V. Chemical Labeling

Communication and clarity are essential factors in establishing safety in the classroom and laboratory. Clearly understanding the hazards involved in using chemicals in the laboratory begins with the knowledge of the characteristics of the chemicals that you are using. Establishing this understanding begins with safety data sheets (SDS's) and proper comprehensive labeling of the chemicals.

OSHA

In 1983, the Occupational Safety and Health Administration (OSHA) implemented the Hazard Communication Standard (Right-to-know law). OHSA revised the Hazard Communication Standard to incorporate the Globally Harmonized System (GHS), which in part created more structured chemical label requirements, staring June 2015. Health Canada also revised their 1988 implementation of the Workplace Hazardous Materials Information System (WHMIS). These revised standards give employers and industries, along with teachers, the right to understand the hazards associated with the chemicals they use or work around, including in the classroom and laboratory setting. Both OSHA and Health Canada WHMIS recognized that labels might not be large enough to list every possible warning; however, the new regulations provide vital information on the label that is easy to identify and understand. The related SDS, with its own new format, contains more detailed information and should be used in conjunction with the labels.

The teacher is responsible for ensuring that all hazardous chemicals in their control are properly labeled when purchased and the labels are maintained and updated as required. OHSA requires that all chemicals received by the school must list the following at a minimum:

- **Name, Address, and Telephone Number** of the chemical manufacturer, importer, or other responsible party.
- **Product Identifier**, as decided by the manufacturer, importer, or other responsible party. This may include chemical name, code or batch number. The same product identifier must be on the label and Section 1 of the SDS.
- **Signal Word** signifies the level of hazard severity. "Danger" indicates a more severe hazard and "Warning" indicates a less severe hazard. There will only be one signal word. If there is more than one hazard, the higher of the warnings present takes precedence.
- **Hazard Statement(s)** describe the hazard(s) and the degree of hazard. Multiple hazards statements conveying the same information may be combined to improve readability. Hazard statements should be consistent for a particular hazard classification, no matter the manufacturer.
- **Precautionary Statement(s)** provide recommended safety measures to reduce adverse effects from exposure. Multiple statements may be combined to improve readability.
- **Pictograms** relay a hazard as a black image on a white background and a red border. Pictograms provide a quick and easily noticeable way to alert the chemical handler to hazards. For more on pictograms see *Section IV- Where to Find Information on the Chemical You Just Purchased*.

Health Canada Workplace Hazardous Materials Information System (WHMIS)

The following are the specific requirements of the Health Canada Workplace Hazardous Materials Information System (WHMIS) Label Language Requirements:

Labels must be in both English and French. It is acceptable to have both English and French information together on one label or to have two separate labels, one in English and one in French. WHMIS requires similar label information to the OHSA requirements with these notable exceptions:

- **Initial Supplier Information** must include the name, address, and telephone number of the Canadian manufacturer or Canadian importer with two exceptions:
  - If the hazardous product is sold by a distributor, the distributor's contact information may replace the initial supplier's contact information.
  - If an importer imports hazardous products that are for their own use and which are not for sale, the foreign supplier contact information may remain on the label.
- **Supplemental Label Information** may include additional information on ingredients with unknown toxicities and hazard information not yet included in the GHS.

Ward's Science Chemical Labeling System

Ward's Science provides chemicals using a comprehensive labeling system, which meets the OSHA/WHMIS labeling requirements in a clear and concise format. Figure 1 is an example of a Ward's Science chemical label. The storage code, color, chemical name, and supplier information are all on the left side of the label. Pictograms are located to the right of the chemical and supplier information. Signal word, hazard statements, and precautionary statements take up the remainder of the label. If you have older chemicals in your inventory that are still suitable for use, Ward's Science can provide you or your Chemical Hygiene Officer with materials to color code these chemicals and streamline your chemical organization. A Ward's Science Color-Coded Storage of Chemicals poster is presented at the end of this section.

