

GUIDANCE ON SAFETY DATA SHEET (SDS)

Introduction

In 2015, Canada aligned WHMIS to the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). This alignment resulted in several changes, most of which made chemical communication clearer. This document summarizes how Safety Data Sheets (SDS) communicate hazards according to WHMIS 2015.

Hazard Classification

WHMIS 2015 classifies chemicals by categorizing hazards by group, class, then category/type. The two groups are **physical hazards** and **health hazards**.

Within these groups are hazard classes and within these classes are categories or types. Refer to Figure 1.

Categories are assigned numbers with subcategories being assigned letters. Types are assigned letters without any subcategories. Both “categories” and “types” are utilized to denote the level of severity that a particular class holds for the chemical. The lower the number the more hazardous the class.

For example, Category 1 of a chemical always represents the greatest level of hazard in a class, and Category 2A always represents a greater level of hazard than Category 2B. This is depicted in Figure 2.

Hazard and Precautionary Statements

To gather further detail on how a chemical may pose harm, one should review the hazard (H) and precautionary (P) statements. These statements detail the specific hazard, what conditions to avoid, provide details on how to store the chemical, and how to respond to exposures.

- [A full list of H-statements](#)
- [A full list of P-statements](#)

Table 1 below summarizes the definitions of the WHMIS Physical Hazard Classes and Table 2 summarizes the WHMIS Health Hazard Classes.

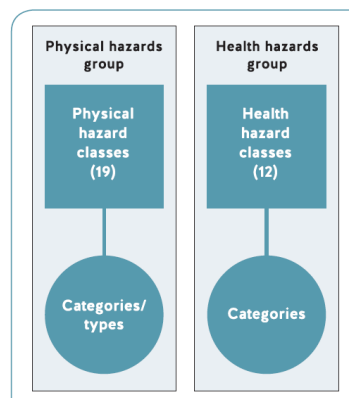


Figure 1: Groups, classes, categories and types as denoted in WHMIS

Hazard category	Level of hazard
1	More hazardous
2A	↕
2B	
3	Less hazardous

Figure 2: Levels of hazard in a class

Table 1: WHMIS Physical hazard classes











Symbol	Class and Category/Type	What it tells you	Other information
	Flammable gases – Cat 1 Flammable aerosols – Cat 1 & 2 Flammable liquids – Cat 1,2, & 3 Flammable solids – Cat 1 & 2	Four classes cover materials that have the ability to ignite easily.	Flashpoint, boiling point and explosive limits in air (LEL/UEL) are physical properties associated with these hazard classes.
	Pyrophoric gases – Cat 1 Pyrophoric liquids – Cat 1 Pyrophoric solids – Cat 1	These products catch fire very quickly (spontaneously) if exposed to air.	
	Self-heating substances and mixtures – Cat 1 & 2	These products may catch fire if exposed to air.	These products differ from pyrophoric materials in that they will ignite only after a longer period of time or when in large amounts (not spontaneously)
	Substances and mixtures which, in contact with water, emit flammable gas – Cat 1, 2 & 3	These products react with water to release flammable gases. In some cases, flammable gases may ignite very quickly (spontaneously)	
	Organic peroxides – Type A & B	These products are unstable, highly reactive, or explosive. They may cause a fire or explosion if heated.	For Category B Organic peroxides, both the exploding bomb and flame pictograms are used.
	Self-reactive substances and mixtures – Types B, C, D, E & F	These products may react on their own to cause a fire or explosion, or may cause fire explosion.	For Category B self-reactive substances and mixtures class - both the exploding bomb and flame pictograms are used.
		Organic peroxides – Types A & B	These products are unstable, highly reactive, or explosive. They may cause a fire or explosion if heated.
Self-reactive substances and mixtures – Types A & B		These products may react on their own to cause a fire or explosion, or may cause fire explosion.	Exploding bomb pictogram used for severe self-reactive substances and mixtures
	Corrosive to metals - Cat 1	These products may be corrosive (chemically damaging or destructive to metals)	pH
N/A	Combustible dusts	This class is used to warn of products that finely divided solid particles. If dispersed in air, the particles may catch fire or explode if ignited.	
N/A	Simple asphyxiants	These products are gases that may displace (take the place of) oxygen in air and cause rapid suffocation.	These will be gases.
	Oxidizing gases - Cat 1 Oxidizing liquids Cat 1,2, & 3 Oxidizing solids Cat 1,2, & 3	Three classes cover oxidizers, which cause or intensify fires, or cause an explosion.	
		Gases under pressure – categories include: • Compressed gas • Liquefied gas • Refrigerated liquefied gas • Dissolved gas	Compressed gases are hazardous because of the high pressure inside the cylinder or container. The cylinder or container may explode if heated.
Physical hazards not otherwise classified		This class is meant to cover any physical hazards not covered in any other physical hazard class. These hazards involve chemical reactions that result in serious injuries or deaths when the reactions occur.	When this classification is used, the hazard statement on the label and SDS will describe the nature of the hazard.

