subject to the requirements under TDG legislation which has different rules for training and labelling.

It should be noted, however, the employer must still ensure an SDS is readily available to the worker if they request it.

Products that are subject to TDG requirements may be exempt from having WHMIS pictograms on the label. This exemption applies only if the product has already been labeled in accordance with the TDGR, and therefore already has the symbol(s) of the WHMIS required pictogram(s) on the TDG label. The exemption specifies that it is not necessary to provide a WHMIS pictogram that bears the same symbol as one used in a TDG pictogram that already appears on the TDG label. The TDG label must also meet requirements for durability specified in the HPR. In addition, a hazardous product that bears a TDG label on its outer container is not required to have a WHMIS label on its outer container.

Hazardous products in transit

The importation of a hazardous product that is, or is intended to be, in transit (passing through Canada and not fabricated in Canada) and not meant to be used in a workplace in Canada, is exempt from the labelling and SDS requirements.

Radioactive nuclides

The sale or importation of a hazardous product that is a mixture of one or more radioactive nuclides and one or more non-radioactive carrier materials is exempt from labelling and SDS requirements. The carrier material must be present in an amount that is less than one mL for a liquid or gas and less than one gram for a solid, and is not classified in any of the hazard classes:

- carcinogenicity,
- germ cell mutagenicity,
- reproductive toxicity,
- biohazardous infectious materials, or in
- acute toxicity oral or dermal - category 1 or acute toxicity, inhalation - category 1 or category 2.

Exempted hazardous products

As previously indicated, certain product categories such as pesticides, consumers products, drugs and pharmaceuticals, and radioactive products are excluded from WHMIS labelling and SDS requirements as they fall under other legislation. This means that suppliers are not required to provide SDSs for these types of products, and employers are not required to obtain SDSs.

Process or reaction vessels

SDSs are not required for intermediate products in reaction or process vessels. These chemicals normally have a very short life and are not present in the final product.

Laboratory samples

For hazardous products sent to the laboratory for analysis, suppliers may be able to apply laboratory sample exemptions if certain criteria are met.

A laboratory sample is defined as a sample of hazardous product that:

- is packaged in a container that contains less than 10 kg 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.

Laboratory samples that are transported to laboratories or in the possession of the laboratory for analysis are considered to be bailed. Examples include:

- samples for quality control testing,
- samples provided for the development of industrial processes, and
- industrial hygiene samples.

Under the HPR, a laboratory sample does not require an SDS if it is bailed and either:

- the chemical name and concentration of the hazardous product or its ingredients are not known, or
- the sample is a non-commercialized product (e.g. a product that is undergoing research and development and is not yet available for sale).

These laboratory samples are also allowed to have reduced labelling.

Shipping laboratory products

When sending products to a laboratory for analysis, it is not always clear how to label samples. It may not be known if a product is considered a hazardous product or not. In these cases, the employer must use best judgment and treat the sample accordingly.

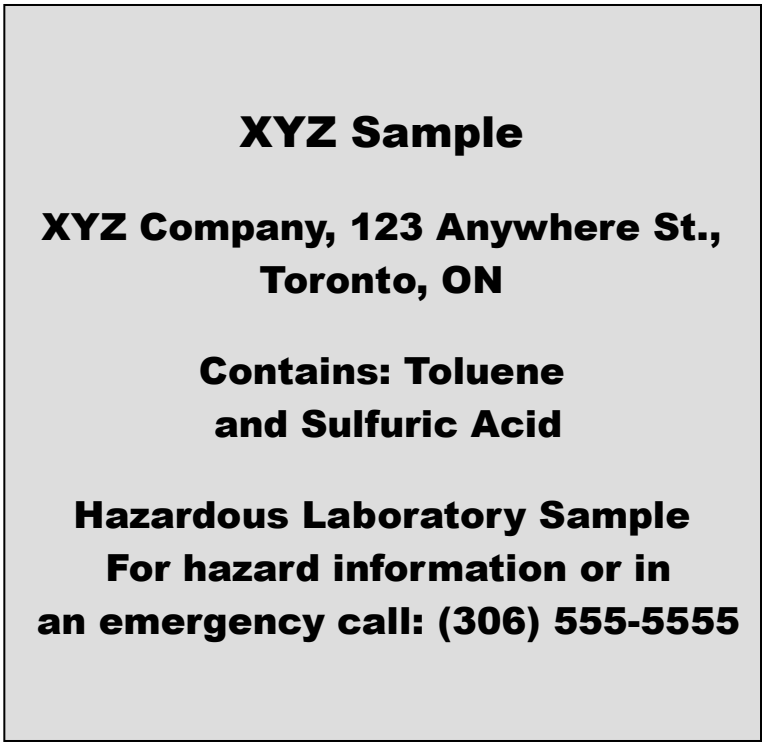
Laboratory sample labels have certain requirements that depend on the WHMIS classification of the products. Samples sent to a laboratory should, if possible, have a supplier label and be accompanied by a WHMIS SDS. Sometimes there is no SDS to

