The Dos and Don'ts of Chemical Labeling

Information on What's Required to Make Your Lab Safe

In 1983, OSHA implemented the Hazard Communication Standard (Right-to-Know law). This standard gives teachers, students and parents the right to know about the hazards associated with the chemicals they are using in the classroom/laboratory. The standard requires chemical manufacturers to transmit this safety information to their customers by means of labels and Safety Data Sheets (SDS).

In March 2012 OSHA updated the Hazard Communication Standard to incorporate the Globally Harmonized System of Classification and Labeling of Chemicals, better known as GHS. GHS provides a set of objective criteria for classifying the physical and health hazards of chemicals. Hazardous chemical labels will be required to include pictograms, a signal word, as well as specific hazard and precautionary statements. The pictograms, signal words, and hazard statements will help you quickly identify and describe the nature of the hazard(s). Precautionary statements provide guidance to prevent accidents and avoid exposure to chemicals. There are eight pictograms, shown below. In addition to the pictograms, GHS requires the use of signal words, either Danger or Warning, to heighten awareness of the relative risk when using certain chemicals. (Danger is the more severe warning!) Depending on their hazard rankings, not all chemicals will have a pictogram or signal word. GHS also assigns specific hazard statements to chemicals and applicable precautionary statements to prevent accidents and minimize exposure.

A well-written and designed chemical label will reduce accidents and may even save lives. For more than 35 years you have counted on Flinn Scientific labels to help you safely store, handle and use laboratory chemicals. We are excited about the opportunity to further improve chemical safety by adding the GHS label elements while preserving the indispensable Flinn storage, disposal, shelf-life, and hazard alert advice.

Chemical Labels in Your Laboratory

You may be wondering: "What about the chemicals I already have and the solutions I prepare for my lab?" GHS-formatted labels are the responsibility of the chemical manufacturer and distributor. You do not have to reproduce proper GHS-formatted labels and you don't have to re-label any chemicals you currently have in your storeroom. You must, however, ensure that the hazards of any chemical are easy to recognize and understand. We suggest the best approach to proper chemical container labeling is to list these four items on the label:

1. **Chemical Name**—Spell out the name correctly and completely. Avoid using abbreviations or chemical formulas.
2. **Concentration**—If the chemical is in solution, indicate the solution's molarity or strength.
3. **How can the chemical hurt you?**—List in clear terms how the chemical can hurt you and what target organs will be affected. This information can easily be found on your SDS or in the *Flinn Scientific Catalog/Reference Manual*. Avoid numerical or alphabetical codes. These codes are difficult to remember and could easily be misinterpreted. Use words that everyone will understand.
4. **Date Prepared**—Knowing the date the chemical was prepared is very important, especially for those chemicals that have a limited shelf life or become more hazardous with age.

For example, let's say you just prepared a 6 M hydrochloric acid solution. The label should say:

Hydrochloric acid
6M solution
Corrosive to all body tissue, especially skin and eyes.
Avoid all body contact.
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Additional information may be required in your state. A few states require the National Fire Protection Association (NFPA) code on the label. Other states may require the Chemical Abstract Services (CAS) number to be on the label.

Finally, remember that this label may need to be on the chemical container for years to come. Avoid using grease pencils and writing directly on the bottle. Always use a permanent marker on label paper that has a good adhesive. Print clearly so everyone can read and understand the label you have prepared.

If you have questions regarding how to label chemical containers, please call us toll free at 1-800-452-1261. We'll gladly help in any way we can.

GHS Pictograms

Acutely toxic
Copper(II) Chloride

Oxidizer
Ammonium Nitrate

Gas under pressure
Oxygen

Corrosive to skin or eyes
Hydrochloric Acid

Explosive or self-reactive substance
Not in school science labs!

Irritant to skin, eyes or respiratory tract
Iodine

Flammable or self-reactive
Methyl Alcohol

Carcinogen, mutagen or reproductive toxin
Formaldehyde