

LAB POLICY

Chemistry – Biology - Physics

POLICY INFORMATION

Policy Owner	Lab Assistants
Applicable To	Teachers and Students
Last Updated	2024
Next Review Date	2027

Policy Review and Amendment

The Lebanese School Qatar reserves the right to review, amend, or update this policy at any time to ensure alignment with school needs, applicable regulations, accreditation requirements, and best educational practices. Any approved revisions shall take effect from the date of publication unless otherwise specified.

1. CONTROLLING SOURCES OF EXPOSURE

All experiments must be designed and carried out to minimize hazardous chemical exposure. Source reduction, engineering controls, and protective equipment, in that order, are the three primary means of controlling exposure. The following are examples of source reduction and engineering control techniques

Source Reduction

- Use the least hazardous chemical that will serve the intended purpose.
- Design experiments to use the minimum amount of hazardous chemicals required.
- Always close containers when not in use.

Engineering Controls

- Use fume hoods whenever possible.
- Do not use fume hoods for long-term storage of equipment or chemicals.
- Avoid the release of hazardous chemicals in rooms with no ventilation system or with re-circulating air systems.
- Use equipment and glassware only for their designed purposes. Never use damaged equipment or glassware.
- Lab operations must not be left unattended.

2. PERSONAL HYGIENE

In the laboratory, good personal hygiene practices are essential to minimize hazardous chemical exposure and potential injury from other hazardous conditions, such as broken glass.

- The storage or consumption of food or beverages, and smoking are prohibited in all laboratory areas and hazardous chemical storage areas.
- Avoid "routine" exposures. Do not taste and avoid smelling any hazardous chemicals. Never mouth pipette.
- Wash hands immediately upon contamination, after handling hazardous chemicals, and before leaving the laboratory.
- Long hair and loose clothing must be confined when working in the laboratory.
- A soiled or contaminated lab coat should be placed in a plastic bag and exchanged for a clean one; contact the Lab supervisor.
- Closed-toe shoes must be worn when working with hazardous chemicals, biological materials, or when moving heavy objects. Sandals or perforated shoes are not acceptable, as feet are not protected from spills or falling objects.
- Please note that even if you are not actively working on a project yourself but are inside the lab, you are still at risk from the activities of others around you. Therefore, all safety precautions still apply.

3. HOUSEKEEPING

Keeping the laboratory work area organized and clean is important to the safe handling of hazardous chemicals. Only the equipment and chemicals necessary for the procedure being performed should be in the work area. This is particularly important when working in a fume hood, as storage of numerous containers or pieces of equipment can severely diminish the hood's effectiveness.

Floors and surfaces should be kept clean, and spills cleaned up immediately. The entire work area should be cleaned at the end of each day.

Lab Project Termination

When a lab project is completed, it will cease to be active for a period, or the teacher or student leaves school, clean-up must be done by the teacher and student. Clean up includes:

- Remove and properly dispose of all hazardous materials from the laboratory or project area, and any shared storage units, refrigerators, stock rooms, chemical cabinets, and waste collection areas.
- Clean and decontaminate all laboratory equipment, hoods, bench tops, cabinets, and shelves.

These procedures are intended to reduce the number of unidentified and unwanted hazardous materials and waste in the laboratory, thereby reducing disposal costs, and providing a clean and safe lab for work.

The Lab Supervisor inspects proper clean-up and handling of hazardous materials and will notify the Science Coordinator if proper clean-up, disposal, and decontamination procedures have been followed, and the faculty and their students have fulfilled responsibilities for cleanup.

4. UNATTENDED OPERATIONS

Avoid leaving operations unattended. When it is necessary to leave an experiment unattended, provide for containment of hazardous chemicals in the event of equipment failure. Additionally, leave the lights on and place a warning sign on the door if, in the event of an emergency, there exists a hazard to people entering the room.

5. SAFETY DATA SHEETS AND LAB SAFETY INFORMATION

The OSHA Laboratory Standard defines a "hazardous chemical" as one that exhibits physical or health hazards.

"Physical Hazard" - a chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive), or water reactive.

"Health Hazard" - a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur...includes...carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic (blood) system, and agents which damage the lung, skin, eyes, or mucous membranes.

Determining the hazard of a chemical is the responsibility of the manufacturer of the chemical. Information on the hazards of a particular chemical can be found on the label, the manufacturer's Safety Data Sheet (SDS). SDS contains detailed chemical information including:

- the contents of a given product
- physical, chemical, and toxicological hazards associated with that material.
- appropriate personal protective equipment and clothing necessary (e.g., appropriate type of gloves, goggles)
- safe handling and disposal guidelines
- emergency procedures

5.1 Chemical Inventory

All chemicals must be included in the chemical inventory. When a new chemical is received it must be tagged and entered to the inventory by the Lab Supervisor. When containers are emptied or the chemical is disposed of, the date must be entered into the inventory. When chemicals are moved from one storage location to another, the location on the inventory must be updated. Chemicals taken from a storage area for temporary use in the laboratory do not need to change location.

