GUIDE

WHMIS 2015 Information for Employers

Workplace Hazardous Materials Information System

Système d'information sur les matières dangereuses utilisées au travail

SAFE WORK MANITOBA™

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GUIDE WHMIS 2015 Information for Employers

TABLE OF CONTENTS

INTRODUCTION

What is WHMIS?

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 hazardous products that are sold in or imported into Canada by supplier, importers and distributors, and hazardous products that are meant to be used, handled or stored in Canadian workplaces by employers and workers.

The WHMIS requirements are set out in both federal legislation and federal/provincial/territorial (FPT) safety and health legislation.

The federal legislation — the *Hazardous Products Act* (HPA) and the *Hazardous Products Regulations* (HPR) — sets out criteria to classify hazardous products. The legislation also specifies what information suppliers (manufacturers, importers and distributors) must provide on labels and Safety Data Sheets (SDSs) when their hazardous products are sold.

Employers who buy hazardous products must be sure that the products are safely used, handled and stored in the workplace, as required by federal, provincial and territorial legislation. Under FPT legislation, employers must ensure that:

- hazardous products received in the workplace are properly labelled
- SDSs are available to workers
- workers receive education and training to safely use, handle and store hazardous products.

Employers are also responsible for making the transition from *WHMIS 1988* requirements to *WHMIS 2015* requirements for any applicable hazardous products in their workplaces. Please find more information on the updates to the legislation and the transition process in the following sections.

Background on WHMIS legislation

WHMIS started in 1988 through co-ordinated 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). The GHS is an internationally agreed-upon system, which is part of a broader, worldwide initiative to classify chemicals and provide information about their hazards. Harmonized rules and regulations facilitate trade on a provincial, national and international level, and improve worker health and safety by providing more consistent hazard information.

This guideline describes the *WHMIS 2015* requirements. The *WHMIS 1988* requirements will still be available in the document *Workplace Hazardous Materials Information System (WHMIS) 2014* until December 1, 2018, which will be the end of the period allowed for transitioning from *WHMIS 1988* to *WHMIS 2015*.

Implementing *WHMIS 2015*

Canada's *Hazardous Products Regulations* (HPR) were published on February 11, 2015, replacing the *Controlled Products Regulations* (CPR), which were repealed. The *Hazardous Products Act* (HPA) was previously changed in June 2014 to allow for the changes to WHMIS that were made because of the GHS. Both the amended HPA and the new regulations (HPR) are in force as of February 11, 2015. This means that suppliers may begin to use and follow the new requirements for labels and SDSs for hazardous products sold, distributed or imported into Canada.

The implementation of *WHMIS 2015* will take place over a three-stage transition period that is synchronized nationally across the FPT jurisdictions.

Phase 1 (February 11, 2015, until May 31, 2017)
Suppliers who are manufacturers and importers may comply with the requirements of either *WHMIS 1988* or *WHMIS 2015*. Beginning June 1, 2017, manufacturers and importers must comply with *WHMIS 2015*.

Phase 2 (February 11, 2015, until May 31, 2018)
Suppliers who are distributors may comply with the requirements of either *WHMIS 1988* or *WHMIS 2015*. Beginning June 1, 2018, distributors must comply with *WHMIS 2015*.

Phase 3 (February 11, 2015, until November 30, 2018)
Employers must comply with either *WHMIS 1988* or *WHMIS 2015* for any controlled or hazardous products received in the workplace prior to June 1, 2018. However, any new hazardous products received in the workplace on or after June 1, 2018, must comply with *WHMIS 2015*.

Employers have until November 30, 2018, to use up or phase out controlled products that comply with *WHMIS 1988* received at the workplace prior to May 31, 2018. Beginning December 1, 2018, all hazardous products in the workplace must comply with *WHMIS 2015*. Federally legislated jurisdictions may have different end-of-transition dates. Employers operating within these areas should consult with their federal jurisdiction.

Please note that during the transition, employers must comply with the version of WHMIS (either *WHMIS 1988* or *WHMIS 2015*) that is used on the label and SDSs of the products they receive. For example, if they only have products complying with *WHMIS 1988*, they must only comply with *WHMIS 1988*. However, once they begin to receive products complying with *WHMIS 2015*, they must comply with the 2015 legislation before they can use the products. It is possible that employers will have to use both *WHMIS 1988* and *WHMIS 2015* programs in their workplace until December 1, 2018, if they still have *WHMIS 1988* products in their workplace up to that time.

The purpose of WHMIS

WHMIS was developed to give employers and workers adequate information about the hazardous products they use at their workplace. Suppliers (manufacturers, importers and distributors) of hazardous products must classify the hazards of these products and provide specified hazard information to those who buy the products. The purchaser (the employer) must provide this information to workers by:

- ensuring that hazardous products received in the workplace are properly labelled
- making SDSs available to workers
- giving workers education and training on hazardous products.

WHMIS's three key elements

Labels provide basic information that a worker needs to know in order to handle a hazardous product safely.

Safety Data Sheets (SDSs) provide more detailed, technical information about a product's physical and chemical characteristics and its physical and health hazards; precautionary measures to take when using the product (e.g., hazard prevention, first aid response, product storage and disposal); and much more information.

Worker education and training provides workers with a general overview of WHMIS, the information they should expect to find on a label and an SDS, and definitions for what this information means. Training provides workers with hazardous product information that's specific to their workplace, and instructions on how to do their job safely. Workers must also be trained to respond to an emergency involving hazardous products.

