

# **SACRED HEART COLLEGE, CHALAKUDY**

## **DEPARTMENT OF CHEMISTRY**

### **Standard Operating Procedures (SoP) for Chemistry Laboratory**

A Standard Operating Procedure (SOP) describes how your lab will safely handle a hazardous chemical, including the amount and concentration you will use, how you obtain or create the working solution, and special handling procedures, engineering controls, and personal protective equipment.

#### **SOPs specific to Chemistry Laboratories:**

The purpose of this SoP is to provide standard operating procedures for handling of chemicals and apparatus in the Department of Chemistry laboratory. This is in addition to the routine precautions that are followed while WORKING in a chemistry lab. A separate SoP is available for handling of instruments.

#### **1. RESPONSIBILITIES OF STUDENT**

All students entering a Chemistry lab or instrument lab are required to:

- a. Adhere to the policies of the college as given in the above URL and follow instructions given therein
- b. Follow the instructions of the teachers during the class.
- c. Always wash up after using chemicals.
- d. Always read the MSDS (Material Safety Data Sheet) about the chemicals prior to use.
- e. Use safety goggles, lab coat while performing any experiment.
- f. In case of any accident/incident (however big or small), inform the teacher immediately.
- g. Be aware of all emergency procedures.
- h. Do not perform any experiment/reaction without the permission of the teacher.
- i. Do not taste any chemical from the laboratory bottles even though they may seem to be common/harmless such as salt/glucose etc.

#### **2. RESPONSIBILITIES OF TEACHERS**

All teachers are required to make sure that:

- a. The students have read the SOP and understood them.
- b. The students are aware of the characteristics of the chemical through MSDS and know its safe handling.
- c. The teachers themselves (does they here refer to teachers or students) are aware of the safe handling of each chemical being used in the laboratory.
- d. The students do not violate the safety norms.
- e. Report any safety violation by the any staff/student to the TIC of the department.
- f. Report any major laboratory accident to the TIC immediately and provide medical aid to the injured as soon as possible.

### 3. RESPONSIBILITIES OF LABORATORY STAFF

All members of the laboratory staff are required to:

- a. Make sure that the work allotted to them is complete and the lab is in proper order.
- b. Be responsible for the general safety of the students and all your colleagues.
- c. Be alert while in the chemistry lab.
- d. Handle chemicals safely.
- e. Understand the meaning of the symbol on the bottle of chemical.
- f. Understand the nature of each chemical used in laboratory and store them accordingly.
- g. Store chemicals properly so as to not result in dangerous reactions/explosions/fire etc.
- h. Store all hazardous chemicals separately.
- i. Act swiftly and help the victim in case of any accident.
- j. Monitor the way students/colleagues handle the chemicals and take necessary/suitable action on violation of safety norms.
- k. Clean up chemical spill immediately taking due care.
- l. Evacuate the students to safety in case of emergency.
- m. Remove any mercury spills immediately.
- n. Do not touch any chemical with bare hands; always use a spatula or a dropper.
- o. Do not to waste chemicals.
- p. Wherever possible, use the left-over solutions for another class.

### 4. CLEANLINESS

A laboratory in the college is a place used by students across many courses. It is therefore, pertinent to follow good housekeeping practices. Here are some tips for maintaining a laboratory a pleasant place to work.

- a) The laboratory must be kept neat and clean at all times.
- b) All apparatus and chemicals must be kept in their designated places.
- c) Working bench must be kept free from unnecessary apparatus, paper, chemicals, waste.
- d) Always a cleaning duster must be kept handy to clean any spills.
- e) All spills must be immediately cleaned up taking necessary precautions.
- f) Laboratory staff may be approached to clean up dangerous spills.
- g) No stools must be left in the path between the working tables.
- h) All paths to exits must be kept unobstructed.
- i) All chemical containers must be labelled for easy identification
- j) Broken glassware must be handled with care.
- k) Clean all your apparatus before putting in the locker or returning at the counter
- l) Clean your work area completely before leaving the lab.
- m) Boss and clamp, wire gauze, tripod stand etc must be returned back to their designated place
- n) Return bottles of chemicals to their designated place.
- o) All unused (clean) solutions must be returned to the stock from where it was taken.

## 5. Do's and Don'ts

- a) Do not store food in the laboratory refrigerator. It is for chemicals only.
- b) Do not keep your bags on the working bench. Keep them at the designated places only.
- c) Do not eat or drink in the laboratory.
- d) Do not keep your mobile phone near you while working in a chemistry laboratory.
- e) Do not run around in the laboratory.
- f) Do not bring visitors in the laboratory.
- g) Do not wear flowing dresses while in laboratory. Keep your dupatta/ scarf in your bag.
- h) Do not wear synthetic clothes while in laboratory. Wear cotton clothes.
- i) Do not wear shorts while working in the laboratory. Wear full pants/salwar and full sleeve shirts/kurta.
- j) Do not wear a doctor's coat with half sleeve. A lab coat has full sleeves.
- k) Do not wear slippers/sandals while working in the laboratory. Wear shoes.
- l) Do not leave hair open while working in laboratory. Tie it up and make a bun.
- m) Do not throw a burning matchstick in the sink or in the dustbin.
- n) Do not throw unused sodium metal in the dustbin. Consult teacher for proper disposal.

## 6. ACCIDENT AND INJURY:

### A. *PREVENTION*

- a) Be alert while working in the laboratory.
- b) Make cautious efforts to prevent accidents.
- c) Do not point test tubes with boiling liquid towards a co-worker.
- d) Handle all chemicals with a spatula or a dropper as the case may be.
- e) Do not allow chemicals to come into contact with your skin or clothing.
- f) Do not inhale or taste chemicals.
- g) Do not mix chemicals before understanding their reaction.

### B. *ROUTES OF EXPOSURE TO CHEMICALS:*

- a) Inhalation
- b) Ingestion
- c) Absorption

### C. *SYMPTOMS OF POSSIBLE OVEREXPOSURE*

- Eye discomfort
- Breathing difficulty
- Dizziness
- Headache
- Nausea
- Vomiting
- Skin irritation

#### **D. FIRST – AID ON OVER EXPOSURE**

If the victim is feeling weak and suffocating, move her to fresh air.

Seek medical attention. Following are some first – aid measures for specific purposes.

#### **First Aid for Chemicals in the Eyes**

- Don't rub the eyes.
- Hold eyelids open and flush with water for 15 minutes.
- Be careful not to contaminate the other eye.
- Seek additional medical attention.

#### **First Aid for Chemicals on the Skin**

- Flush area with lukewarm water for 15 minutes.
- Remove clothing and jewellery from the burn area.
- Seek additional medical attention

#### **First Aid for Chemical Inhalation**

- Move victim to fresh air.
- Get immediate medical attention.

#### **First Aid for Chemical Ingestion**

- Do not induce vomiting unless told by Poison Control.
- Get immediate medical attention.

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