Persons you should know
for PHAR 1202 LABS

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Lab Technician

- Equipment
- Glassware
- Lab

DEMONSTRATORS

Role of Demonstrators

1) Provide a guide
2) Correct labs
3) Ensure students maintain lab

GUIDELINES FOR LABORATORY SAFETY

All instructors, students and technicians who work in the laboratory are duty bound to prevent exposure of themselves and others to unreasonable risks. The primary causes of accidents in the laboratory are **careless techniques, unawareness of potential danger**, **improper procedures, sloppy work habits and lack of sufficient concern for others**.

Laboratory experiments can be performed with a minimum of accidents by following established procedures.

EYE PROTECTION *must be worn at ALL TIMES in areas where chemicals are being used or stored.* Contact lenses are generally not safe since they can absorb chemicals that irritate the eye. If chemicals get in your eyes **flood them immediately with water** and then seek medical attention

LAB COAT

KNOW WHAT TO DO IN THE CASE OF AN ACCIDENT.
Acquaint yourself with the LOCATION and PROPER USE of emergency equipment such as first-aid kit, fire extinguishers, fire blankets, safety showers and eyewash stations.

READ CAREFULLY THE EXPERIMENTAL PROCEDURE PRIOR TO CLASS
Make note of safety warnings and precautions to be taken, equipment and techniques to be used and the nature of the chemical substances i.e. whether they are corrosive, volatile or poisonous. In the event of a spill apply proper procedure for cleanup and disposal. Carefully follow the recommended manner of waste disposal of chemical reagents and products.

USE THE FUMEHOOD WHEN HANDLING VOLATILE CHEMICALS WITH TOXIC AND/OR IRRITATING FUMES OR WHEN CONDUCTING EXPERIMENTS INVOLVING SUCH VOLATILE FUMES.

REPORT ALL ACCIDENTS IMMEDIATELY TO THE LECTURER IN CHARGE OR ALERT THE NEAREST PERSON IN CASE OF AN EMERGENCY.

WASH YOUR HANDS FREQUENTLY DURING AND AT THE END OF THE LABORATORY SESSION. Fumes and chemicals may produce skin irritations after long exposure.

READ LABEL OF CHEMICAL AT LEAST THREE TIMES: when **OBTAINING** chemical, when **MEASURING** and when **RETURNING** to its place of origin.

ALWAYS REMEMBER TO REPLACE STOPPER OR LID OF CHEMICAL CONTAINER AFTER USE AND TO WIPE OUTSIDE OF CONTAINER AND WORK AREA IF ANY SPILLS HAVE OCCURRED.

NO FLAMES SHOULD BE USED DURING SESSIONS INVOLVING THE USE OF FLAMMABLE MATERIALS, ESPECIALLY THOSE WITH LOW BOILING POINTS.

NEVER POINT THE OPEN END OF TEST TUBES WITH REACTION MIXTURES AT ANYONE, INCLUDING YOURSELF.

NEVER ADD WATER TO CONCENTRATED ACID. THE ACID SHOULD ALWAYS BE ADDED SLOWLY TO THE WATER WHILE MIXING, SO THAT ANY HEAT GENERATED CAN BE ABSORBED AND DISSIPATED.

ALWAYS BE PROPERLY ATTIRED; USE LABORATORY COATS, COMFORTABLE WHOLE SHOES (TOES AND INSTEP COVERED) AND KEEP HAIR TIED BACK. USE DISPOSABLE GLOVES WHEN ADVISED TO DO SO.

DO NOT EAT, DRINK OR SMOKE IN THE LABORATORY.

REGARD EVERY CHEMICAL AS POTENTIALLY HAZARDOUS AND FOLLOW EVERY SAFETY PROCEDURE DESCRIBED; THEY ARE NOT SUGGESTIONS, THEY ARE MANDATORY.

BE IN ATTENDANCE FOR LABORATORY INSTRUCTIONS AT THE BEGINNING OF EACH SESSION AND NOTE SPECIAL PRECAUTIONS TO BE TAKEN AND/OR CHANGES TO THE PROCEDURE, IF ANY.

ACCIDENTS ARE USUALLY PREVENTABLE. BE ALERT IN THE LAB. Understand experimental procedures and be aware of any hazards. ASK YOUR INSTRUCTOR, DEMONSTRATOR OR LECTURER TO EXPLAIN OPERATIONS YOU DO NOT UNDERSTAND. DO NOT PROCEED UNTIL YOU KNOW WHAT YOU NEED TO DO.

