WHMIS Update as Part of the Globally Harmonized System (GHS)

WHAT IS GHS?

Since its introduction in 2015, the Globally Harmonized System (GHS) has been a key player in the international trade of chemicals. You've probably noticed the new pictograms with diamond borders, a visual representation of GHS's internationally consistent approach to classifying chemicals and communicating hazard information. The pictogram of an upper body silhouette with an explosion-like image on the chest is a clear warning when handling a chemical. GHS has not only made hazard information more consistent across Canadian workplaces but also impacted the Transportation of Dangerous Goods (TDG). Its primary goal is facilitating trade by eliminating multiple/ differing classification systems and enhancing human health protection through standard messaging.

GHS was phased in Canadian workplaces between 2015 and 2018, and all manufacturers, importers, distributors, suppliers, and employers are now expected to be updated with the changes.

It's important to note that GHS did not change the fundamental principles of WHMIS. It continues to provide improved protection for workers when handling hazardous materials. The roles and responsibilities set out in WHMIS that apply to suppliers, employers, and workers remain the same, ensuring a consistent level of safety in the workplace.

HAZARDOUS PRODUCTS REGULATIONS (HPR) AMENDMENTS

Years after the implementation of WHMIS 2015, most employers and chemical suppliers have transitioned well. In December 2022, amendments were made to the federal HPR to align it with the 7th revised edition and certain provisions of the 8th revised edition of the GHS. Again, a 3-year

transition period is given, which will end on December 14, 2025. Some of the fundamental changes include:

- Chemicals Under Pressure as a new physical hazard class
- New hazard category for non-flammable aerosols and new subcategories for flammable gases
- Narrower concentration ranges on Section 3 of the SDS
- All hazardous ingredients in a mixture at concentrations above the relevant cut-off levels must be disclosed
- Addition of particle characteristics on SDS section 9

CLASSIFICATION RULES

WHMIS classification has two major hazard groups: health hazard classes and physical hazard classes. You will also see an 'environmental' group and related hazard information on some SDSs, but this group has not been formally adopted and is considered optional. Suppliers may voluntarily disclose environmental group information on product labels and SDS.

Subsequently, the groups are divided into classes that detail more specific and unique hazard characteristics. These classes are then further subdivided into categories or types, which can be additionally classified into subcategories.

Under the HPA, there are currently 12 Health Hazard Classes and 19 Physical Hazard Classes, as outlined below.

HEALTH HAZARDS CLASSES:

1. Acute toxicity
2. Skin corrosion/irritation
3. Serious eye damage/eye irritation
4. Respiratory or skin sensitization
5. Germ cell mutagenicity
6. Carcinogenicity
7. Reproductive toxicity
8. Specific target organ toxicity – single exposure
9. Specific target organ toxicity – repeated exposure
10. Aspiration hazard
11. Biohazardous infectious materials
12. Health hazards not otherwise classified

PHYSICAL HAZARD CLASSES:

1. Flammable gases
2. Aerosols
3. Oxidizing gases
4. Gases under Pressure
5. Flammable liquids
6. Flammable solids
7. Self-reactive substances and mixtures
8. Pyrophoric liquids
9. Pyrophoric solids
10. Self-Heating Substances and Mixtures
11. Substances and mixtures which, in contact with water, emit flammable gases
12. Oxidizing liquids
13. Oxidizing solids
14. Organic peroxides
15. Corrosive to metals
16. Combustible dusts
17. Simple asphyxiants
18. Physical hazards not otherwise classified
19. Chemicals under Pressure

ENVIRONMENTAL HAZARD (VOLUNTARY):

- Hazardous to aquatic environment

SDS

Safety Data Sheets have 16 section requirements. The headings and the content that must be present on each SDS are specified in the federal Hazardous Products Regulations.

1. Identification
2. Hazard identification
3. Composition information on ingredients
4. First-aid measures
5. Firefighting measures
6. Accidental release measures
7. Handling and storage
8. Exposure controls/Personal protection
9. Physical and chemical properties
10. Stability and reactivity
11. Toxicology information
12. Ecological information
13. Disposal considerations
14. Transport information
15. Regulatory information
16. Other information

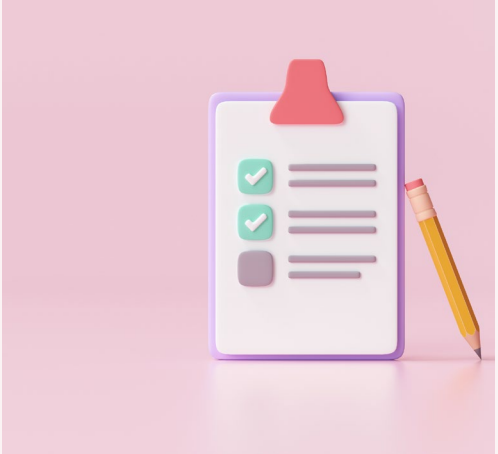
Useful Fact from the Canadian Centre for Occupational Health and Safety (CCOHS):

Each hazard class contains at least one category or type. The hazard categories are assigned a number (e.g., 1, 2, etc.). whereas 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)

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 and 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.



