WHMIS

Workplace Hazardous Materials Information System (WHMIS)

Workplace Hazardous Materials Information System (WHMIS) is a national system for providing employers and workers with information to recognize the dangers of hazardous materials used in the workplace and instructions on how to work with these hazardous materials in a safe manner. WHMIS provides information in three ways:

1. Container labels containing specific health and safety information.
2. Material safety data sheets (MSDSs) that provide further detailed information.
3. Worker education and training.

WHMIS Hazard Classes and Symbols

Under WHMIS legislation, a controlled product is a hazardous product, material or substance. All controlled products are grouped into one or more of six classes based on the type of hazard they represent. Each class has a specific symbol to help people recognize the hazard quickly. Further information on each hazard class is located on the following pages.

WHMIS Label

A container label is generally the first source of hazard information a worker encounters using a particular product. The label identifies the product and offers basic information on hazards and safe handling of the material. The label also refers the worker to the MSDS for further information.

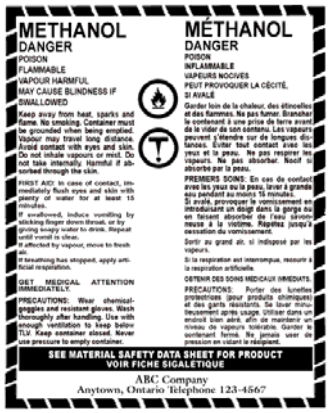
All hazardous materials at PDSB must be properly labeled so they are clearly identified to workers. There are two different types of labels used in WHMIS: the supplier label and the workplace label.

A supplier label must appear on all controlled products received at workplaces in Canada (if over 100 ml in volume) and must contain specific information (product identifier supplier identifier, a statement that a Material Safety Data Sheet is available, hazard symbols, precautionary measures, first aid measures, text in English and French, and the distinctive WHMIS hatched border).

A workplace label must be placed on containers of all controlled products produced in a workplace, filled with decanted chemicals, and when a supplier label becomes illegible or is removed from the product. The workplace label must contain product identifier, information for the safe handling of the product, and statement that the MSDS is available. Workplace labels may contain the WHMIS hazard symbols but this is not a requirement.

Beware of ANY unlabelled materials. NEVER ASSUME YOU KNOW WHAT IT IS!

Supplier Label:



Workplace Label:

Acetone
Keep away from heat, sparks, and flames. Wear safety goggles and butyl rubber gloves. Use with local exhaust ventilation.
MSDS available.

Material Safety Data Sheet (MSDS)

A MSDS is prepared by the supplier to provide the consumer information about the controlled product. The MSDS provides information about the hazardous ingredients, properties and potential hazards of a product. It includes measures for the safe use of the product, including engineering controls, personal protective equipment, safe handling, storage and disposal procedures, and emergency procedures to follow in case of an accident. In Ontario, every controlled product must have an MSDS. The supplier must review and update the MSDS every 3 years or sooner if new data on the product becomes available. A MSDS is considered expired 3 years after the issue date.

The MSDS contains much more information than the label. You should look at the MSDS, match the name of the chemical on your container to the one on the MSDS, know the hazards, understand safe handling and storage instructions, and what to do in an emergency.

MSDSs can be found online at:

http://inet.peelschools.org/departments/humres/MaterialSafetyDataSheets.htm

Please refer to this database prior to working with any products and review the MSDS. If a MSDS is missing or expired, please contact your designated Safety Officer immediately.

WHMIS Training

WHMIS training is required by law for all workers who handle controlled products or working near them. The overall goal is to give workers knowledge and information which they can understand and apply to protect their health and safety every day. If you require WHMIS training, please inform your Supervisor who will contact your designated Safety Officer to arrange for training.

CLASS A

Compressed Gas

A compressed gas is a material that is a gas at normal temperature (20°C) and pressure but is packaged as either a gas under pressure, a dissolved gas, or a gas liquefied by compression or refrigeration.

Examples:

- Acetylene – used in welding
- Propane – fuel source

Hazards

A compressed gas cylinder:

- may explode because the gas is under pressure.
- may explode if heated.
- may explode if dropped.
- may behave as a rocket if the cylinder is ruptured or if the valve is damaged.
- may cause severe injury to skin and tissues exposed to the contained gas.