PART 1 – WHMIS LEGISLATION

WHMIS is implemented through co-ordinated federal, provincial and territorial (FPT) legislation.

Federal legislation, administered by Health Canada, addresses suppliers' responsibilities to classify their products and provide labels and SDSs.

The individual provincial and territorial jurisdictions, and the Labour Program of Employment and Social Development Canada (ESDC) for federally regulated workplaces, develop and administer legislation that defines employer and worker responsibilities under WHMIS.

The FPT regulatory agencies responsible for occupational safety and health regulate the employer and worker aspects of WHMIS through legislation enacted in each jurisdiction. Most workplaces in Manitoba are regulated by Manitoba's *Workplace Safety and Health Act and Regulations*, while some workplaces are under the federal jurisdiction of ESDC.

WHMIS federal legislation: label and SDS requirements

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 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 Health Canada WHMIS website at http://www.hc-sc.gc.ca/ewh-semt/occup-travail/whmis-simdut/index-eng.php provides information regarding:

- *WHMIS 2015* (e.g., requirements of the amended HPA and the HPR, and information on the transition from *WHMIS 1988* to *2015*)
- *WHMIS 1988* (requirements of the HPA prior to its amendment in 2014, as well as information on the former *Controlled Products Regulations*)
- procedures for submitting a trade secret claim to protect confidential business information.

WHMIS legislation is not the same as the federal *Transportation of Dangerous Goods Act* (TDG). 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. In contrast, WHMIS protects the health and safety of workers at workplaces by requiring that information be provided to employers and workers about the hazardous products in their workplaces.

The two systems often deal with the same products, but TDG addresses their transport and WHMIS addresses their use, handling and storage at workplaces. Products are exempt from WHMIS while they are covered by TDG. That is, when a hazardous product is being transported by a third party (e.g., a transport company) to the person who purchased it, there is no requirement to provide an SDS to the person transporting the product. The provision of hazard information during transportation is covered under the *Transportation of Dangerous Goods Regulations*. In addition, a hazardous product that bears a TDG label on its outer container is not required to also have a WHMIS label on its outer container.

WHMIS provincial and territorial legislation: employer and worker responsibilities

The individual provincial jurisdictions, territorial jurisdictions and the Labour Program of Employment and Social Development Canada (ESDC) for federally regulated workplaces each develop and administer legislation that defines employer and worker responsibilities under WHMIS.

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.

What happens if an employer or supplier doesn't comply with the WHMIS laws?
An employer found violating the WHMIS regulation is subject to improvement orders, just like any other violation of a provincial regulation. Administrative penalties or legal proceedings could also result depending on how serious the violation is and the employer's compliance history.

A violation of the federal WHMIS legislation by a supplier may result in compliance orders, stopping of sales, product seizures 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 million and/or imprisonment for up to two years.

Does WHMIS legislation apply to every chemical in the workplace?
No. WHMIS only applies to products that meet certain criteria. When a product meets the criteria to be classified in one or more of the hazard classes set out in the HPR, the product must be classified in the applicable hazard class(es). It is then referred to as a hazardous product.

Identification (classification) of hazardous products

The federal legislation (the HPA and the HPR) sets out criteria to classify hazardous products.

Under the HPR, there are **two major groups of hazard classes** in which hazardous products may be classified:

- Health hazards
- Physical hazards

WHMIS 2015 hazard classes

There are 31 hazard classes in total. The health hazard group contains 12 hazard classes and the physical hazard group contains 19 hazard classes.

Health hazard classes:

- Acute toxicity
- Skin corrosion/Irritation
- Serious eye damage/Eye irritation
- Respiratory or skin sensitization
- Germ cell mutagenicity
- Carcinogenicity
- Reproductive toxicity
- Specific target organ toxicity – single exposure
- Specific target organ toxicity – repeated exposure
- Aspiration hazard
- Biohazardous infectious materials
- Health hazards not otherwise classified

Physical hazard classes:

- Flammable gases
- Flammable liquids
- Flammable solids
- Flammable aerosols
- Combustible dusts
- Oxidizing gases
- Oxidizing liquids
- Oxidizing solids
- Gases under pressure
- Self-reactive substances and mixtures
- Self-heating substances and mixtures
- Substances and mixtures which, in contact with water, emit flammable gases
- Pyrophoric gases
- Pyrophoric liquids
- Pyrophoric solids
- Organic peroxides
- Corrosive to metals
- Simple asphyxiants
- Physical hazards not otherwise classified

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., consumer products) from WHMIS requirements because they are covered by other legislation. Exclusions are discussed later in this section.

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 (e.g., 1, 2 or 3), and the subcategories by a number and letter (e.g., 1A and 2B).

However, in some hazard classes the categories are called "types," which are denoted by a letter (e.g., Organic peroxide–Type A) or by a name or description (e.g., Effects on or via lactation). The lower the category number is, 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.

How are products classified?

There is no comprehensive list of hazardous products and their corresponding classification. To determine whether a product is a hazardous product, 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. However, 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) and Respiratory or skin sensitization.

Who classifies hazardous products?

Suppliers must be sure that hazardous products they sell or import are properly classified. Employers must also ensure that products produced and used at their workplace are properly classified. The employer is also responsible to ensure proper classification of products imported 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. Employers who does not have occupational health and safety personnel or chemists on staff may wish to get outside help. The Canadian Centre for Occupational Health and Safety (CCOHS) can provide some information on substance classification. Private consultants are often needed to classify more complex products (e.g., mixtures). For a list of Manitoba consultants, contact SAFE Work Manitoba.

