Guidelines for Labeling Chemicals or Reagents in Secondary Containers

Purpose:
To ensure that the hazards of all chemicals, including those in secondary containers, are evaluated and understood by all personnel who could come into contact with them and that there are no “orphaned” containers in the laboratory. Unlabeled containers can be both hazardous and costly to remediate.

Requirements:
In order to achieve compliance, chemicals/reagents in secondary containers must be labeled with the full chemical/reagent name, concentration, hazard class, and target organ information. This labeling system also applies to carboys, squirt bottles, and spray bottles. Primary containers (original containers purchased from a vendor) do not need this labeling system as they should already have all this information on the label. Temporary tubes or containers (for immediate or short-term use) also do not require this labeling system. The following are the detailed labeling requirements:

1) Full chemical/reagent name: The names of all chemicals stored in secondary containers should be spelled out (e.g. Ethanol vs. EtOH, Ethidium Bromide vs EtBr, Sodium Hydroxide vs NaOH). However, common abbreviations may be used if a “common abbreviations list” is generated and posted in a highly visible area of the lab (e.g. TAE = Tris Acetate Ethylenediamine tetraacetic acid and PBS = Phosphate Buffered Saline). The list of abbreviated chemicals should be limited to one standard size piece of paper (8.5”x11”) using 12 point font or greater. If a reagent has a special proprietary name from a company, use that name on the secondary container if making a dilution or solution from the original stock.

Note: If a “common abbreviations list” is used by the laboratory then a copy of the list should also be included in the Blue Book with Appendix 4.

2) Concentration: This is the molarity, normality, percentage, or other designation of concentration (such as 1X or 10X).

3) Hazard class: The basic hazard classes are flammable, corrosive, oxidizer, toxic, and non-hazardous. Labs may use a color-code system to denote hazard class on each chemical/reagent in secondary containers. The key to this code is then posted in a highly visible area of the lab where the chemicals/reagents in secondary containers are used or stored. Color assignment is arbitrary but should be consistent for the whole lab(s). Always remember that many chemicals that are hazardous at high concentrations may still be hazardous when diluted. For example, a reagent containing 5% ethanol may not be considered flammable, but
70% ethanol is or a reagent containing sodium azide (or some other toxin or carcinogen) would still be considered a toxic even at relatively dilute amounts.

**Basic hazard class color code example:**

- **Flammable =** [RED]
- **Corrosive =** [WHITE]  
  
  *Note: This color coding scheme can easily be accomplished by using either using colored adhesive dots or colored tape.*

- **Oxidizer/Reactive =** [YELLOW]
- **Toxic/Carcinogenic =** [BLUE]
- **Non-hazardous =** [GREEN]

---

**4) Target organ information:** Post signs in **highly visible** areas of the lab where chemicals/reagents in secondary containers are used/stored saying "For target organ information, see Safety Data Sheets (SDS) or original container".