refer to for the product because its properties have not yet been determined. For example, the sample may be from a newly developed product. It is not possible to have an SDS when the product is first being analyzed and evaluated. Similarly, with clinical laboratory samples it may not be possible to provide a supplier label or SDS as the biohazardous infectious material may not be known.

In these cases, the SDS is not required. However, at a minimum, the samples must be labelled with the following information (see Figure 5):

- 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 or suspected, 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 emergency information that would be required on a SDS.

Figure 5 - Example of a Label for a Laboratory Sample of a Hazardous Product With No SDS



(Image provided by CCOHS 2015)

If the laboratory sample is classified only in the biohazardous infectious materials hazard class and is bailed, it is exempt from all label and SDS requirements. For example, a clinical specimen, such as serum or mucosa that is sent for testing to another workplace is not required to have an SDS or label. This exemption does not apply for cross border shipments.

PART 5 - Worker Education and Training

Employers must provide WHMIS training for workers if they work with or near a hazardous product. The training and education must be tailored to the hazardous products at the work site and must be developed in conjunction with the HSC or health and safety representative, if there is one.

WHMIS worker education and training includes general education about WHMIS and workplace-specific (product and task-specific) training components that apply in the workplace where the hazardous product is used.

WHMIS worker education

WHMIS worker education is extremely important. Worker education should include:

- a general introduction to WHMIS, the components, legislation and guidelines,
- education in the required content of WHMIS labels and SDSs,
- education in the purpose and significance of that information to workers' health and safety on the job, and
- education pertaining to workplace-specific WHMIS program administration, and location of SDSs.

Labels, and to an even greater extent the SDSs, are a major source of hazard information for workers. In general (or "generic") WHMIS education, workers learn that a hazardous product must have a label with the elements required for alerting the worker to the hazard(s). The workers must be familiar with the significance of each of the required elements they should expect to find on the label - the pictogram(s), signal word and the hazard and precautionary statement(s).

Education will also teach workers that every hazardous product must have a SDS which contains more detailed information than the label. The workers must understand how to find additional hazard information on that SDS, under which heading to look for information they may require, and what the information really means.

Workplace-specific training

Workplace-specific WHMIS training instructs workers on the hazards of the products they work with or may be exposed to in the workplace. Training will also include a review of safe work procedures applicable to those products.

WHMIS workplace-specific training must include:

- the product specific hazard information provided by the supplier and all other hazard information of which the employer is aware,
- the different modes of product identification such as colour codes, number codes and any other means of clear identification used to label hazardous products in transfer systems (piping, conveyors, etc.), or reaction (process) vessels,
- safe work instructions for the safe use, handling, or storage of hazardous products used at the workplace, and

- safe work instructions for dealing with potential fugitive emissions and emergencies at the workplace.

Education and training can occur in various ways and can be done directly by the employer, a training provider or a combination of the two. For example, if this information has already been covered during operations training or other health and safety training and meets the WHMIS worker education and training requirements for effectiveness, the training need not be repeated in a “stand alone” WHMIS session.

Frequency of training

The WHMIS law does not specify how frequently WHMIS education and training must be provided. However, the employer must ensure that the education and training is effective. This assessment may require some evaluation on an ongoing basis so that worker knowledge and understanding is checked by the employer.

Demonstrating compliance with training requirements

An education and training program is considered effective when workers can apply the information they were taught to protect their health and safety on the job. To decide if this requirement has been met, an employer could offer practical or written tests, or assess workers through job observation. The law does not specify how to conduct education and training, how frequently it must be conducted, or how to test for its effectiveness. The employer must ensure that workers are able to protect themselves while working with hazardous products and that workers comply with the training instructions provided to them.

Workers have met the WHMIS education and training requirements if they can answer the following four questions:

- What are the hazards of the hazardous products I work with?
- How do I protect myself from those hazards?
- What do I do in case of an emergency?
- Where can I get additional hazard information?