Pictograms for hazard classes

Figure 1 shows the WHMIS pictograms and their associated hazard classes.

Figure 1: *WHMIS 2015* pictograms and their associated hazards

	• Flammables (gases, aerosols, liquids, solids) • Self-reactive substances and mixtures • Pyrophoric liquids, solids, and gases • Self-heating substances and mixtures • Substances and mixtures which, in contact with water, emit flammable gases • Organic peroxides
	• Skin sensitization • Acute toxicity (harmful) • Hazardous to the ozone layer* • Specific target organ toxicity – single exposure (Cat. 3) • Eye irritation • Skin irritation
	• Acute toxicity (severe)
	• Oxidizing gases, liquids, solids
	• Hazardous to the aquatic environment*
	• Explosives* • Self-reactive substances and mixtures • Organic peroxides
	• Carcinogenicity • Respiratory sensitization • Reproductive toxicity • Specific target organ toxicity – repeated exposure • Specific target organ toxicity – single exposure (Cat. 1, 2) • Aspiration hazard • Germ cell mutagenicity
	• Corrosive to metals • Serious eye damage • Skin corrosion
	• Gases under pressure
	• Biohazardous infectious materials

*The Environment hazard classes and the Explosives hazard class have not been adopted in the HPR.

Figure 1 is provided by CCOHS 2015.

Each pictogram shows a symbol that conveys information about the product's hazards. Each pictogram contains a black symbol on a white background surrounded by a red border in the shape of a square set on one of its points (see figure 1). 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 the GHS. It has been retained from *WHMIS 1988* in order to maintain worker protection, and it is included in Canadian federal WHMIS legislation (i.e., the HPR).

Many hazard classes share a pictogram. For example, hazardous products that are flammable, self-reactive, self-heating, pyrophoric and organic peroxides, as well as products 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 lactation do not have pictograms. The rules for pictogram use are set by the HPR in accordance with the GHS "purple book," fifth revised edition, Section 3 of Annex 3: unece.org/fileadmin/DAM/trans/danger/publi/ghs/ghs_rev05/English/ST-SG-AC10-30-Rev5e.pdf.

Schedule 5 of the HPR specifies which pictogram must be used for hazard classes that were not adopted from the GHS.

Completely and partially excluded products

Certain types of products are either totally or partially excluded from WHMIS requirements.

However, provinces and territories, as well as the jurisdiction responsible for federally regulated workplaces (the Labour Program of Employment and Social Development Canada), may have additional legislation that applies to products that are otherwise fully excluded from supplier WHMIS requirements.

To ensure that regulatory requirements are met for all products, you should contact the specific jurisdiction that applies to you. Visit www.whmis.org to find information on the appropriate authority and the jurisdictional requirements.

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 the *Transportation of Dangerous Goods Act* (TDG) as dangerous goods (i.e., while they are in transit or intended to be in transit)
- hazardous wastes; that is, hazardous products that are sold for recycling or recovery and are intended for disposal. Please note that FPT legislation does require hazardous waste to be safely stored and handled, which means that 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" are articles that:

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

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 fumes) during normal use.

Partially excluded products

WHMIS SDS and label requirements do not apply to the following products. However, under Manitoba's provincial legislation, employers are still required to provide education and training for workers who use these products and those who may be exposed to them over the course of their work shift.

Partially excluded products include:

- explosives, as defined in section 2 of the *Explosives Act*
- cosmetics, devices, drugs or food, as defined in section 2 of the *Food and Drugs Act*
- pest control products, as defined in subsection 2(1) of the *Pest Control Products Act*
- nuclear substances, within the meaning of the *Nuclear Safety and Control Act*, that are radioactive
- consumer products (consumer chemicals), as defined in section 2 of the *Canada Consumer Product Safety Act* (CCPSA).

The education and training provided to workers must explain the labelling systems used for these types of products, and include any other information provided by the supplier that will keep workers healthy and safe.

Most often, the type of partially excluded product 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. A "consumer product" also includes its packaging.

For example, a solvent packaged in a one-litre container and offered for sale in a retail store is considered a consumer product and does not need WHMIS labelling and an SDS. (One litre is an example of a common retail size, but solvents can be sold in larger or smaller containers.) The supplier of a consumer product does not have to provide a WHMIS label or SDS; however, they do have to meet labelling requirements under the CCPSA.

However, the same product packaged in a 454-litre drum and sold at an industrial supply outlet would be legislated under WHMIS. It is considered a hazardous product intended to be used in a workplace and all WHMIS supplier requirements would apply.

It is a good idea to ask the supplier if an SDS is available for any partially excluded product. An SDS will help employers assess the product's risks, create safe work procedures and train workers.

Roles and Responsibilities

Supplier and distributor responsibilities

Suppliers (which include manufacturers and importers) and distributors of hazardous products have the same responsibilities.

Canadian suppliers of hazardous products have five main WHMIS responsibilities. They 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 in both English and French for each hazardous product at the time of **sale***
- provide an SDS for each hazardous product in both English and French at the time of sale
- update WHMIS labels and SDSs when **significant new data** becomes available**
- provide information, including confidential business information, to a medical professional as required in an emergency.

* Under the HPA, "**sell**," or "**sale**," has a very broad definition. It is the sale of the product that triggers many of the supplier and employer responsibilities under WHMIS. "Sell" includes offering for sale, distributing, exposing for sale (e.g., advertising), 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
- a change in hazard class (e.g., classification in a hazard class in which the hazardous product was not previously classified)
- a change in the requirements for protecting workers against the hazard presented by the hazardous product.