Table 2: WHMIS health hazard classes

Symbol	Name	What it tells you	Other information
	Acute toxicity – Cat 1, 2 & 3	<p>“Acute toxicity” refers to effects that occur following:</p> <ul style="list-style-type: none"> • Skin contact or ingestion <ul style="list-style-type: none"> ○ Single dose; or, ○ Multiple doses given within 24 hrs. • An inhalation exposure of 4 hrs. 	<p>These products are fatal, toxic (poisonous), or harmful if they are inhaled (breath in), if they come into contact with skin, or if they are ingested (swallowed).</p> <p>Acute toxicity could result from exposure to the product itself or from a product that upon contact with water releases gas that can cause acute toxicity.</p>
	Acute toxicity – Category 4		This is the least severe category of acute toxicity and can result from Oral, Dermal, or Inhalation exposures.
	Specific target organ toxicity (STOT) – single exposure - Cat 3	Products that cause or may cause damage to organs (eg. Liver, kidneys, or blood) after a single exposure.	These are the least severe categories of the STOT class and includes products that cause respiratory irritation, drowsiness, or dizziness.
	Skin Irritation – Cat 2	Products that cause skin irritation	
	Eye irritation – Cat 2 & 2A	Products that cause eye irritation	
	Skin corrosion – Cat 1, 1A, 1B & 1C	Products that cause severe skin burns (corrosion)	
	Serious eye damage – Cat 1	Products that cause severe eye damage (corrosion) and products that cause eye irritation.	
 Consider how exposure occurs. Inhalation	Respiratory or skin sensitization – Cat 1. 1A & 1 B	A respiratory sensitizer is a product that may cause allergy or asthma symptoms or breathing difficulties if inhaled. A skin sensitizer is a product that may cause an allergic skin reaction	Most severe form of toxicity in this class
	Germ cell mutagenicity - Cat 1. 1A, 1 B & 2	Includes products that may cause or are suspected to cause genetic defects. Genetic defects are permanent changes (mutations) to body cells that can be passed on to future generations.	Most severe form of toxicity in this class
	Carcinogenicity - Cat 1. 1A, 1 B & 2	Includes products that cause or are suspected of causing cancer.	Most severe form of toxicity in this class
	Reproductive toxicity - Cat 1. 1A, 1 B & 2	Includes products that may damage or are suspected of damaging fertility (the ability to conceive children) or the embryo, fetus, or offspring.	There is a category that includes products that may cause harm to breast-fed children
	STOT – single exposure – Cat 1 & 2	Products that cause or may cause damage to organs (eg. Liver, kidneys, or blood) after a single exposure.	Most severe form of toxicity in this class
	STOT – multiple exposure – Cat 1 & 2	Products that cause or may cause damage to organs (eg. Liver, kidneys, or blood) after a pro-longed repeated exposure.	Most severe form of toxicity in this class
	Aspiration hazard – Cat 1	Products that may be fatal if they are swallowed and enter the airways.	
	Biohazardous infectious materials – Cat 1	These materials are micro-organisms (viruses, bacteria, fungi, etc...), nucleic acids (eg, DNA, RNA), or proteins that cause or are probable causes of infection.	
	Health hazards not otherwise classified.	Covers any health hazards not covered in any other health hazard class. These hazards occur following acute or repeated exposure. They have adverse effects on the health of a person exposed to them – including death or injury.	When this classification is used, the hazard statement on the label and SDS will describe the nature of the hazard.