

Chemical Inventories

By Thomas Kelley, Laboratory Safety Coordinator

An updated chemical inventory serves a multitude of important functions in keeping in compliance with environmental regulations and in improving the health and safety of employees at Tufts University.

Chemical inventories are needed to fulfill Boston Fire Department regulations in determining National Fire Protection Association ratings. The NFPA diamond serves as a warning system for firefighters entering a laboratory. The ratings of protection are in the areas of health, flammability, and self-reactivity, as well as special information associated with the hazards.

Numbers from 0 through 4 are placed in the three upper squares of the diamond to show the degree of hazard present for each of the three hazards. The 0 indicates the lowest degree of hazards; the 4, the highest. The fourth square, at the bottom, is used for special information.

The National Fire Protection Association diamonds must be updated on an annual basis. In 2006, the Environmental Health and Safety Office established a chemical inventory form that can be downloaded from the Public Safety website. Principal Investi-

gators can use this form to submit their chemical inventories in an electronic format.

An updated chemical inventory is also required to meet the regulations put forward under the OSHA Laboratory Standard. The OSHA law states that there must be a material safety data sheet present for every chemical in the laboratory. A material safety data

sheet may be secured from the manufacturer by giving the corresponding catalog number. Material safety data sheets may also be secured from different chemical databases for old chemicals whose manufacturer has gone out of business.

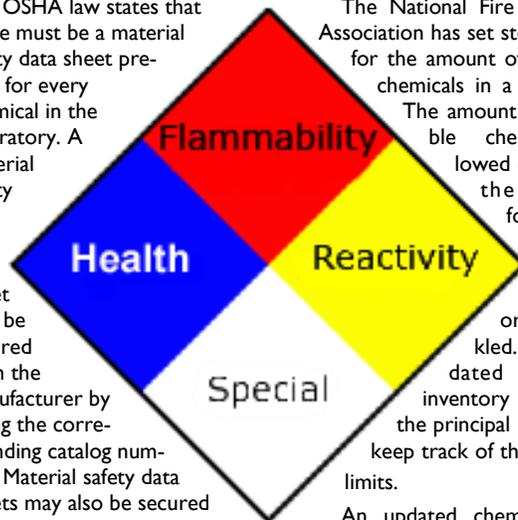
The Environmental Protection Agency has set reportable quantity limits for certain chemicals under SARA Title III. The Environmental Health and Safety Office is responsible for report-

ing any violations of these limits to the local fire department. An accounting system in which all laboratories have maintained current chemical inventories will allow the EH&S office to stay within these prescribed limits.

The National Fire Protection Association has set storage limits for the amount of flammable chemicals in a laboratory.

The amount of flammable chemicals allowed depends on the square footage and whether the lab is sprinkled or unsprinkled. An updated chemical inventory will help the principal investigator keep track of these storage limits.

An updated chemical inventory is proven valuable in the area of environmental health and safety. When the inventory is kept updated, the researcher will be able to track the quantity and age of peroxide-forming chemicals. The four most commonly found in laboratories are ethyl ether, tetrahydrofuran, isopropyl ether, and 1, 4 dioxane. These



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chemicals must be dated upon purchase, and when opened. The storage guidelines for peroxide-forming chemicals can be found in the Tufts Laboratory Safety Manual.

Proper segregation of chemicals in the laboratory is an important component of environmental health and safety. Chemicals must be arranged by compatibility and then can be arranged alphabetically.

Laboratory researchers may also make use of a segregation system that was developed by the Boston Fire Department. This classification system may also be obtained through the EH&S Office.

A computerized inventory with such fields as chemical, catalog number, container size, MSDS-yes/no and NFPA rating would help the researcher as well as the Environmental Health and Safety Office meet the legal requirements of different regulatory agencies and help improve the health and safety of students and staff at Tufts University.

Radioactive Waste Reduction

By Agnes Barlow, Radiation Safety Officer

Waste disposal is highly regulated and also very costly for disposal by the University. It is important that all disposable items that are contaminated with radioisotopes are properly disposed of in a well labeled, approved radioactive waste container. We must know the isotope, activity and date for all such containers. For liquid wastes, we must also know the chemical components.

There is a lot that each individual isotope user in the lab can do to help keep disposal costs to a minimum. For example, any item that clearly has not come in contact with radioactive material should not be placed into a radioactive waste container. That pair of gloves that you had on and removed before you used radioactive material is one example. The paper towel you used when you washed your hands after removal of your

gloves, outer wrappers from disposable items -all of these are examples of materials that often find their way into radioactive waste containers.

If there is any question whether an item is contaminated, please put it in the radioactive waste container. But each unnecessary item in the waste container has to be carried, stored, and handled by Safety personnel. If it is in a container with radioisotopes with half lives over 120



days, the material cannot be decayed in storage at Tufts. Instead Tufts must pay for proper disposal at a limited number of radioactive waste disposal sites. So please, if an item is clearly not contaminated, take the time to place it in the appropriate bio or regular waste container.