Updating Labels and SDSs

It is the supplier's responsibility to **ensure the hazardous product label information is up-to-date and complies 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 this 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.

Similarly, the supplier **must provide an up-to-date SDS that complies 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.

Employers are responsible for ensuring that:

- all hazardous products at their workplaces are labelled with WHMIS-compliant supplier labels, workplace labels or another means of workplace WHMIS identification (e.g., placards or colour-coding)
- WHMIS-compliant SDSs are available for all hazardous products used at the workplace
- SDSs are readily accessible to workers
- SDSs and labels are updated and workers receive information pertaining to any significant new data received from a supplier
- WHMIS-compliant labels and SDSs are developed for products produced for use in the workplace
- 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 only if you are actively seeking the proper label, and if you have placed a placard (as described further in the section on placards on pg. 19) over the product while waiting for the supplier label. Another option may be to apply a WHMIS workplace label to the container.

Similarly, the same restrictions apply if a supplier sends you a hazardous product for which you have not received a WHMIS-compliant SDS. You may store the hazardous product in a safe manner, but it may not be used until you obtain the WHMIS SDS. Typically, the WHMIS compliant label or SDS should be obtained within a delay of not more than 30 days.

Updating labels and SDSs with Significant New Data

The supplier must update the SDS and label when they become aware of significant new data, as previously discussed in the supplier roles. When employers receive significant new data from a supplier as an appendix to the SDS, as additional documents, or as a revised SDS, employers must:

- train workers on the significant new data
- provide workers with the new SDS, the appendix containing the significant new data, and/or other additional documents when they are received
- update the affected label as soon as possible following the receipt of the significant new data information
- replace the old SDS with the new SDS as soon as possible following receipt.

If the hazardous product is produced in the workplace, and an employer becomes aware of significant new data, the employer must:

- train workers on the significant new data
- provide the significant new data information to workers, in writing and attached to the SDS
- update the product label
- update the SDS within 90 days.

Labels and SDSs for imported products

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.

Labels – In the case where 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 that is compliant with the HPR on the hazardous product before it can be used or sold in Canada.

SDS – 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.

Labels and SDSs for use in your own workplace – If you import a hazardous product for use at your own workplace, you are responsible for ensuring that the hazardous product has a WHMIS-compliant workplace label and WHMIS-compliant SDS.

The **Initial Supplier Identifier** on the labels and SDSs 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 (i.e., the importer) must be identified as the "initial supplier identifier" on the label and SDS. If the product is imported only for use at the employer's own workplace, the name, address and telephone number of the foreign manufacturer may appear instead of the initial supplier identifier.

Worker responsibilities

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

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

Government responsibilities

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.

WHMIS application in the workplace is legislated by the provinces, the territories and by Employment and Social Development Canada (ESDC) for federally regulated workplaces within their respective jurisdictions.

In Manitoba, the Workplace Safety and Health Branch enforces the requirements of WHMIS at workplaces, including worker education and training. Safety and Health Officers and Occupational Hygienists are designated to inspect workplaces for compliance with the WHMIS legislation.

Some of the Occupational Hygienists in the Branch are also designated as inspectors by Health Canada respecting supplier compliance with the HPA and HPR.

PART 2 – LABELS

The most common types of WHMIS labels are supplier and workplace labels.

Supplier labels are labels that 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
- hazardous products imported into Canada for use at workplaces.

Workplace labels are used in the workplace when it is not practical to use a supplier label, or 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
- hazardous products that are imported only for use at an employer's workplace.

Workplace 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. Workplace labels should be used when new supplier labels are not available.

Different information requirements apply to supplier labels and workplace labels.

Requirements for WHMIS supplier labels

The WHMIS supplier label must follow the following basic requirements:

- The pictogram(s), signal word and hazard statements must be grouped together on the label. However, there is no specified format or specific size requirement.
- The supplier label information must be provided in both French and English (either as one bilingual label, or as two equally visible labels).
- The information on the label must be easily legible using no device other than corrective lenses, and contrasted with any other information on the hazardous product or container.
- The label must be clearly and prominently located and on a surface that is visible under normal conditions of use.
- The label must remain durable and legible.

Figure 2: Sample *WHMIS 2015* supplier label

Product SHO-K1 / Produit SHO-K1

Danger

Fatal if swallowed.
Causes skin irritation.

Precautions:
Wear protective gloves.
Wash hands thoroughly after handling.
Do not eat, drink or smoke when using this product.

Store locked up.
Dispose of contents/containers in accordance with local regulations.

IF ON SKIN: Wash with plenty of water.
If skin irritation occurs: Get medical advice or attention.
Take off contaminated clothing and wash it before reuse.
IF SWALLOWED: Immediately call a POISON CENTRE or doctor.
Rinse mouth.

Danger

Mortel en cas d'ingestion.
Provoque une irritation cutanée.

Conseils :
Porter des gants de protection.
Se laver les mains soigneusement après manipulation.
Ne pas manger, boire ou fumer en manipulant ce produit.

Garder sous def.
Éliminer le contenu/récipient conformément aux règlements locaux en vigueur.

EN CAS DE CONTACT AVEC LA PEAU : Laver abondamment à l'eau.
En cas d'irritation cutanée : Demander un avis médical/consulter un médecin.
Enlever les vêtements contaminés et les laver avant réutilisation.
EN CAS D'INGESTION : Appeler immédiatement un CENTRE ANTIPOISON ou un médecin.
Rincer la bouche.