A bottle carrier or cart must be used when moving any quantity of an acute toxin and 1 liter or greater containers of flammables or concentrated acids or bases from the stockroom to the laboratory or between laboratories. A bottle carrier or cart is recommended when moving other chemicals from the stockroom to the laboratory and between laboratories.

5.2 Personal Protective Equipment

Protective equipment must be worn to guard against injury from routine or accidental events. The following personal protective equipment is available for people working in the laboratory. Know what equipment is necessary for your work.

Wearing contact lenses is highly discouraged when working with or near chemicals, particularly solvents.

5.2.1 Operations Requiring Chemical Splash Goggles

To protect students, staff, and visitors from chemical eye hazards, the following operations require chemical splash goggles. When these operations are conducted in a fume hood with the sash lowered, safety glasses are acceptable.

1. Use of strong acids or bases (outside pH range of 2 - 10).
2. Use of corrosive gases.
3. Use of potentially explosive or water reactive chemicals
4. Use of acutely toxic chemicals in liquid or powder form.
5. Use of cryogenic liquids when there is a risk of pressure buildup or splash or particle hazard.
6. Use of other hazardous chemicals in liquid form.
7. Any activity when there is an explosion or implosion hazard.

Goggles must be worn by the person whose activity causes the hazard and by adjacent individuals.

Chemical splash goggles are available in cabinet-marked "goggles" throughout the lab area.

5.2.2- Clothing

The purpose of protective clothing is to prevent skin contamination and to prevent the carrying of contaminants outside the laboratory. Street clothes may afford limited skin protection but may result in contaminants being carried outside the laboratory. Bulky or dangling attire and easily combustible clothing should not be worn in the lab.

Protective Clothing: The use of a lab coat is strongly recommended in all laboratories. Lab coats must be worn in the laboratory when handling:

- any quantity of select carcinogens or reproductive toxins that are absorbed through the skin.
- any quantity of acute toxins
- greater than 25 mL of strong acids or bases (outside pH range 2 - 10)

Lab coats are available from the lab supervisor. A soiled or contaminated lab coat should be placed in a plastic bag and exchanged for a clean one; contact the lab supervisor.

Protective Footwear: When working with hazardous chemical or biological materials, or moving heavy objects, closed-toe shoes must be worn. Sandals or perforated shoes are not acceptable, as feet are not protected from spills or falling objects.

6. HOODS

The hood is tested annually to verify proper performance. General Use Fume Hoods, which are designed to protect the user, are appropriate for working with flammables, acids, bases, and organic solvents.

1. Before using a fume hood observe the following precautions.
 - Remove any bulky items in the hood as these will prevent proper airflow.
 - Turn the hood on and confirm that the hood is drawing air.
 - Do not store chemicals in the hoods or remove stored chemicals before use.
2. When using a fume hood observe the following precautions.
 - Do not keep unnecessary materials in the hood.
 - Chemicals or waste stored in a hood must be in secondary containment.
 - Keep all materials back at least 15 cm inside the hood. The sash should be fully closed in the event of an emergency.
 - Clean up spills immediately. Ask the instructor or Lab Supervisor for the appropriate way to do this, as some materials must be treated first (e.g., acids and bases must be neutralized).

7. ELECTRICAL SAFETY

The voltage and current used in laboratories are potentially lethal. The Lab supervisor should be notified if unsafe electrical situations exist (e.g., wires are strung across pathways, frayed wires are found, grounding plugs have been removed), or if equipment malfunctions.

8. PURCHASE

- **Procurement Authority:**

- All purchases for the school lab shall be authorized by the Operation Manger who is designated as the responsible authority for procurement.
- The Operation Manager shall have the authority to approve, oversee, and manage all purchases related to the school lab.

- **Budget Allocation:**

- The school shall allocate a specific budget for the school lab to cover equipment, supplies, and materials necessary for its operation.
- Any additional funds required for lab purchases beyond the allocated budget must be requested in writing, and approval shall be sought from the appropriate school authorities.

- **Purchasing Procedures:**

All purchases shall adhere to the following procedures:

- a) **Identification of Needs:** The lab instructor or relevant staff member shall identify the specific needs for equipment, supplies, or materials.
- b) **Request for Quotations (RFQ):** For significant purchases, the school shall issue an RFQ to multiple suppliers to obtain competitive quotes.
- c) **Evaluation of Quotations:** The lab instructor, in consultation with the operation Manager, shall evaluate the quotations received based on quality, pricing, and other relevant factors.
- d) **Selection of Supplier:** A supplier shall be selected based on the evaluation, and a purchase order shall be issued.
- e) **Approval:** The purchase must receive final approval from Operation Manger, Director of Finance, and the Superintendent before proceeding.

9. MAINTENANCE

Maintenance Staff: Maintenance personnel are responsible for the physical maintenance of the laboratory, including:

- Inspecting and maintaining electrical systems, outlets, and emergency lighting.
- Regularly checking and servicing emergency eyewash stations, safety showers, and fire safety equipment Along with proper records Quarterly.
- Conducting routine checks of ventilation systems, including fume hoods, to ensure proper functioning.