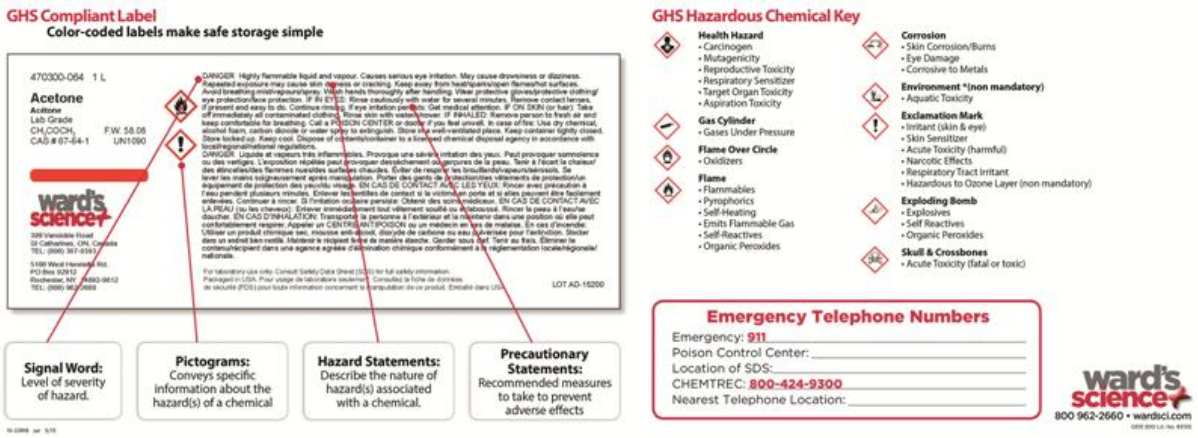

Figure 1. Ward's Science GHS Compliant Chemical Label

Teacher Classroom / Laboratory Labeling Responsibilities

The teacher is responsible for all chemicals under their control and will maintain the labeling of all chemicals and regularly refer to the corresponding SDS's to verify label information. If the label is determined to be deficient when referring to the SDS, the chemical manufacturer or supplier should be contacted immediately for corrective action. The labeling system of chemicals delivered to the school will rely on information provided by the manufacturer or supplier. Teachers and students shall not remove or deface existing labels from incoming

containers of chemicals. Where possible the teacher should limit in-classroom labeling. The teacher will ensure that labels remain intact by conducting frequent spot checks throughout the classroom/laboratory.

When solutions are made in the classroom and will be saved for future use, GHS labels must be developed for the storage containers. The new labels must contain the following information, at a minimum, according to GHS standards:

- CHEMICAL NAME / IDENTITY Full clearly recognized name; no acronyms.
- SIGNAL WORD
- PRECAUTIONARY STATEMENTS
- PICTOGRAMS
- NAME & ADDRESS OF MANUFACTURER
- HAZARD STATEMENTS

Teachers must maintain and communicate safety in the classroom. Per regulatory standards, if chemicals are transferred from a manufacturer-labeled container by a teacher or student to a portable/secondary container that will be utilized immediately and is then depleted by that teacher or student during that classroom session, then a temporary label is not required on that container. However, Ward's Science recommends that all containers be labeled before chemical transfer to maintain as high a level of safety as possible. When chemicals are transferred to a portable container not intended for a single classroom session, the container shall be labeled with the appropriate GHS information as identified above. A secondary GHS-compliant labeling system is available through Ward's Science.

Proper labeling is a simple and powerful way to reduce many of the hazards associated with chemicals used in the laboratory. Mixing unknown or improperly identified chemicals can produce dangerous reactions. In addition, many times these chemicals turn into hazardous wastes. When turned over to waste management services, the chemical and hazard information relating to these wastes must be clearly understood and must be treated properly. There have been cases where people have been injured or killed at waste treatment facilities because wastes were poorly identified and packaged.

Clear labeling is essential in order to understand what you have in stock in the classroom and laboratory. You can incur significant costs due to mislabeled or unidentified chemicals on your shelf when you need to analyze an unknown chemical in order to dispose of it. Analyses costs would be many times the original cost of the chemical.

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