Answering these questions assesses the worker’s ability to read and understand a WHMIS label or SDS and understand the workplace-specific hazards and procedures. The law does not require workers to be “certified” for WHMIS or have proof of certification or training (such as a certificate). However, the employer should document the instruction and training provided, when it was provided, and by whom.

Program review

The employer should review the content offered in their WHMIS education and training program intermittently, when conditions at the workplace change, or when new information about a hazardous product becomes available. This review does not necessarily mean that re-training is always required, but reviewing the program will

identify whether it should be provided.

Parties responsible for WHMIS education and training

The employer is responsible for WHMIS education and training of their workers. Many private consultants provide services to help employers develop or present WHMIS worker education. Employers can also prepare and deliver their own courses as long as all the necessary information is covered.

Workplace-specific training includes training on the procedures (operations and emergency) established by the employer or organization specifically related the hazardous product(s), process or task being used or carried out. Training can be provided by an outside firm if they are familiar with the specific processes and all of the hazardous products used at the workplace. This training is usually best designed and provided by on-site personnel.

PART 6 - Confidential Business Information

Confidential business information

Confidential business information is specific information that would otherwise have to be revealed on a WHMIS label or SDS but is a company secret that is financially valuable. Genuine confidential business information may be withheld from disclosure on WHMIS labels or SDSs with approval from Health Canada.

Determining what information may be withheld

Subject to Health Canada approval, suppliers or employers may withhold the identity* and/or concentration of one or more ingredients of a hazardous product including the names of toxicological studies that would identify those ingredients. Employers may also withhold the name of a hazardous product, and information that could be used to identify the supplier of a hazardous product.

*If the supplier has withheld the identity of an ingredient, the generic name of the ingredient must be disclosed on the SDS.

The right to protect information is provided to both suppliers and employers. An employer may need to protect the identity of a product used at the company, even from their own staff. For example, the product may be a secret ingredient in an important product that the company produces. The employer may need to keep this information secret even though the product supplier has no particular need to do so.

Prescribed concentration ranges can be used to protect ingredient concentrations and concentration ranges that are considered CBI without having to submit claims for exemption under the HMIRA. These prescribed concentration ranges are spelled out directly in the amended HPR. The concentrations and concentration ranges of ingredients in the product that present a health hazard must be disclosed on the SDS as either:

- the actual concentration or actual concentration range of the material or substance (i.e. the ingredient) in the hazardous product, or
- one of the prescribed concentration ranges within which the actual concentration or actual concentration range of the material or substance in the hazardous product falls.

Hazard information

Hazard information can never be withheld from disclosure. Only the information described above may be withheld.

Deciding if the information is confidential business information

Suppliers or employers wanting to withhold any of the information described above must file a claim with Health Canada pursuant to the *Hazardous Materials Information Review Act (*HMIRA*)*, the *Hazardous Products Act* (HPA) and their associated regulations. The claim must demonstrate that the information is genuinely confidential business

information.

Information required for a claim:

- the information being claimed secret,
- evidence that the information is confidential,
- the SDS and/or label in the form in which the claimant wants to use it, that is, with the confidential information omitted but with all other required information included, and
- a filing fee.

Claims are reviewed to determine their validity, and the product's SDS and labels are reviewed to ensure that the information complies with legislation and is complete and accurate. Claimants are given a HMIRA registry number, when they submit their claim. This registry number and the date the claim was submitted or “filed” must be clearly indicated on the label and/or SDS in place of the withheld information.

If the claim is accepted, the claimant must indicate that the claim is “validated” on the label and/or SDS, along with the registry number and the date the claim was “validated”. The validation is granted for a period of three years at which time the applicant must refile the claim.

There is a distinction between a claim “submitted or filed” and a claim “validated or granted”. The status of the claim must be disclosed on the SDS and label as being “filed” or “validated” along with the associated dates, as applicable. If a claim is found to be not valid, the claimant is ordered to reveal the information that was to have been withheld, or to remove the product from the market.

Validity of claims

Importers of hazardous products should note that trade secrets, proprietary information or registered trade secret claims registered in another country are not valid in Canada. The supplier must register their product in Canada if they wish to withhold confidential business information.

Incidents involving a confidential ingredient

Suppliers or employers who have been granted an exemption from disclosure of confidential business information must reveal that information to a health professional if the information is needed for diagnosis or treatment in a medical emergency. If the above information is not available, an emergency telephone number of the employer, through which a health professional may access information needed to make a medical diagnosis or treat a person in an emergency, must be provided.

Suppliers or employers must also reveal the information to OHS officers or federal WHMIS Inspectors who need it to conduct investigations into the health and safety of workers at workplaces where the product is being used.