IN CASE OF ACCIDENT

Always call or notify the laboratory supervisor as soon as possible.

Fire

Burning Reagents: Immediately extinguish any gas burners in the vicinity. Fire extinguishers are available in various parts of the laboratory. For burning oil use **powdered sodium bicarbonate.**

Burning Clothing: Avoid running (which fans the flame) and take great care not to inhale the flame. Rolling on the floor is often the quickest and best method for extinguishing a fire on one's own clothing. Smother the fire as quickly as possible using wet towels, laboratory coats, heavy (fire) blankets, or carbon dioxide extinguisher.

Injuries and Chemical Burns

Reagents in the Eye: Wash immediately with a large amount of water, using the ordinary sink hose, eye-wash fountain, or eye-wash bottle----*do not touch the eye.*
After the eye has been washed thoroughly for 15 minutes, if any discomfort remains, see physician.

Injuries and Chemical Burns

Reagents on the Skin: *Acids---Wash* immediately with a large amount of water, then soak the burned part in ***sodium bicarbonate solution*****.** Cover the burned area with a dressing bandage and see a physician.

Alkali---Wash immediately with a large amount of water, then soak the burned area in ***1% boric acid solution*** to neutralize the alkali. Cover the burned area with a dressing and see a physician.

Injuries and Chemical Burns

Bromine---Wash immediately with a large amount of water, then soak the burned area with a dressing in ***10% sodium thiosulphate***, or cover with a wet sodium thiosulphate dressing, for at least 3 hours and see a physician.

Organic Substances---Most organic substances can be removed from the skin by washing immediately with ordinary ***ethanol***, followed by washing with soap and warm water. If the skin is burned (as by phenol), soak the injured part in water for at least 3 hours and see a physician.

Cuts: Wash the wound with sterile gauze, soap, and water. Cover with a sterile dressing and keep dry.

WASTE DISPOSAL

SOLUTIONS ACCEPTABLE FOR SINK DISPOSAL SHOULD BE DILUTED ONE HUNDREDFOLD BEFORE BEING SLOWLY POURED DOWN THE DRAIN. ALTERNATIVELY THE SOLUTION MAY BE POURED DOWN THE SINK ALONG WITH A STREAM OF WATER.

SMALL AMOUNTS OF WATER-SOLUBLE ORGANIC SOLVENTS MAY BE DILUTED AND FLUSHED DOWN THE DRAIN.

WASTE DISPOSAL

WHEN IN DOUBT, CHECK WITH YOUR DEMONSTRATOR BEFORE DISPOSING ANY CHEMICAL.

LARGE AMOUNTS OF ORGANIC SOLVENTS SHOULD BE PLACED IN PROPERLY LABELLED BOTTLES FOR RECYCLING OR DISPOSAL.

BROKEN GLASS APPARATUS SHOULD BE PLACED IN SPECIALLY DESIGNATED BINS FOR RECYCLING

Ensure that you properly clean your **workspace**, the **fume hoods** and the **centre bench** (which usually has the balances and communal reagents) at the end of the lab.

MARKS FOR TECHNIQUE WILL BE DEDUCTED

- **MASTER COPY OF RESULTS**

- **You must write a personal copy of your results which will be signed by a demonstrator or technician.**

- **Results must be recorded in your laboratory notebook.**

- **Your notebook should show the date and title of each experiment. Your report should show the quantities of material used, the melting (or boiling) point of the product obtained, the weight of the product and any other relevant data**

- **Your notebook should show each new experiment on a new page**

•The experimental work must be described in a bound, hard-covered quarto notebook. Each notebook must have a **TABLE OF CONTENTS** at the beginning.

•Before you begin any recording in your notebook, leave sufficient space for your table of contents. Record your observations and results directly into your notebook

- Write in ink and number the pages for easy reference.

The laboratory report has 10 essential parts:

1. **Name:**
2. **Date:**
3. **Workstation Number:**
4. **Initial Results/Observation/Data**
5. **Title of the Experiment:**
6. **Aim/Objective:**
7. **Procedure:**
8. **Results/Observations/Data:**
9. **Calculations:**
10. **Discussion:**
11. **Conclusion:**
12. **Additional Exercises:**