ABC Chemical Co., 123 rue Anywhere St., Mytown, ON NON ONO (123) 456-7890

Figure 2 is provided by CCOHS 2015.

The WHMIS supplier label must contain the following seven types of information:

- **Product Identifier** – the product name exactly as it appears on the Safety Data Sheet (SDS).
- **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 a foreign supplier and for use at the importer's (or employer's) own workplace.
- **Signal Word*** – "Danger" or "Warning" is used to draw attention to the product's hazards and is based on the severity of the hazard. "Danger" is used for more severe hazards.

- **Hazard Pictogram(s)*** – determined by the hazard classification of the product. For some hazard classes and some categories within a hazard class, no pictogram is required (e.g., Simple asphyxiants, Eye irritation – Category 2B and Reproductive toxicity – effects on or via lactation).
- **Hazard Statement(s)*** – brief standardized statements that are based on the hazard classification of the product.
- **Precautionary Statements*** – standardized statements based on the hazard classification of the product that describe recommended measures to minimize or prevent harmful effects from exposure to the product, including protective equipment, control measures and emergency measures.
- **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.

*These label elements are prescribed in Section 3 of Annex 3 of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) "purple book," fifth revised edition, for the hazard classes adopted from the GHS, and in Schedule 5 of the *Hazardous Products Regulations* (HPR) for all other hazard classes.

Variations on the supplier label

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

- small containers
- products purchased in bulk
- laboratory samples.

Supplier labels for small containers

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

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

Figure 3: Sample *WHMIS 2015* small container label

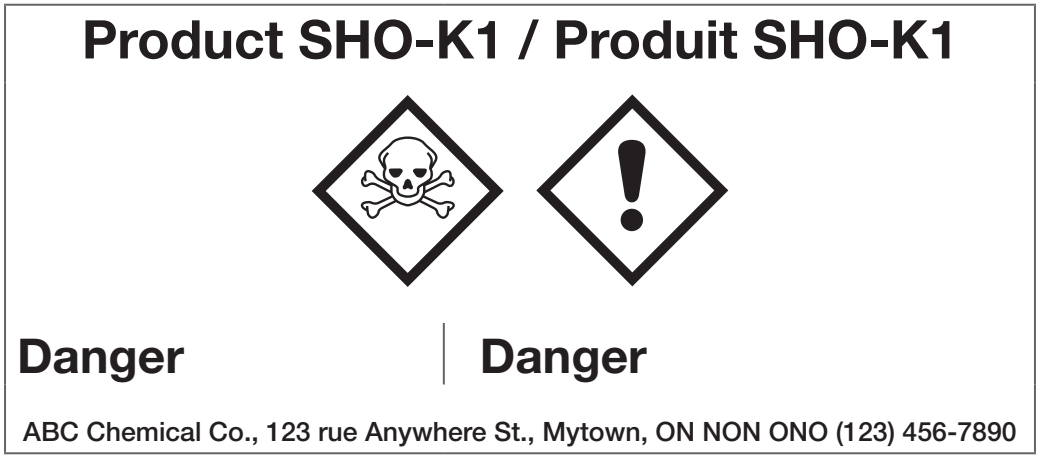

Figure 3 is provided by CCOHS 2015.

Supplier labels for products purchased in bulk

"Bulk shipment" has a special meaning in WHMIS. Under the HPR, 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) a vessel that has a water capacity equal to or greater than 450 litres;

b) a freight container, road vehicle, railway vehicle, or portable tank;

c) the hold of a ship; or

d) a pipeline."

Bulk shipments, regardless of whether they are shipped or picked up at the supplier's location, and hazardous products sold without packaging of any sort 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:

- get a supplier label from the supplier, which can be provided separately before or during the product's 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
- 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.

Keep in mind that the supplier is allowed to choose if they will provide labels for bulk shipments. If the supplier sends you a supplier label, you must attach it to your container of the product. If the supplier chooses not to provide the label, you must use the information provided on the SDS to make a supplier label and apply that label to the product's container. If you use an alternative method of labelling, you must ensure that workers are provided with appropriate training so that they understand the system used in your workplace.

Requirements for WHMIS workplace labels

Workplace labels are "performance-based." This means that the contents of the labels must provide workers with the information they need to handle the product safely. There are no format or language requirements in the legislation.

The following information must be present on a workplace label:

- product identifier (name of product)
- information for safe use of the product (e.g., a signal word, hazard statements and precautionary statements)
- a reference to the SDS.

Figure 4: Sample *WHMIS 2015* workplace label

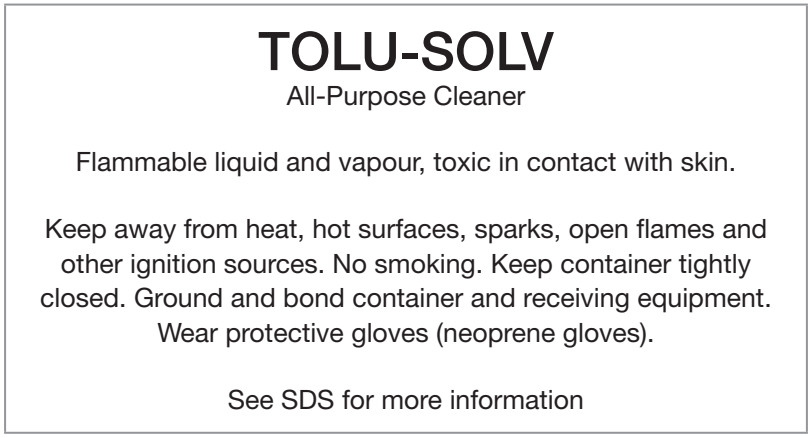

Figure 4 is provided by CCOHS 2015.