Safe Handling and Storage

- Handle with care; do not drop the cylinder.
- Keep the cylinder away from heat or other sources of ignition.
- Do not damage, strike or puncture the cylinder.
- Secure the cylinder properly to a wall, shelf or fixed object with belts or chains when transporting, storing, or using.
- Do not stack objects on top of cylinders.
- Keep the valve protection cap in position when the cylinder is not in use.
- Store in a cool, dry, well-ventilated area away from sources of ignition and excessive heat.
- Store full and empty-labelled cylinders in separate areas.
- Do not blow compressed gas towards the body. Blowing dirt off your clothing with compressed gas may create an extreme health hazard by spreading toxic materials into the air or by injecting air or gas bubbles into the your blood where they may work themselves into your heart and cause blockages.

CLASS B

Flammable and Combustible Material

Definition

A flammable or combustible material will ignite and continue to burn in air if exposed to a flame or other source of ignition. It is not the liquids and solids themselves that burn, but the gases or vapours that they give off that burn.

Common ignition sources include open flames, hot surfaces, static electricity, smoking, cutting and welding operations, heat, electrical and mechanical sparks and spontaneous combustion.

Examples:

- Acetylene – fuel for welding, cutting metal
- Propane – fuel for soldering, heating
- Paints & Varnishes– used in wood finishing
- Stoddard Solvent – paint thinner, solvent

Hazards

A flammable or combustible material:

- can burn easily and is therefore a potential fire hazard.
- can cause a fire when exposed to heat, sparks or flames.
- can burn easily at relatively low temperatures.
- can burst into flame spontaneously in air or release a flammable gas on contact with water.

Safe Handling and Storage

- Keep flammable and combustible material away from heat sources, oxidizers and other combustibles.
- Store flammable and combustible materials in flammables cabinet.
- Ground and bond metal containers when transferring liquids.
- Keep containers closed or covered in order to prevent liquid vapours from being released into the open air.
- Be aware of ignition sources in the vicinity to where vapours may travel and catch fire.
- Use only the amount of liquid required for the job.
- Do not smoke when working with or near flammable materials.

CLASS C

Oxidizing Material

An oxidizing material will release oxygen or another oxidizing substance, which will cause another material to burn. The oxidizing material may or may not itself burn.

Examples:

- Oxygen
- Chromic acid
- Nitric acid
- Chlorine
- Chromates

Hazards

An oxidizing material:

- may cause a fire and/or explode if flammable or combustible materials are present.
- may burn the skin or eyes upon contact.

Safe Handling and Storage

- Keep away from combustible materials.
- Keep away from ignition sources and heat.
- Handle containers carefully. Do not drop, puncture or damage.
- Wear protective clothing, including safety glasses, chemical resistant gloves and protective clothing.
- Do not smoke when working with or near oxidizing materials.

CLASS D – **Division 1**

Poisonous and Infectious Material:

Causing Immediate and Serious Toxic Effects

These materials are considered poisonous or very poisonous and can cause permanent damage or death. Their harmful effects occur within a short period of time after exposure.

Examples:

- Carbon monoxide – by-product of incomplete combustion
- Sulphuric acid – battery acid
- Phosgene – by-product of welding

Hazards

A material which can cause immediate and serious toxic effects:

- is a poisonous substance that may kill.
- may kill or cause permanent damage if inhaled, swallowed or if it enters the body through eye or skin contact.

Safe Handling and Storage

- Substitute toxic materials with less hazardous materials if possible.
- Avoid skin or eye contact by wearing proper protective equipment such as chemical resistant gloves, safety glasses and protective clothing.
- Avoid inhaling by working in well-ventilated areas and/or wearing respiratory equipment.
- Wash hands after handling.
- Store in designated areas, away from incompatible materials.

CLASS D – **Division 2**

Poisonous and Infectious Material:

Causing Other Toxic Effects

These materials generally cause harmful effects days, months, or years after one or more exposures. They may cause disease, death or permanent damage as a result of repeated exposures over time. They include materials that can cause cancer, birth defects, sterility, allergic reactions involving the skin or respiratory tract, skin and eye irritation, or other long term effects.