Persons who receive confidential business information under these circumstances are required to keep the information confidential. Anyone violating this requirement is subject to the same penalties as persons who violate the *Hazardous Products Act*.

Glossary

Note: The definitions provided in this glossary are not always identical to the regulatory definitions provided in the HPA or HPR. If you are responsible for compliance, please consult the Act and Regulations at the following links, respectively:
http://laws-lois.justice.gc.ca/eng/acts/H-3/index.html
http://laws-lois.justice.gc.ca/eng/regulations/SOR-2015-17/index.html

Accidental release measures —the steps to be taken in response to spills, leaks, or releases of a hazardous product to prevent or minimize adverse effects on people and property. This information is found in Section 6 of the SDS.

Acute – means sudden or brief. “Acute" can describe either the duration (length) of an exposure or a health effect. An acute exposure is a short-term exposure (lasting for minutes, hours or days). An acute health effect is an effect that develops immediately or within minutes, hours or even days after an exposure. (See also “Chronic”.)

Acute toxicity – hazardous products classified in this hazard class cause fatal, toxic or harmful effects if swallowed, in contact with skin and/or if inhaled. Acute toxicity refers to adverse effects following:

- oral (swallowing) or dermal (skin) administration of a single dose, or multiple doses given within 24 hours, or
- an inhalation exposure of 4 hours or of a duration that is converted to four hours.

Acute inhalation toxicity could result from exposure to the hazardous product itself, or to a product that, upon contact with water, releases a gaseous substance that is able to cause acute toxicity. (See also “LC_{50}” and “LD_{50}”.)

Acute Toxicity Estimate (ATE) – a numerical value that is used to evaluate acute toxicity. For an ingredient, the ATE is the LC_{50} or the LD_{50}, if available, or a converted acute toxicity point estimate that is based on an experimentally obtained range or the classification category. For a mixture, the ATE is calculated for oral, dermal and inhalation toxicity based on the ATE values for all relevant ingredients and the percentage concentration in the product.

Administrative controls – controls that alter the way the work is done, including timing of work, policies and other rules, and work practices such as standards and operating procedures (including training, housekeeping and equipment maintenance).

American Conference of Governmental Industrial Hygienists (ACGIH®) – an international association of occupational hygienists that develops guidelines for the practice of occupational hygiene, including Threshold Limit Values (TLVs®) and Biological Exposure Indices (BEIs®). This publication serves as the basis for occupational exposure limits in many jurisdictions around the world.

Aspiration hazards – hazardous products classified in this hazard class may be fatal if the hazardous product is swallowed and enters the airways. Aspiration toxicity includes

severe acute effects, such as chemical pneumonia, varying degrees of pulmonary injury or death, following the entry of a liquid or solid directly through the mouth or nose, or indirectly from vomiting, into the trachea and lower respiratory system.

Auto-ignition temperature – the lowest temperature at which a product ignites when no spark or flame is present.

Biohazardous infectious materials – hazardous products that are classified in this hazard class are microorganisms, nucleic acids or proteins that cause or are a probable cause of infection, with or without toxicity, in humans or animals.

Boiling point – the temperature above which the product boils. Vapour is given off very rapidly at temperatures near or above the boiling point.

Canadian Centre for Occupational Health and Safety (CCOHS) – an occupational health and safety information service with the mandate to promote workplace health and safety, and encourage attitudes and methods that will lead to improved worker physical and mental health. CCOHS provides a wide range of products and services, including free access to a large collection of factsheets on occupational health and safety topics. Web site: www.ccohs.ca

Carcinogenicity – hazardous products classified in this hazard class may cause cancer or are suspected of causing cancer. These products are liable to lead to cancer or increase the incidence of cancer.

CAS Registry Number – the Chemical Abstracts Service Registry Number. This identification number is assigned to a chemical by the Chemical Abstracts Service, a division of the American Chemical Society.

Chronic – means long-term or prolonged. “Chronic” can describe either the length (duration) of an exposure or a health effect. A chronic exposure is a long-term exposure (lasting for months or years). A chronic health effect is an adverse health effect resulting from long-term exposure or a persistent adverse health effect resulting from a short-term exposure.

Coefficient of water/oil distribution – the ratio of a product’s distribution between the water and oil portions of a mixture of water and oil. A value of less than 1 indicates that the product is more soluble in oils. A value of greater than 1 indicates that the product is more soluble in water.

Combustible dusts – hazardous products classified in this hazard class may form combustible dust concentrations in air. These products are in the form of finely divided solid particles that, upon ignition, are liable to catch fire or explode when dispersed in air.

