

WHMIS 2015 – Hazard Classes and Categories Fact Sheet



WHMIS 2015 – HAZARD CLASSES AND CATEGORIES

Important Information

Canada has aligned the Workplace Hazardous Materials Information System (WHMIS) with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

This document discusses the WHMIS 2015 supplier requirements as regulated by the federal legislation – the Hazardous Products Act and the Hazardous Products Regulations (HPR).

Health Canada is the government body responsible for the overall WHMIS supplier-related laws. Note that WHMIS is also regulated in the workplace by the provinces, territories and federal (for federally regulated workplaces) governments under their occupational health and safety legislation. While these jurisdictions based their WHMIS regulations on the common model, small variations between jurisdictions may exist in how they adopted WHMIS 2015.

Suppliers and employers must use and follow the WHMIS 2015 requirements for labels and safety data sheets (SDSs) for hazardous products sold, distributed, or imported into Canada.

What is a hazard class?

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

List of Hazard Classes

Physical Hazards

- Flammable gases
- Flammable aerosols
- Oxidizing gases
- Gases under pressure
- Flammable liquids
- Flammable solids
- Self-reactive substances and mixtures

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

Health Hazards

- 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

Note: GHS also defines an Explosive class and the Environmental Hazards group (not mandatory). The WHMIS regulations do not currently include the Explosives hazard class. Explosives are covered by other legislation in Canada.

What is a hazard category?

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

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

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

- Category 1 is always the greatest level of hazard (that is, it is the most hazardous within that class). If Category 1 is further divided, Category 1A within the same hazard class is a greater hazard than category 1B.
- Category 2 within the same hazard class is more hazardous than category 3, and so on.

There are a few exceptions to this rule. For example, for the Gases under pressure hazard class, the hazard categories are “Compressed gas”, “Liquefied gas”, “Refrigerated liquefied gas” and “Dissolved gas”. These classes relate to the physical state of the gas when packaged and do not describe the degree of hazard.

In addition, the Reproductive Toxicity hazard class has a separate category called "Effects on or via lactation". "Effects on or via lactation" was not assigned a specific numbered category. Reproductive toxicity also has Categories 1 and 2 which relate to effects on fertility and/or the unborn child. Effects on or via lactation is considered a different, but related hazard within the Reproductive toxicity class.

What are the main concerns for each physical hazard class?

Hazard Class	General Description
Flammable gases Flammable aerosols Flammable liquids Flammable solids	These four classes cover products that have the ability to ignite (catch fire) easily and the main hazards are fire or explosion.
Oxidizing gases Oxidizing liquids Oxidizing solids	These three classes cover oxidizers, which may cause or intensify a fire or cause a fire or explosion.
Gases under pressure	This class includes compressed gases, liquefied gases, dissolved gases and refrigerated liquefied gases. Compressed gases, liquefied gases and dissolved gases are hazardous because of the high pressure inside the cylinder or container. The cylinder or container may explode if heated. Refrigerated liquefied gases are very cold and can cause severe cold (cryogenic) burns or injury.
Self-reactive substances and mixtures	These products may react on their own to cause a fire or explosion, or may cause a fire or explosion if heated.
Pyrophoric liquids Pyrophoric solids Pyrophoric gases	These products can catch fire very quickly (spontaneously) if exposed to air.
Self-heating substances and mixtures	These products may catch fire if exposed to air. These products differ from pyrophoric liquids or solids in that they will ignite only after a longer period of time or when in large amounts.
Substances and mixtures which, in contact with water, emit flammable gases	As the class name suggests, these products react with water to release flammable gases. In some cases, the flammable gases may ignite very quickly (spontaneously).

Organic peroxides	These products may cause a fire or explosion if heated.
Corrosive to metals	These products may be corrosive (chemically damage or destroy) to metals.
Combustible dust	This class is used to warn of products that are finely divided solid particles. If dispersed in air, the particles may catch fire or explode if ignited.
Simple asphyxiants	These products are gases that may displace oxygen in air and cause rapid suffocation.
Physical hazards not otherwise classified	This class is meant to cover any physical hazards that are not covered in any other physical hazard class. These hazards must have the characteristic of occurring by chemical reaction and result in the serious injury or death of a person at the time the reaction occurs. If a product is classified in this class, the hazard statement on the label and SDS will describe the nature of the hazard.

What are the main concerns for each health hazard class?

Hazard Class	General Description
Acute toxicity	<p>These products are fatal, toxic or harmful if inhaled, following skin contact, or if swallowed.</p> <p>Acute toxicity refers to effects occurring following skin contact or ingestion exposure to a single dose, or multiple doses given within 24 hours, or an inhalation exposure of 4 hours.</p> <p>Acute toxicity could result from exposure to the product itself, or to a product that, upon contact with water, releases a gaseous substance that is able to cause acute toxicity.</p>
Skin corrosion/irritation	This class covers products that cause severe skin burns (i.e., corrosion) and products that cause skin irritation.
Serious eye damage/eye irritation	This class covers products that cause serious eye damage (i.e., corrosion) and products that cause eye irritation.

Respiratory or skin sensitization	A respiratory sensitizer is a product that may cause allergy or asthma symptoms or breathing difficulties if inhaled. Skin sensitizer is a product that may cause an allergic skin reaction.
Germ cell mutagenicity	This hazard class includes products that may cause or are suspected of causing genetic defects (permanent changes (mutations) to body cells that can be passed on to future generations).
Carcinogenicity	This hazard class includes products that may cause or are suspected of causing cancer.
Reproductive toxicity	This hazard class includes products that may damage or are suspected of damaging fertility or the unborn child (baby). Note: There is an additional category which includes products that may cause harm to breast-fed children.
Specific target organ toxicity – single exposure	This hazard class covers products that cause or may cause damage to organs (e.g., liver, kidneys, or blood) following a single exposure. This class also includes a category for products that cause respiratory irritation or drowsiness or dizziness.
Specific target organ toxicity – repeated exposure	This hazard class covers products that cause or may cause damage to organs (e.g., liver, kidneys, or blood) following prolonged or repeated exposure.
Aspiration hazard	Aspiration is defined as the entry of a liquid or solid into the trachea or lower respiratory system directly through the oral or nasal cavity, or indirectly by vomiting. In other words, aspiration occurs when instead of something going from your mouth or nose to your stomach (other than air), it enters the lungs. Serious health effects can occur such as chemical pneumonia, injury to the lungs, and death.
Biohazardous infectious materials	These materials are microorganisms, nucleic acids or proteins that cause or is a probably cause of infection, with or without toxicity, in humans or animals.

Health hazards not otherwise classified

This class covers products that are not included in any other health hazard class. These hazards have the characteristic of occurring following acute or repeated exposure and have 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 class, the hazard statement will describe the nature of the hazard.

How will I know what hazard class or category is assigned to a hazardous product?

Suppliers must evaluate products that are covered by the Hazardous Products Act against specific criteria as required by the Hazardous Products Regulations. If the product meets any of the criteria for a hazard class, it is known as a hazardous product. All hazardous products must be labelled according to the regulations, and must have a corresponding Safety Data Sheet (SDS). The hazard class and category will be provided in Section 2 (Hazard Identification) of the SDS. Each hazard class or category must use specific pictograms and other label elements to indicate the hazard that is present, and what precautionary measures must be taken. Use the information provided by the label and SDS to be informed and to know how to safely use, handle, store and dispose of the hazardous product.

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