Have a look at a SDS in your workplace. Choose a chemical that you work with all the time. Look under Section 2 “Hazard identification”, to find a category rating for your chemical. Is it a ‘category 1’? If so, perhaps your employer can look into getting a substitute chemical!

PICTOGRAMS

A symbol is called a pictogram when it has a border, as shown below. The HPR has nine pictograms used to classify and label chemicals. Learn to identify the hazards category by the pictograms:

Flame: Flammable liquid, gas and solids, aerosols, self-reactive, pyrophoric liquids and solids, self-reactive and self-heating substances and mixtures, substances in contact with water, emits flammable gases, organic peroxides and chemicals under Pressure

Exclamation Mark: Skin and eye irritation, skin sensitization, acute toxicity, specific target organ toxicity (single exposure)

Health Hazard: Carcinogenicity, respiratory sensitization, reproductive toxicity, specific target organ – single or repeated exposure, germ cell mutagenicity, aspiration hazard

Skull and Crossbones: Acute toxicity (through oral, dermal or inhalation)

Exploding Bomb: Self-reactive substances and mixtures, organic peroxides

Flame Over Circle: Oxidizing solids, liquids and gases

Corrosion: Corrosive to metals, skin corrosion, serious eye damage

Gas cylinder: Gases under pressure, chemicals under pressure

Environment: Hazardous to the aquatic environment (acute or long term), hazardous to the ozone layer

Biohazard: Infectious materials.

The same pictogram can represent multiple hazard classes (i.e., carcinogenicity, germ cell mutagenicity, respiratory sensitizer, etc.) In addition, many chemicals have multiple hazard properties and, therefore, multiple pictograms. For example, Methanol is a:

1. Flammable (category 2 hazard)
2. Acute Toxic (category 3 hazard)
3. Health hazard (category 1 hazard)

Note that some differences still exist with our United States neighbours and even from province to province, particularly with respect to the labels and the SDS. The GHS allows for full or partial adoption of the system elements. For example, a workplace label (i.e. used when decanting from a supplier container to your workplace bottle) may include pictograms. Still, every province has its own WHMIS regulation that should be checked for details. Provincial regulations get updated regularly, and it is always best to check with your province for the exact requirements.

A good example is the SDS - many provinces still require the SDS to be updated every three years. However, in Ontario, the employer must update the supplier SDS as soon as practicable after significant new data about a product is provided from the supplier and has 90 days for an employer SDS. Get to know your specific provincial WHMIS regulatory requirements through proper specific training.

LESSON LEARNED?

The introduction of WHMIS 2015 highlighted important responsibilities for employers, particularly the management of SDSs. As a primary step, employers must collect all current SDSs and assess the benefits of implementing an SDS Management System. They also need to ensure that hazardous products are appropriately labelled, workplace labels are up to date, and SDSs are prepared or provided by the supplier. Additionally, employers must implement appropriate control measures recommended in the SDS to safeguard worker health and safety.

Employers also learned that they should continue to educate and train workers on the hazards and the safe use of products in the workplace and have better training specific to their jurisdiction and workplace. Related areas, such as the Transportation of Dangerous Goods (TDG), require regular training updates due to the GHS. Consequently, many employers have adopted annual WHMIS and TDG refresher training programs. These programs must address changes due to implementing GHS, including new terminology, symbols and pictograms, labelling, and SDSs.

In 2020, Health Canada and the Public Health Agency of Canada published an evaluation of WHMIS. Despite the improvement brought by GHS, it was prominently noted that “consumer chemical products excluded from the HPA were found to be a growing concern for worker safety.” In many jurisdictions, employers are not legally required to obtain SDS for consumer products, leading to catastrophic injuries. The safety of a chemical does not change based on its packaging. Highly corrosive plumbing acid or flammable floor stripper from a hardware store remains dangerous, regardless of whether it is in a smaller consumer container. As a best practice, employers should obtain SDSs for consumer products.

Employers should review their internal policies and workplace procedures with the JHSC annually and make required updates, including WHMIS refresher training, specific chemical-related safety procedures, personal protective equipment, and any medical surveillance (where applicable).

WHERE CAN YOU FIND MORE INFORMATION?

https://www.pshsa.ca/whmis-elearning

https://www.canada.ca/en/health-canada/corporate/transparency/corporate-management-reporting/evaluation/evaluation-workplace-harzardous-products-program-2014-2015-2018-2019.html

https://www.ccohs.ca/oshanswers/chemicals/whmis_ghs/hazard_classes.html

http://www.whmis.org/

