

Module 2 - WHMIS 2015 - Hazard Groups and Classes

What are the main concerns for each Physical hazard class?

What are the main concerns for each Health hazard class?

WHMIS 2015 - Pictograms

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

«Physical hazards group» is based on the physical or chemical properties of the product - such as flammability, reactivity, or corrosivity to metals.

«Health hazards group» is based on the ability of the product to cause a health effect - such as: eye irritation, respiratory sensitization, or carcinogenicity.

GHS also defines an «Environmental hazards group». This group (and its classes) was not adopted in WHMIS 2015. However, you may see the environmental classes listed on labels and Safety Data Sheets. Including information about environmental hazards is allowed by WHMIS 2015.

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.

Physical Hazard Class

General Description

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| Flammable gases Flammable liquids Flammable solids Aerosols | These four classes cover products that have the ability to ignite (catch fire) easily and the main hazards are fire or explosion. Note: the Aerosol class also includes a category for non-flammable aerosols |
| 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. |
| 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 | 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. |
| 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. |
| 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 |

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| Combustible dust | This class includes products that are finely divided solid particles. If dispersed in air, the particles may catch fire or explode if ignited. |
| Simple asphyxiants | These products may displace oxygen in air and cause rapid suffocation. |
| Physical hazards not otherwise classified | This class is meant to cover any 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. |
| Chemicals under pressure | This class includes liquids and solids that are packaged in a receptacle – other than an aerosol dispenser – and that are pressurized with a gas at a gauge pressure of 200 kPa or more at 20°C but excludes any gas under pressure |

Health Hazard Class General Description

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| Acute toxicity | These products are fatal, toxic or harmful if inhaled, following skin contact, or if swallowed. |
| 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 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 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. |
| 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. |
| 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 | This hazard class is for products that may be fatal if they are swallowed and enter the airways. |

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| Biohazardous infectious materials | These materials are microorganisms, nucleic acids or proteins that cause or is a probable 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 and have the characteristic of occurring following acute or repeated exposure and resulting in the death of a person exposed to the product, or have an adverse effect on that person's health - including injury. If a product is classified in this class, the hazard statement will describe the nature of the hazard. |



WHMIS 2015 - Pictograms


Pictograms are graphic images that immediately show the user what type of hazard is present. With a quick glance, you can see, for example, that the product is flammable, or... if it might be a health hazard.

Most pictograms have a distinctive red square "set on, one of its points" border. Inside this border is a symbol that represents the potential hazard (e.g., fire, health hazard, corrosive, etc.). Together, the symbol and the border are referred to as a pictogram. Pictograms are assigned to specific hazard classes or categories.

In the case of the pictogram for "Biohazardous Infectious Materials", it must have a black symbol on a white background with a black border in the shape of a circle.

WHMIS 2015 Pictograms

| Pictogram | General Description |
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|  | Gases under pressure (Compressed gas, Liquefied gas, Refrigerated liquefied gas, and Dissolved gas), Chemicals under pressure |
|  | Flammables (gases, aerosols, liquids, solids), Pyrophoric (liquids, solids, gases), Self-reactive substances and mixtures, Self-heating substances and mixtures, Substances and mixtures which, in contact with water, emit flammable gases, Organic peroxides, Chemicals under pressure |

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|  | Oxidizing (liquids, solids, gases) |
|  | Organic peroxides, Self-reactive substances and mixtures |
|  | Acute toxicity (fatal and toxic via oral, skin, inhalation) |
|  | Carcinogenicity; Germ cell mutagenicity; Respiratory sensitization; Reproductive toxicity; Specific target organ toxicity - single exposure, Specific target organ toxicity - repeated exposure; Aspiration hazard |
|  | Acute toxicity (harmful via oral, skin, inhalation); Skin irritation; Eye irritation; Skin sensitization; Specific target organ toxicity - single exposure |



Corrosive to metals; Skin corrosion; Serious eye damage



Biohazardous infectious materials