WHMIS placards and signs

Sometimes it is more practical to use a placard to draw attention to information about hazardous products. This is permitted in the following situations:

- hazardous products that are not in containers
- hazardous products that have been produced for sale but have not yet reached the labelling stage of the production process
- hazardous products that are destined for export only.

A placard should include the same information as a WHMIS workplace label. The placards must be large enough to be easily read and they must be placed so that they are visible and obvious to workers.

Placards may also be used when a hazardous product arrives at the workplace without the required supplier label if you are storing the product while you track down the WHMIS supplier label.

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, etc.
- mixtures and substances undergoing analysis, tests or evaluation in a laboratory (laboratory samples are discussed on pg. 30–31)
- hazardous wastes produced in the workplace.

These hazardous products may be identified by any clear means, such as colour codes, or painted, stencilled, or even handwritten identifiers.

Hazardous products in the workplace that do not require a WHMIS label

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

- hazardous products that are being transferred to containers from other (adequately labelled) containers, kept under the control of the person who is making the transfer and used up during the shift in which the container is filled
- hazardous products decanted for immediate use, which both simply require the product identifier (name) on the container
- 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.

PART 3 – SAFETY DATA SHEETS (SDSs)

Required information on SDSs

Safety Data Sheets (SDSs) must have 16 sections of information, as shown in table 1. Each of the 16 sections must be identified by a heading, identical to and in the exact order of those presented in table 1. 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 an SDS (e.g., font type or size, borders, margins, footnotes, spacing, etc.).

Table 1: Information elements on SDSs

SDS section and 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 the 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 hazard)

SDS section and heading		Specific information elements
3	Composition/information on ingredients	• When a hazardous product is a **material or substance**: - its chemical name - its common name and synonyms - its Chemical Abstracts 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, skin contact, eye contact, ingestion) • Most important symptoms and effects (acute or delayed) • An indication of immediate medical attention and special treatment, if necessary
5	Firefighting measures	• Suitable and unsuitable extinguishing media • Specific hazards arising from the hazardous product (e.g., hazardous combustion products) • Special protective equipment and precautions for firefighters
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 controls/personal protection	• Control parameters, including 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)

SDS section and heading		Specific information elements
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 • Flashpoint • 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 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

SDS section and heading		Specific information elements
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

Table 1 is provided by CCOHS 2015.

Notes:

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

1. When importers import a hazardous product for use in their own workplace in Canada (i.e., importers are not selling the hazardous product), importers 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 Canadian distributors, distributors may replace the name, address and telephone number of the initial supplier with their own contact information.

** These impurities, stabilizing solvents and/or stabilizing additives are those that are 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 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.

Obtaining SDSs for hazardous products

Canadian suppliers, including distributors, must provide buyers with SDSs for the hazardous products that they sell. The SDSs must be provided in both English and French. This requirement also applies to hazardous products imported from foreign suppliers.

Employers are responsible for:

- ensuring that SDSs for hazardous products that they purchase from Canadian suppliers or import from foreign suppliers are available at their workplace
- ensuring that they receive the most current SDS from the supplier each time they purchase a hazardous product
- 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 current SDSs for hazardous products that are bought only once or irregularly might be complicated. An 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, an employer can ask a supplier for sufficient information to update the SDS themselves, engage the services of a professional consultant in this field of work or stop using the product.

The supplier could provide an SDS to an employer by:

- sending an email to the employer/purchaser and attaching the SDS to the email (in the case where the English and French portions of the SDS are two separate parts, both the English and French parts must be attached in the same email)
- providing the employer/purchaser with a universal serial bus (USB) stick or a compact disc (CD) on which the SDS has been saved (in the case where the English and French portions of the SDS are two separate parts, both the English and French parts must be saved on the same USB stick or CD).

It is important to note that it is not acceptable to provide an SDS by only providing the purchaser of the hazardous product with a website address or hyperlink from which the purchaser may download the SDS for the product that was purchased.

Employers should review the workplace WHMIS program on a yearly basis. This is a good opportunity to ensure that SDSs are examined (e.g., for any available significant new data), and updated as necessary.

Worker access to SDSs

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 Health and Safety Committee (JHSC) or the designated health and safety representative, if available. 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 if the information is needed in an emergency.

Variations to the SDS

Generic SDSs

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 are basically the same but have small variations in ingredients from one product to another. One example is a line of paints.

The generic SDS must provide the product identifiers (names) 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 items (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.

Important items of note on the WHMIS SDS

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. Importers 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 importers do 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, employers can import a hazardous product following the rules as they are outlined above for an importer (i.e., an employer can be an importer).

Section 2: Hazard identification

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 (e.g., 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 LD_{50} [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 to provide a supplemental hazard statement on the label and SDS for products that release a toxic gas when they contact water. The statement should read as follows: "In contact with water, releases gases which are fatal/toxic/harmful if inhaled."

Section 3: Composition/information on ingredients

All impurities, stabilizing solvents and additives that are known to the supplier, that are individually classified in any category or subcategory of health hazard, and that contribute to the hazard classification of the product must be listed on the SDS. For mixtures, only ingredients that are individually 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 micro-organisms, nucleic acids or proteins that cause or probably cause 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-heading appendix to the SDS to provide information specific to the biohazard, as shown in table 2.

