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# Flammable Materials

## *Safe Handling Procedures*

<sup>1</sup>All laboratory personnel should have an understanding of the chemical properties and hazards associated with the materials they handle. Many common laboratory chemicals are flammable and need to be handled appropriately to prevent unexpected fires. The basic precautions for safe handling of flammable materials in the laboratory include the following:

- Handle flammable substances only in areas free of ignition sources. Besides open flames, ignition sources may include electrical equipment (especially motors) or hot plates. Check the work area for ignition sources prior to using flammable materials.
- Never heat flammable substances with an open flame. Preferred heat sources include water baths, steam baths, salt and sand baths, heating mantles, and hot air or nitrogen baths.
- Use fume hoods to remove vapors of flammable liquids from the laboratory. This is one of the most effective ways to prevent the formation of flammable gaseous mixtures in the laboratory. Use a properly functioning fume hood and safe fume hood work practices whenever appreciable quantities of flammable substances are transferred from one container to another, allowed to stand in open containers, or are heated in open containers.
- Store excess quantities of flammable liquids (including flammable hazardous wastes) in an approved flammable storage cabinet. The total quantity of flammable liquids in the laboratory at any one time should not exceed 10 gallons.
- Do not store flammable liquids in glass bottles on the floor. If storage on the floor is necessary, place containers in secondary containment.
- Keep containers of flammable substances tightly closed at all times when not in use.
- Use only refrigeration equipment certified for storage of flammable materials.
- Use the smallest quantities of flammable substances compatible with the need, and, especially when the flammable liquid must be stored in glass; purchase the smallest useful size bottle.

<sup>1</sup> Most information for this document was taken from the 1995 National Research Council's publication, *Prudent Practices in the Laboratory, Handling and Disposal of Chemicals*, pgs 95-96.