Combustible liquids – combustible liquids are included in the Flammable Liquids hazard class. Combustible liquids will not ignite or burn as readily as Flammable Liquids.

Complex mixture – a mixture that has a commonly known generic name and that is:

- naturally occurring,
- a fraction of a naturally occurring mixture that results from a separation process, or
- a modification of a naturally occurring mixture or a modification of a fraction of a naturally occurring mixture that results from a chemical modification process.

Petroleum distillates and turpentine are examples of complex mixtures. A complex mixture can be comprised of many individual ingredients whose concentrations may vary from batch to batch.

Confidential business information (CBI) – also known as "trade secrets" - certain information does not have to be disclosed on a WHMIS 2015 SDS and/or label if the supplier or employer believes that providing the information could affect (hurt) their business. Health Canada must approve the claim, which must follow the rules set out under the *Hazardous Materials Information Review Act*. CBI examples include the chemical identity or concentration of an ingredient in a hazardous product.

Control Parameters – includes occupational exposure limits (the airborne concentration of a substance that must not be exceeded in workplace air) and biological limit values. Depending on their source, occupational exposure limit values have different names and often have different numerical values.

Controls – measures used to protect workers from exposure to a hazardous product. Control measures include engineering controls (e.g., ventilation), administrative controls (e.g., scheduling, training) or personal protective equipment.

Corrosive to metals – hazardous products classified in this hazard class are liable to damage or destroy metal by chemical action.

Disposal considerations – information for safe handling for disposal, and recommended methods for disposal of the hazardous product, including any contaminated packaging. This information is found in Section 13 of the SDS.

Engineering controls – controls used to separate a worker from a hazard. These controls include design of or modifications to plants, equipment, or processes to reduce or eliminate hazards (e.g., process enclosure, isolation of an emission source, or ventilation).

Evaporation rate – a term that indicates how quickly a product evaporates compared to n-butyl acetate. The evaporation rate of butyl acetate is 1. A value greater than 1 means the product has a high evaporation rate and will mix with air very quickly.

Eye irritation – hazardous products classified for eye irritation, as part of the serious eye damage/eye irritation hazard class, produce changes in the eye which are fully reversible within 21 days. Effects could include redness, itching or swelling.

First-aid measures – the initial care that can be given by an untrained responder to a person who is experiencing symptoms of exposure to the product. This information is found in Section 4 of the SDS.

Flammable – able to ignite (catch fire) easily.

Flammable aerosols – hazardous products classified in this hazard class contain one or more flammable components in an aerosol dispenser and that, when dispensed, are liable to ignite. Products that contain flammable components in an aerosol dispenser at a concentration less than or equal to 1.0% and that have a heat of combustion less than 20 kJ/g are excluded from this hazard class.

Flammable gases – hazardous products classified in this hazard class are gases that have a flammable range when mixed with air (at 20 C and 101.3 kPa).

Flammable liquids – hazardous products classified in this hazard class are liquids that have a flash point of not more than 93 C.

Flammable solids – hazardous products classified in this hazard class are readily combustible solids or solids that are liable to cause or contribute to fire through friction. A "readily combustible solid" means a powdered, granular or pasty hazardous product that can be easily ignited by brief contact with an ignition source and, when ignited, has a flame that spread rapidly.

Flash point – the lowest temperature at which the application of an ignition source causes the vapours of a liquid to ignite (catch fire). The lower the flash point, the more easily the product will ignite and burn.

Fugitive emission – a gas, liquid or solid, vapour, fume, mist, fog or dust that escapes from process equipment or from emission control equipment or form a product where workers may be readily exposed to it.

Freezing point – the temperature below which a liquid product becomes solid.

Gases under pressure – hazardous products classified in this hazard class are compressed gases, liquefied gases, dissolved gases, or refrigerated liquefied gases. Compressed gases, liquefied gases and dissolved gases may explode if heated. Refrigerated liquefied gases may cause cryogenic (severe cold) burns or injury. These products consist of a gas contained in a receptacle under a pressure of 200 kPa or more at 20 C, or that is liquefied, or liquefied and refrigerated, but excludes any gas that has an absolute vapour pressure of not more than 300 kPa at 50 C or that is not completely gaseous at 20 C and 101.3 kPa.

Germ cell mutagenicity – hazardous products classified in this hazard class may cause or are suspected of causing genetic defects. These products are liable lead to an

increased occurrence of mutations in the germ (reproductive) cells.