Table 2: Additional information elements on SDSs for 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*)

Table 2 is provided by CCOHS 2015.

PART 4 – SOME SPECIAL CIRCUMSTANCES FOR LABELS AND SAFETY DATA SHEETS (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 a Safety Data Sheet (SDS) to the person transporting the product (for example, a courier driver). However, in these circumstances the transport company is subject to the requirements under the *Transportation of Dangerous Goods Act* (TDG), which has different rules for training and labelling.

Hazardous Products in Transit

Hazardous products that are or will be in transit and are not meant to be used in a workplace in Canada are exempt from the labelling and SDS requirements. “In transit” is defined as “passing through Canada and not fabricated in Canada.”

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 labelled in accordance with the *Transportation of Dangerous Goods Regulations*, 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 *Hazardous Products Regulations* (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.

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 if the carrier material is present in an amount that is less than one millilitre for a liquid or gas and less than one gram for a solid, as long as the carrier is not classified in any of these hazard classes:

- Carcinogenicity
- Germ cell mutagenicity
- Reproductive toxicity
- Biohazardous infectious materials
- Acute toxicity, oral or dermal–Category 1 or Acute toxicity, inhalation–Category 1 or Category 2.

Exempt Hazardous Products

As previously indicated, certain product categories such as pesticides, consumer products, drugs and pharmaceuticals, and radioactive products are excluded from WHMIS labelling and SDS requirements because 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. However, some products that are exempt from WHMIS because they are covered under other legislation still have the potential to pose a risk to the safety and health of workers. Under Part 36 of *Manitoba Regulation* 217/2006 – Chemical and Biological Substances, employers are required to assess this risk, establish safe work procedures and train workers to safely use any substances that may pose a risk to the safety and health of workers. Therefore, it is a good idea for an employer to obtain an SDS for an exempt product when they are available in order to help assess the risk, develop safe work procedures and train workers.

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 kilograms of the hazardous product
- is intended solely to be tested in a laboratory
- 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
- industrial hygiene samples.

Under the HPR, a laboratory sample can have reduced labelling and 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
- the sample is a non-commercialized product (e.g., a product that is undergoing research and development, and is not yet available for sale).

When sending products to a laboratory for analysis, it is not always clear how to label samples. You may not know if a product is considered a hazardous product or not. If you are faced with this dilemma, you are expected to use your best judgement and then 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 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 also 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
- 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 an SDS.

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.

Figure 5: Example of a label for a laboratory sample of a hazardous product with no SDS

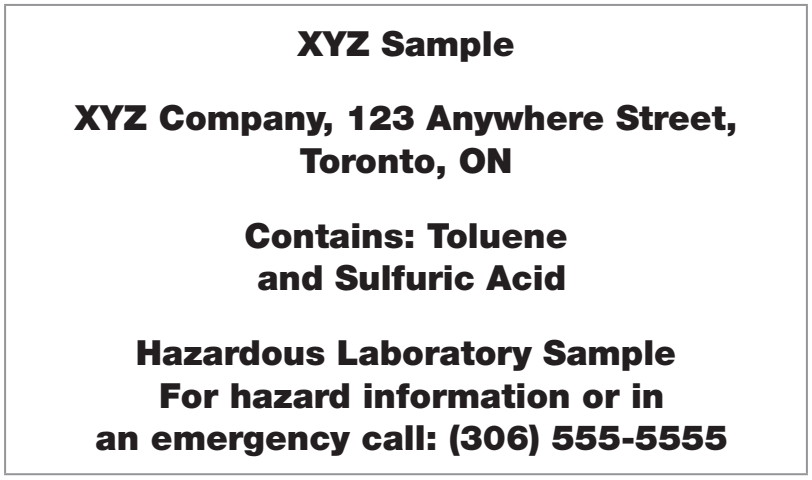

Figure 5 is provided by CCOHS 2015.

PART 5 – WORKER EDUCATION AND TRAINING

What does WHMIS worker education and training include?

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, covering the components, legislation and guidelines
- information about the required content on WHMIS labels and Safety Data Sheets (SDSs)
- education in the purpose and significance of that information to workers' health and safety on the job
- information pertaining to workplace-specific WHMIS program administration, and the location of SDSs.

Labels, and to an even greater extent 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 information needed to alert workers to the hazard(s). 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 an SDS that contains more detailed information than the label. Workers must understand how to find additional hazard information on that SDS, know under which heading they can find the information they require and understand 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 an 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 procedures for the safe use, handling or storage of hazardous products used at the workplace
- safe work procedures 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 an employer, a training provider or a combination of the two. For example, if this information has already been covered during operations training or other occupational 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.

Providing and evaluating worker education and training

Do all workers require WHMIS worker education and training?

All workers who work with or may be exposed to a hazardous product in the course of their work activities must be provided with WHMIS education and workplace-specific training. The hazard information a worker needs to know and the procedures in which a worker is trained will depend on the work a worker performs.

How often must WHMIS worker education and training courses be provided?

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

How can employers show their workforce is educated and trained?

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. Employers 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?

Being able to answer these questions checks the workers' ability to read and understand a WHMIS label or SDS and understand workplace-specific hazards and procedures.

How often should employers review their WHMIS education and training program?