Examples:

- Toulene – solvent, paint thinner
- Xylene – solvent, paint thinner
- Gasoline – fuel source
- Stoddard Solvent – cleaner, degreaser
- Propane – fuel source
- Silica – sandblasting
- Lead – welding fumes, paints
- Isocyanates – paints such as clear coats and base fillers

Hazards

A material which can cause other toxic effects:

- is a poisonous substance that is not immediately dangerous to health.
- may kill or cause permanent damage after repeated exposure over time.
- may irritate the skin and eyes.
- may cause an allergic reaction that affects the skin or breathing.
- may cause cancer.
- may cause birth defects or sterility.

Safe Handling and Storage

- Avoid skin and eye contact by wearing appropriate protective equipment such as chemical resistant gloves, safety glasses and protective clothing.
- Avoid breathing material by working in well-ventilated areas and/or wearing respiratory equipment.
- Use proper control measures and equipment.
- Wash hands thoroughly after handling chemicals.

CLASS D – **Division 3**

Poisonous and Infectious Material:

Biohazardous Infectious Materials

This class includes any organism or its toxins that can cause disease in humans or animals.

Examples:

- Bacteria
- Virus
- Parasites
- Fungus

Hazards

A biohazardous infectious material:

- may cause a serious disease that can result in illness or death.

Safe Handling and Storage

- Take every measure to avoid contamination.
- Keep containers tightly closed.
- Handle material only when fully protected by proper equipment or protective wear.
- Handle material in designated areas where controls are in place to prevent exposure.

CLASS E

Corrosive Material

Corrosive material can cause severe burns to human tissues. Burning, scarring or blindness can result if they come into contact with the skin or eyes. They can also damage the lungs if inhaled or the stomach if swallowed.

Corrosive materials can also attack (corrode) the metal containers in which they are stored, causing the containers to become weak and eventually to leak or collapse.

Examples:

- Sulphuric acid – battery acid
- Sodium hydroxide – cleaners
- Chlorine – bleach, disinfectant
- Nitrogen dioxide – welding fumes

Hazards

A corrosive material:

- may cause severe irritation of the skin and eyes.
- may cause severe burns to tissue on contact.
- may be harmful if inhaled.

Safe Handling and Storage

- Keep containers tightly closed.
- Do not let corrosive material come into contact with your skin and eyes by wearing all necessary protective equipment such as chemical resistant gloves, safety glass and protective clothing.
- Do not breathe in corrosive materials. Use them in well-ventilated areas only or wear proper respiratory protection.
- If splashed on skin or eyes, flush thoroughly with water for at least 15 minutes. Remove any clothing that the chemical is on.

CLASS F

Dangerously Reactive Material

Dangerously reactive materials are very unstable and include those that may react violently if they are heated, pressurized or agitated. They also include materials that will react with water to produce a poisonous or flammable gas. It is important to know which conditions may cause the violent reaction in order to prevent the reaction from occurring.

Examples:

- Benzoyl peroxide
- Some epoxy resins

Hazards

A dangerously reactive material:

- is very unstable.
- may react with water to give off a flammable or toxic gas.
- may explode as a result of shock, friction or increase in temperature.
- may explode if heated when in a closed container.

Safe Handling and Storage

- Keep away from heat.
- Handle containers carefully; do not drop them.
- Store in a cool, dry place.
- Avoid prolonged storage of these materials as reactions may occur.

Personal Protective Equipment (PPE)

PPE is equipment worn to minimize exposure to specific occupational hazards. PPE refers to safety glasses, goggles or face shields, masks, respirators, hearing protection, steel-toed boots and non-slip footwear, solvent resistant gloves, aprons, hard hats or bump caps, coveralls or any other special clothing. PPE does not reduce the hazard itself nor does it guarantee permanent or total protection and therefore the focus to reduce occupational hazards is on engineering controls and administrative controls (i.e. dust collection, chip shields, reduced time to the hazard, etc, localized ventilation)..

It is important that the that you are aware of what PPE to wear when in the technology shop:

- Safety glasses and protective footwear is required at all times when machinery is operated in the technology shop.
- Safety glasses and/or face shields should be worn when using machinery and power or when using flammable or corrosive materials.
- Hearing protection, such as ear muffs and ear plugs, should be worn when using loud machinery
- Chemical resistant gloves are required when dealing with corrosive chemicals
- Leather gloves and leather apron or jacket is required when welding.
- If you require a dust mask or respirator, ensure that it is the right one for the task. If you are not sure what type to use, contact your designated Safety Officer.

It is the worker's responsibility to keep the PPE provided clean, well-maintained and stored safely.