Globally Harmonized System of Classification and Labelling of Chemicals (GHS) – an international system that defines and classifies the hazards of chemical products, and communicates health and safety information on labels and SDSs in a standardized way. The GHS is developed through consensus at the United Nations. The GHS "purple book" is a guidance document. Only the elements of GHS that have been explicitly adopted in legislation (e.g., in the HPR) are enforceable.

Handling and storage – the basic precautions to be followed when handling and for storing a hazardous product, or the basic equipment to be used during handling and storing. This information is found in Section 7 of the SDS.

Hazard – the potential for harmful effects. The hazards of a product are evaluated by examining the properties of the product, such as toxicity, flammability and chemical reactivity.

Hazard class – a way of grouping products together that have similar hazards or properties.

Hazard category – the subdivision within a hazard class that tells you about how hazardous the product is (the severity of hazard). Category 1 is always the greatest level of hazard (it is the most hazardous within that class). If Category 1 is further divided, Category 1A within the same hazard class is a greater hazard than category 1B. Category 2 within the same hazard class is more hazardous than category 3, and so on.

Hazardous combustion product – hazardous substance(s) formed when the product burns. These substances may be flammable, toxic, reactive and/or have other hazards.

Hazardous decomposition product – hazardous substance(s) that may be released when a product reacts with other substances, as a result of aging, reaction with airborne oxygen or moisture or exposure to light.

Hazardous ingredient – an ingredient in a mixture that, when evaluated as an individual substance according to the HPR, is classified in a category or subcategory of a health hazard class.

Hazardous product – a product, mixture, material or substance that meets the criteria to be classified in one or more of the hazard classes of the HPR.

Health hazards not otherwise classified (HHNOC) – hazardous products classified in this hazard class have a health hazard that is different from any other health hazard addressed in the HPR. These hazards must have the characteristic of occurring following acute or repeated exposure and having an adverse effect on the health of a person exposed to it, including an injury, or resulting in the death of that person. If a product is classified in this hazard class, the hazard statement on the label and SDS will describe

the nature of the hazard.

Health professional – are (a) physicians who are registered and entitled under the laws of a province to practice medicine and who are practicing medicine under those laws in that province; and (b) nurses who are registered or licensed under the laws of a province to practice nursing and who are practicing nursing under those laws in that province.

HPA – the *Hazardous Products Act*.

HPR – the *Hazardous Products Regulations.*

Importer – is a person or company that brings a hazardous product into Canada for sale to, or use at, a workplace. Importers have the same WHMIS responsibilities as suppliers. An employer can be an importer.

Incompatible materials – substances which, when combined with a hazardous product, could react to produce a hazardous situation (e.g., explosion, release of toxic or flammable materials, liberation of excessive heat)

Individual Protection Measures (or Personal protective equipment (PPE)) – the clothing or equipment that a worker handling a hazardous product wears to reduce or prevent exposure to the product. Individual protection measures may include coveralls, face shields, aprons, gloves or respirators.

LC_{50} (Lethal Concentration$_{50}$) – the airborne concentration of a substance or mixture that causes the death of 50 per cent of the group of animals in tests that measure the ability of a substance or mixture to cause poisoning when it is inhaled. These tests are usually conducted over a 4-hour period. The LC50 is usually expressed as parts of test substance or mixture per million parts of air (ppm) for gases, or as milligrams of test substance or mixture per litre of air (mg/l) for dusts, mists or vapours.

LD_{50} (Lethal Dose$_{50}$) – the single dose of a substance or mixture that causes the death of 50 per cent of the group of animals in tests that measure the ability of a substance or mixture to cause poisoning when it is swallowed (oral exposure) or absorbed through the skin (dermal exposure). The LD50 can vary depending on factors such as the species of animal tested and by the route of entry. The LD50 is usually expressed as milligrams of substance or mixture per kilogram of test animal body weight (mg/kg).

Lower explosive limit (LEL) or Lower flammability limit (LFL) – the lowest concentration of a substance in air that will burn or explode when it is exposed to a source of ignition. At concentrations below the LEL, the mixture is “too lean” to burn or explode. The LEL is the same as the LFL.

Manufactured article – an article that:

- is formed to a specific shape or design during manufacture, the intended use of which is dependent in whole or in part on the shape or design, and

- will not release or otherwise cause an individual to be exposed to a hazardous product when being installed, if the intended us of the article requires it to be installed, or under normal conditions of use.

Examples of manufactured articles include a screwdriver, a refrigerator, or an empty cylinder.