Employers should review the content offered in their WHMIS education and training program intermittently, and if conditions at the workplace change or new information about a hazardous product becomes available. In some jurisdictions, an annual review may be mandatory. This review does not necessarily mean that re-training is always required, but reviewing the program will identify whether it should be provided.

Who provides WHMIS education and training?

WHMIS education – 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 – Workplace-specific training includes training on the operations and emergency procedures created by the employer or organization that are specifically related to the hazardous product(s), and the process or the 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. However, this training is usually best designed and provided by on-site personnel.

PART 6 – CONFIDENTIAL BUSINESS INFORMATION

What does "confidential business information" mean?

Confidential business information is specific information that would otherwise have to be revealed on a WHMIS label or Safety Data Sheet (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.

What information may be withheld as confidential business information?

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 the suppliers and employers. Employers 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. An employer may need to keep this information secret even though the product supplier has no particular need to do so.

Is hazard information confidential?

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

Who decides 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.

A claim must contain the following information:

- 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
- 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 the 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 re-file 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.

Claims are valid only in Canada

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. Suppliers must register their product in Canada if they wish to withhold confidential business information.

What happens when an incident occurs involving a hazardous product containing 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 for the employer, through which a health professional may get 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 government 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 HPA.

GLOSSARY

Note: The definitions provided in this glossary are not always identical to the regulatory definitions provided in the *Hazardous Products Act* (HPA) or in the *Hazardous Products Regulations* (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 they are swallowed, if they come into contact with skin and/or if they are inhaled. Acute toxicity refers to adverse effects following:

- a single exposure (either oral [swallowing] or dermal [skin contact]), or multiple exposures within 24 hours
- an inhalation (breathing) exposure of four hours or of a length that converts to four hours.

Acute inhalation toxicity could result from exposure to the hazardous product itself, or to a product that, when it contacts water, releases a gaseous substance that causes 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 hazard – hazardous products classified in this hazard class may be fatal if the hazardous product is swallowed and enters the airway. Aspiration toxicity includes severe acute effects, such as chemical pneumonia, varying degrees of pulmonary injury or death. It happens when a liquid or solid enters the trachea and lower respiratory system either directly through the mouth or nose, or indirectly from vomiting.

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 micro-organisms, 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 fact sheets on occupational health and safety topics. Visit ccohs.ca for more information.

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 one indicates that the product is more soluble in oils. A value of greater than one 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
- 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 composed 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 included on a *WHMIS 2015* SDS and/or label if suppliers or employers believe that providing the information could affect (hurt) their business. Health Canada must approve the caim, which must follow the rules set out under the *Hazardous Materials Information Review Act* (HMIRA). 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 and 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 one. A value greater than one 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 one per cent 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 flashpoint 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 spreads rapidly.

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

Fugitive emission – a gas, liquid, 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. They consist of gases contained in receptacles under a pressure of 200 kPa or more at 20 C, gases that are liquefied, or gases that are liquefied and refrigerated. It 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. Compressed gases, liquefied gases and dissolved gases may explode if heated. Refrigerated liquefied gases may cause cryogenic (severe cold) burns or injury.

Germ cell mutagenicity – hazardous products classified in this hazard class may cause or are suspected of causing genetic defects. These products are likely to increase 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 *Hazardous Products Regulations* [HPR]) are enforceable.

Handling and storage – the basic precautions to be followed when handling and storing a hazardous product, or the basic equipment to be used during handling and storing. This information is found in Section 7 of an 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 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, subcategory 1A within the same hazard class is a greater hazard than subcategory 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 or reacting with airborne oxygen, or because of moisture or exposure to light.

Hazardous ingredient – an ingredient in a mixture that, when evaluated as an individual substance according to the *Hazardous Products Regulations* (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 *Hazardous Products Regulations* (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 *Hazardous Products Regulations* (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 professionals – 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 to sell to a workplace, or to 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., an explosion, a release of toxic or flammable materials, or a 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. The exact type of gloves and respirators should be specified: for example, "vinyl gloves" or "organic vapour cartridge respirator."

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 four-hour period. The LC_{50} 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 LD_{50} can vary depending on factors such as the species of animal tested and by the route of entry. The LD_{50} 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 when in that form is dependent in whole or in part on the shape or design
- will not release or otherwise cause an individual to be exposed to a hazardous product when being installed, if the intended use 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) – see "Individual protection measures."

pH – a measure of a product's acidity or alkalinity. A pH of 7 is neutral. Products with a pH that is greater than 7 are alkaline. Alkalinity increases as the number increases. Products with a pH that is 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 *Hazardous Products Regulations* (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 one are heavier than water. Products with a relative density less than one are lighter than water.

Reproductive toxicity – hazardous products classified in this hazard class may damage or are suspected of damaging fertility and/or an unborn child. 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
- effects on or via lactation.

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 subcategory of a hazard class
- results in its classification in another hazard class
- 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.

Specific target organ toxicity arising from repeated exposure means specific toxic effects on target organs that arise from repeated exposure to a hazardous product, including all health effects liable to impair function of the body or any of its parts, whether 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.

Specific target organ toxicity arising from a single exposure to a hazardous product means specific, non-lethal toxic effects on target organs that arise from a single exposure to a hazardous product including all health effects liable to impair function of the body or any of its parts, whether 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 a hazardous product and prevent hazardous conditions from developing during storage. This information is found in Section 7 of an 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(s) 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 (TLVs®) – 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 Act **(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 transportation/shipment of a product by road, rail, sea or air. This information is found in Section 14 of an 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.

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