

CONTENTS

Policy, Practices, and Procedures

ii

EXPERIMENTS

1. Acid - Base Titration I: Standardization of a Base Solution (NaOH) and Titration of a Strong Acid-Strong Base (Titration Curve)
2. Acids - Base Titration II: Standardization of an Acid Solution (Strong Base-Weak Acid Titration)
3. Complexometric Titrations: Ethylenediamine Tetraacetate (EDTA)
4. Precipitation Titrations: Basic Principles of Volumetric Analysis and Back Titration
5. Spectrophotometry I: Introduction and Application with Ultra Violet Spectrophotometer (Serum iron determination)
6. Spectrophotometry II: Determination of Iron in a Multivitamin Tablet Ultra Violet Spectrophotometer
7. Atomic Absorption Spectrophotometry
8. Chromatographic Separation Methods I: Introduction to Analytical Separations (Solvent Extraction Method)
9. Chromatographic Separation Methods II: Thin Layer Chromatography (Paper Chromatography)
10. Protein Analysis: Determination as Nitrogen in Organic Compounds Using Kjeldahl Procedure

Policies, Practices, and Procedures

SAFETY

The most important events in the laboratory are safety and the right to know as contained in the Material, Safety and Data Sheet (MSDS). Follow instructions as stated in the laboratory manual and be careful with acids and bases.

!!!PLEASE DO NOT DISOBEY LABORATORY RULES. IT MIGHT PROVE FATAL!!!!

PROTECTION

1. Instructors, laboratory technologist, laboratory assistants, students and other personnel that work in the laboratory must wear approved goggles at all times when in the laboratory. It is a recommendation not to wear contact lenses when in working in the laboratory
2. It is advisable to wear old clothes that cover head to toe when working the laboratory. Long sleeve shirts and long pants are recommended. Shorts, midriff tops and sandals are not allowed.
3. Long hair is to be tied and well tucked away. It is a fire hazard when let loose or flying
4. Students are not allowed to work in the laboratory alone
5. Horseplay or other pranks are prohibited in the laboratory
6. Smoking, eating, drinking or applying makeup is not allowed in the laboratory

LABORATORY MAINTENANCE

1. Make sure your Laboratory space(s) is cleaned. Also clean all the equipments and returned them to their assigned positions. Failure to do so will result to a zero grade for the experiment. NO exceptions please.
2. All glassware must be cleaned before it is put away.
3. Use sponges to clean bench tops and wiping of non-hazardous materials.
4. Laboratory instructors are the ONLY one allowed to clean up corrosive or toxic materials
5. Sweep up broken glassware with a broom and collect with the dust pan and then place in the special container provided for glasses.
6. No debris of any type should be left in the sink. Put all debris in allocated containers

7. Make sure all drawers are properly closed and locked when necessary.

GENERAL INFORMATION

1. Dispense organic solvents, strong acids and bases and other volatile solvents in the fume hoods.
2. **No fee will be collected for broken equipment or glassware. Each broken glassware and equipments will be replaced with two of similar type by the culprit.**

LABORATORY TECHNIQUES

1. Use proper utensils such as crucible tongs to hold or move hot items.
2. Make sure there are no flammable materials near you when lightning a burner
3. Add boiling chips to liquids before heating them up. This will help to prevent bumping or boilover.
4. Place test tubes in a slanting position away from yourself and others when heating liquids. Heat liquids at the surface of the liquid.
5. Do not heat up a closed system
6. Heat all substances that emit noxious fumes under the hood
7. Use funnel to transfer liquids into a narrow neck container
8. Use a bulb or pump to pipette a liquid. Never use your mouth
9. Avoid smelling anything unless instructed to do so. While sniffing, gently waft the material towards your nose when allowed to do so
10. Do not return excess reagent to its original container
11. Do not experiment with the chemicals in the laboratory except those that you are scheduled to do.
12. Do not use your pipette or spatula to remove samples from the stock container. Use the one provided by the laboratory technologist
13. Correctly label test tubes or other containers indicating their contents
14. Strong acids and bases should be added to water and not vice versa.

EMERGENCIES AND FIRES

1. Laboratory instructors are in-charge of all emergencies. Follow instructions as directed
2. All laboratory users should learn how to locate the following materials: safety shower, eyewash, blankets, fire extinguishers, first aid kit, fire alarm
3. Laboratory users should notify the laboratory instructors of any fire.
4. Turn off all gas jets if it is the source of the fire
5. All laboratory users should learn how to use the fire extinguisher

ACCIDENTS AND INJURIES

1. The chemistry department does not treat injuries or illness. Any injury or illness will be referred to the University Medical Center, Ilishan, Ogun State.
2. It is the responsibility of the laboratory instructor(s) on duty to prevent further injury by taking the appropriate action after the incident. Arrangement should be made to immediately transport the victim to the Medical Center. If the injury is minor and the student can walk to the Medical Center, such student should be accompanied by another person to the Medical Center.
3. An accident report form must be filled at all times even when the victim declines Medical treatment.

SPECIAL WASTE

1. The laboratory will provide label containers for hazardous waste. Read the label very well and dispose the waste appropriately.
2. At no time should organic or toxic wastes such as mercury, lead, chromium be dumped down the drain.
3. Ask when in doubt about proper disposal of waste.