Occupational exposure limits or exposure limits – the airborne concentration of a substance that must not be exceeded in workplace air. Exposure limits have various names and often have different numerical values in different jurisdictions. In most Canadian provinces and territories, the exposure limits are called Occupational Exposure Limits (OELs).

Odour threshold – the lowest concentration of a product that most people can smell.

Organic peroxides – hazardous products classified in this hazard class are reactive and may cause a fire or explosion if heated. Organic peroxide means an organic (carbon containing) liquid or solid that contains two oxygen atoms joined together (the bivalent -O-O structure).

Oxidizing gases, Oxidizing liquids, or Oxidizing solids – hazardous products classified in these hazard classes may cause or intensify a fire, or cause a fire or explosion. Oxidizing gases are liable to cause or contribute to the combustion of other material more than air does. Oxidizing liquids and Oxidizing solids are liable to cause or contribute to the combustion of other material.

Personal protective equipment (PPE) – the clothing or equipment that a worker handling a hazardous product wears to reduce or prevent exposure to the product. Individual protection measures may include coveralls, face shields, aprons, gloves or respirators.

pH – a measure of a product's acidity or alkalinity. A pH of 7 is neutral. Products with a pH of greater than 7 are alkaline. Alkalinity increases as the number increases. Products with a pH of less than 7 are acidic. Acidity increases as the number decreases.

Physical hazards not otherwise classified (PHNOC) – hazardous products classified in this hazard class present a physical hazard that is different from any other physical hazard addressed in the HPR. These hazards must have the characteristic of occurring by chemical reaction and resulting in the serious injury or death of a person at the time the reaction occurs. If a product is classified in this hazard class, the hazard statement on the label and SDS will describe the nature of the hazard.

Physical state – indicates whether a product is a solid, liquid or gas.

Pyrophoric gases, Pyrophoric liquids, or Pyrophoric solids – hazardous products classified in these hazard classes can catch fire spontaneously (very quickly) if exposed to air. Pyrophoric liquids and pyrophoric solids are liable to ignite within five minutes after

coming into contact with air. Pyrophoric gases are liable to ignite spontaneously in air at a temperature of 54 C or less.

Polymerization – a chemical reaction that involves the combination of simple molecules to form large chain-like macro-molecules. This reaction can sometimes be observed as the "hardening" of a "non-inhibited" liquid product.

Relative density – the weight of a product compared to the weight of an equal volume of water. Products with a relative density greater than 1 are heavier than water. Products with a relative density less than 1 are lighter than water.

Reproductive toxicity – hazardous products classified in this hazard class may damage or are suspected of damaging fertility and/or the unborn child (baby). This hazard class has an additional category for products that may cause harm to breast-fed children. Reproductive toxicity refers to:

- adverse effects on sexual function and fertility
- adverse effects on the development of the embryo, fetus or offspring, or
- effects on or via breastfeeding

Respiratory or skin sensitization – see "Respiratory sensitizers" and/or "Skin Sensitizers".

Respiratory sensitizers – hazardous products classified as Respiratory sensitizers, as part of the Respiratory or skin sensitization hazard class, may cause allergy or asthma symptoms or breathing difficulties if inhaled. These products are liable to lead to hypersensitivity (increased sensitivity) of the airways following inhalation.

Route of exposure – refers to the way in which a product can enter the body. Workplace chemicals can affect the body if inhaled, following skin contact (including absorption through the skin) or eye contact, and if ingested (swallowed).

Sell (a hazardous product) – means offer for sale or distribution, expose for sale or distribution (e.g., advertising), have in possession for sale or distribution or distribute – whether for consideration or not - to one or more recipients. The definition also includes the transfer of possession of a hazardous product that creates a bailment. **Bailment** means the transfer of possession without transferring ownership.

Self-heating substances and mixtures – hazardous products classified in this hazard class may catch fire, or in large quantities, may catch fire. These solid or liquid products are liable to self-heat by reaction with air and without energy supply. These products differ from pyrophoric substances in that they will ignite only after a longer period of time or when in large amounts.

Self-reactive substances and mixtures – hazardous products classified in this hazard class may cause a fire or explosion if heated. These products are liable to undergo a strongly exothermic (producing heat and energy) decomposition, having a heat of

decomposition equal to or greater than 300 J/g, even without participation of oxygen.

Serious eye damage/eye irritation – see “Serious eye damage” and/or “Eye irritation”.

Serious eye damage – hazardous products classified for serious eye damage, as part of the Serious eye damage/eye irritation hazard class, can produce tissue damage in the eye or serious physical decay of vision that is irreversible or not fully reversed within 21 days. Effects could include permanently impaired vision or blindness.

