School Science Lab Safety Guidelines 2026- 2027

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SCHOOL SCIENCE LAB SAFETY GUIDE

The following information is intended as a guideline for Administrators and Instructors in providing for the safe storage and use of potentially hazardous chemicals and substances in academic science/chemistry settings. It is by no means the definitive source of how to assure your science lab meets all safety requirements, rather, it is a set of recommendations to assist in the preparation of more detailed procedures for safe operation of a school lab facility. We suggest that those opting to use this guide, use it not only to develop a lab safety program tailored to their facility, but use it to follow-up and maintain the program once it has been implemented.

It is commonly held that, any effective safety program requires strong support from top and middle management. This is equally true in an academic setting. District and/or facility administrative personnel must agree to, and support, the safety program by providing necessary resources, by assuring that the appropriate faculty and students are assigned authority and responsibility, by training them to know their responsibilities, and by holding them accountable for their safety responsibilities.

- Suggested elements of an effective lab safety program include:
- Specific rules and procedures governing conduct in the lab.
- Routine ·safety self-inspection of facilities and equipment.
- Written procedures for the proper storage and handling of chemicals and the proper disposal of waste chemicals.
- Frequent and formal training sessions to ensure procedures are following and equipment is used properly, and
- Routine monitoring and maintenance of equipment to assure proper function.

The chemistry or science department should be responsible for the administration of the lab safety program.

Standard safe laboratory practice requires adoption of specific rules and procedures. The following are some typical examples:

- Eye protection is required at all times where chemicals are handled and stored. Contact lenses should not be worn. Safety goggles must be worn when the use of contact lenses cannot be avoided.
- Horseplay, pranks and other mischief are prohibited.
- The name of the contents and the appropriate hazard warning shall be prominently displayed

on all primary and secondary containers.

- The person using a chemical must know its hazards and how to effectively prevent and treat any overexposure.
- Eating, drinking, smoking, application of cosmetics, and storage of food or beverages is prohibited in any lab or chemical storage area.
- Unauthorized experiments are prohibited.
- Appropriate clothing must be worn, including a protective apron or lab coat.
- Mouth pipetting or suctioning is prohibited.
- Personnel are required to wash hands, face, and arms before leaving the laboratory.
- The conducting of experimentation alone in the laboratory is prohibited.
- No materials, equipment, or chemicals may be removed from the laboratory or lab storage without specific permission and supervision of the instructor.
- Personnel must know the location of, and adhere to, all requirements of the Lab Safety - Chemical Hygiene Plan (a sample Chemical Hygiene Plan is available from the Safety Bureau).

Activities requiring personnel to possess a certain level of skill and/or knowledge to assure safety, also warrant specific formal procedures or policies directing the activities. To be certain that staff or students do possess the necessary levels of skill and knowledge some formal safety training is required (the facility Chemical Hygiene Plan is an example of a safety policy requiring annual formal training). Any safety training sessions should be recorded to indicate the date, topic, instructor, and those in attendance.

Many institutions require that students taking laboratory courses be given minimal instruction regarding lab safety. Texts and lab manuals should contain information regarding safety in laboratory settings. Placing an emphasis on proper lab safety procedures as part of instruction reduces the likelihood of an instructor or student suffering an incident or injury, helps to minimize losses resulting from accidents, and promotes a safety attitude in students that is essential to their performing safely in their chosen occupations as adults.

Some sort of periodic formal safety self-inspection or audit of all lab facilities should be performed to detect potentially hazardous conditions and activities and to assure their prompt abatement. Often fire departments or insurance carriers have trained personnel available to conduct such inspections. The Safety Bureau can provide copies of a sample General Industry

inspection checklist which may be helpful in developing your own safety checklist. Your liability or compensation insurance carrier may also be able to assist you in the development of a comprehensive safety audit checklist.

All machines and equipment, including personal protective equipment and ventilation equipment, should be included in routine maintenance schedules. Where PPE is used (respiratory protection for example), special procedures may be necessary to ensure that it is used and cared for in a prescribed manner. Machines such as fume hoods must be tested and calibrated periodically to certify their effectiveness. Electrical machines and equipment must be properly grounded to prevent potential shock hazards. Most equipment manufacturers provide suppliers and purchasers with information regarding recommendations for maintenance.

A science or chemistry laboratory instructors responsibilities include:

- Setting a good example by: observing rules, procedures and recommendations; using required personal protective equipment; and by promoting safety,
- Continually watching for unsafe conditions,
- Conducting frequent and comprehensive self-inspections,
- Performing corrective follow-up action promptly and effectively,
- Enforcement of rules and procedures and discipline where appropriate,
- Review of all lab experiments for safety prior to implementation,
- Maintaining and updating the Lab Safety-Chemical Hygiene plan including; inventory, material safety data sheets (MSDS), labeling, and training,
- Prohibiting the use of lab-ware as food or beverage containers,
- Maintaining precautions, emergency procedures, and postings in conspicuous locations.

Safety practices and special facilities to be considered at laboratories and lab storage facilities should include:

- A suitable first aid kit or cabinet,
- A readily available safety shower and an approved eyewash facility,
- Appropriate fire suppression equipment,(fire extinguishers,fire blankets,fire bucket etc)

- Well marked and unobstructed means ofegress,
- A general emergency alarm system,
- Protective clothing,
- Fume hoods,
- Approved storage cabinets or rooms,
- Wash sinks/areas,
- Appropriate waste disposal facilities and systems,
- Eye protection,
- Respiratory protection and a program,
- Hearing protection and a hearing conservation program,
- A standard labeling system and storage plan, and
- Ground-fault circuit interruption of electrical circuits at or near wet and damp locations and an electrical equipment grounding program.

Emergency planning and preparation are important to minimizing the effects ofan accident or exposure. A specific plan ofaction should be formally adopted and posted in a conspicuous location along with emergency telephone numbers. Medical facilities and personnel should be readily available. Provision should be made for prompt transportation of the injured to the nearest medical treatment facility. Material safety data sheets (MSDS) for chemicals should be immediately available. Some of the emergencies that typically arise from a laboratory setting include:

- Thermal and chemical bums
- Cuts and puncture wounds from glass or metal, particularly those involving chemicals
- Poisoning by inhalation, ingestion, absorption, or injection
- Skin irritation from chemicals
- Chemicals, liquids, dusts, or glass in the eyes

- Electric shock
- Chemical asphyxiation
- Vapor irritation of the eyes

Science and chemistry departments should have accident reporting policies and procedures for incidents involving both employees and students or the public.

All accidents should be reported immediately, no matter how slight.

There should be a standard accident or incident report form to record details such as; who was injured, what happened, how the incident occurred, when it occurred, where it occurred, what things may have contributed to the incident, and what things might have prevented the incident from occurring. The accident investigation and report should be done promptly by someone in a supervisory capacity, not by the injured party.

There should be a periodic review of accident and incident reports to track performance and to review any follow-up and prevention efforts. Such review will often reveal program weaknesses and problem areas that need attention.

In addition to providing for an orderly workplace where it is easy to find what you want when you want it, good storage practices aid in identifying what you have and how much you have on hand. Proper storage of chemicals and materials is also essential to the prevention of hazards caused from accidental intermixing of potentially reactive chemicals and compounds. All chemicals should be stored in a predetermined safe storage pattern on sturdy shelving or in designated cabinets. Care must be taken to clearly and legibly identify the contents and hazards of each container used for continuous storage of chemicals.