Significant new data – is new data regarding the hazard presented by a hazardous product that:

- changes its classification in a category or sub-category of a hazard class, or
- results in its classification in another hazard class, or
- changes the ways to protect against the hazard presented by the hazardous product.

Simple asphyxiants – hazardous products classified in this hazard class may displace oxygen in air and cause rapid suffocation. These products are gases that are liable to cause asphyxiation by the displacement of air.

Skin corrosion/irritation – see “Skin corrosion” and/or “Skin irritation”.

Skin corrosion – hazardous products classified for skin corrosion, as part of the skin corrosion/irritation hazard class, cause severe skin burns and eye damage. Skin corrosion means the production of irreversible damage to the skin, namely, visible necrosis (tissue death) through the epidermis and into the dermis (layers of the skin), and includes ulcers, bleeding, bloody scabs and, within a 14-day observation period, discolouration due to blanching of the skin, complete areas of alopecia (loss of hair), and scars.

Skin irritation – hazardous products that classify for skin irritation, as part of the skin corrosion/irritation hazard class, are liable to cause reversible damage to the skin. Effects could include redness, itching, or swelling.

Skin sensitizers – hazardous products that classify as skin sensitizers, as part of the Respiratory or skin sensitization hazard class, may cause an allergic skin reaction. These products are liable to lead to an allergic response following skin contact.

Specific target organ toxicity (STOT) - Repeated exposure – hazardous products classified in this hazard class cause or may cause damage to organs (e.g., liver, kidneys or blood) following prolonged or repeated exposure to the product.

This means that repeated exposure to a hazardous product that causes health effects liable to impair body function. These effects can be reversible or irreversible, immediate or delayed. This hazard class excludes health hazards addressed by the acute toxicity, skin corrosion/irritation, serious eye damage/eye irritation, respiratory or skin sensitization, germ cell mutagenicity, carcinogenicity, reproductive toxicity or aspiration

hazard classes.

Specific target organ toxicity (STOT) - Single exposure – hazardous products classified in this hazard class cause or may cause damage to organs (e.g., liver, kidneys, or blood) following a single exposure to the product. This hazard class also includes a category for products that cause transient (temporary) respiratory irritation, or transient (temporary) drowsiness or dizziness.

This means that specific, non-lethal toxic effects arise from a single exposure to a hazardous product including impairment of function. These effects can be reversible or irreversible, immediate or delayed. This hazard class excludes health hazards addressed by the acute toxicity, skin corrosion/irritation, serious eye damage/eye irritation, respiratory or skin sensitization, germ cell mutagenicity, carcinogenicity, reproductive toxicity or aspiration hazard classes.

Storage requirements – specific instructions to safely store the hazardous product and prevent hazardous conditions from developing during storage. This information is found in Section 7 of the SDS.

Substances and mixtures which, in contact with water, emit flammable gases – hazardous products in this hazard class react with water to release flammable gases. In some cases, the flammable gases may ignite spontaneously (very quickly). These products are liquids and solids that, by interaction with water, are liable to become spontaneously flammable or give off flammable gases in dangerous quantities.

Suitable extinguishing media – describes the type of fire extinguisher(s) to be used on fires involving the product.

Supplier – means a person who, in the course of business, sells or imports a hazardous product.

Threshold limit values (TLV®s) – airborne concentrations of substances to which it is believed that nearly all workers may be exposed day after day without suffering adverse effects. The American Conference of Governmental Industrial Hygienists (ACGIH®) develops these values.

Toxicity – a product's ability to cause adverse health effects in people exposed to it.

Transportation of Dangerous Goods **(TDG)** – federal legislation that controls the conditions under which dangerous materials may be transported on public roads, in the air, by rail or by ship. Its purpose is to protect the health and safety of persons in the vicinity of transport accidents involving those materials.

Transport information – basic classification information for the transporting/shipment of a product by road, rail, sea or air. This information is found in Section 14 of the SDS.

Upper explosive limit (UEL) or Upper flammability limit (UFL) – the maximum concentration of a product in air that will burn or explode when it is exposed to a source of ignition. At concentrations greater than the UEL, the mixture is “too rich” to burn or explode. The UEL is the same as the UFL.

Vapour density – the weight of a vapour or gas compared to the weight of an equal volume of air. Products with a vapour density greater than one are heavier than air and can accumulate in low areas.

Vapour pressure – the pressure exerted by the vapour formed over a liquid in a closed container under standard test conditions and reported as an absolute pressure.