

**RHODES UNIVERSITY**

**DEPARTMENT OF CHEMISTRY**

**LABORATORY SAFETY MANUAL**

**FOR VISITORS**

**2013**

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10. **FOREWORD**

This manual is designed to facilitate you, the visitor, with the rules and regulations of the chemistry department concerning chemical safety. In an attempt to make the university a safe working environment for all the workers you are required to read and make sure you understand this manual which is a guide as to how you should behave and respond when in a laboratory environment. You are also requested to sign off (at the back of the manual) as an indication that you have read the manual.

1. **SAFETY OFFICER RESPONSIBILITIES**

* Responsible for monitoring of procurement, use and disposal of chemicals;
* To work with other staff to develop and implement appropriate chemical hygiene practices
* Acquire knowledge and information needed to recognize and control hazards;
* Insuring that all waste disposal from the building is in accordance with the waste disposal protocol for the Chemistry and Pharmaceutical Sciences Building
* Carry out monthly safety inspections in laboratories as required by university regulations

1. **RESEARCHER RESPONSIBILITIES**

* It is the responsibility of everyone who uses the lab to make sure it is kept clean and tidy at all times;
* Workbenches should be kept clear of glassware/chemical containers when operations are through;
* Know the chemicals you are working with and be aware of the ones people around you are working with;
* Material safety data sheets (MSDS) for chemicals are available online from the chemical suppliers. MSDS gives information regarding chemical properties, hazards, handling, required personal protective equipment (PPE), storage, and disposal of chemicals;
* Follow the standard operating procedure developed for the laboratory;
* Inform Mr Bongani Kalipa when the sharps container is full;
* To seek approval from supervisor when working with hazardous chemicals
* Never work alone in the laboratory;
* Closed shoes should be worn at all times when inside a laboratory;
* No food, drinking, smoking and application of cosmetics in the laboratory or in areas near where chemicals are stored;
* Report unsafe conditions, injuries and illnesses to the supervisor.

**NB**: Laboratory coats are available in chemical stores at a price, safety goggles and gloves should be provided by the supervisor. These must always be worn when inside a laboratory. Safety officer/Supervisor can dismiss you from the laboratory when you are found working without the required PPE.

1. **SAFETY EQUIPMENT**

**Familiarize yourself with the location and use of the following equipments for in case of emergencies:**

Fire Extinguishers for smothering fires. There are different classes (A, B, C and D) of fires and these require different types of extinguishers. The fire extinguishers are labelled with the class fire that they can extinguish. Each laboratory is equipped with a Dry Chemical Powder fire extinguisher which can be used for class A, B and C fires.

**The four classes of fires are explained below:**

1. Class A fires are ordinary materials like burning paper, lumber, cardboard, plastics etc.
2. Class B fires involve flammable or combustible liquids such as gasoline, kerosene, and common organic solvents used in the laboratory.
3. Class C fires involve energized electrical equipment, such as appliances, switches, panel boxes, power tools, hot plates and stirrers. Water is a particularly dangerous extinguishing medium for class C fires because of the risk of electrical shock.
4. Class D fires involve combustible metals, such as magnesium, titanium, potassium and sodium as well as organometallic reagents such as alkyllithiums, Grignards and diethylzinc. These materials burn at high temperatures and will react violently with water or other chemicals.

* Fire Blanket for smothering fires caused by combustible material like wood, paper, etc;
* Safety Shower for rinsing chemicals spills off the body. There are safety showers on each floor along the passage in case there is not one available in your laboratory;
* Eye Wash Station for rinsing chemicals from the eyes;
* First Aid Kit: each laboratory has a first aid box, laboratory manager is to make sure it is fully stocked (safety officer will also check this monthly);
* Escape routes, these are indicated on each floor by green arrows.

1. **WHAT TO DO IN CASE OF A FIRE**

* If your clothing catches fire, STOP, DROP and ROLL on the ground to extinguish the flames or if you are within a few feet of the safety shower or fire blanket use them instead
* You are not required to fight a fire unless it’s a small fire and you are equipped with the use of fire fighting equipment and you have your back to the exit;
* **When the fire alarm sounds**: You are required to evacuate the building immediately using only staircases. Do not use lifts or linger around in the building or block exit routes. Assemble across Artillery road in the paved area between Geology and Physics buildings and await further instructions by the HOD/safety officer. Do not interfere with emergency services. You can only enter the building following the instructions of the HOD/Safety officer.

1. **CHEMICAL SAFETY**

* Make sure you read material safety data sheets (MSDS) for safety handling of chemicals before using them;
* All chemicals must be considered hazardous, especially if you do not know what they are;
* Always work with labelled chemicals and if you decant into another container label it with the full name of the chemical and clearly mark hazard symbols;
* The most common routes of contamination with chemicals occurs through inhalation, skin, eye and ingestion;
* To prevent inhalation hazards of organic/inorganic chemicals ALWAYS handle solvents in a well functioning fume hood;
* Skin contact should be avoided by wearing a lab coat and gloves at all times
* The risk of eye contamination should be avoided by always wearing safety goggles. In case chemicals get in the eyes flush for 15 minutes with water and then seek medical attention immediately;
* Ingestion is simply avoided by not using your mouth as a pipette and tasting of chemicals is prohibited;
* Gloves and goggles must always be worn when handling carcinogens, acids, alkalis and other irritants;
* Make sure solvents are stored according to their compatibility;
* Always handle cryogenic liquids with care use appropriate loose fitting gloves and clothing to avoid skin burns and frostbite and always wear safety glasses;

1. **WASTE GENERATION AND COLLECTION**

* All solvent waste generated in the laboratory should be disposed in 20L plastic drums (available in the Store);
* The drums will be labelled for chlorinated and non-chlorinated waste. Please do not mix the two types of waste in one drum;
* When these drums are full contact Safety Officer for collection and have a chemical waste disposal sheet (available in stores) ready and filled in properly;
* For chemical waste; the chemical waste disposal sheet should indicate clearly if it is organic/inorganic or unknown waste;
* We DO NOT accept waste in open containers; Winchester bottles; without the chemical waste disposal sheet;
* Sharps should be contained in plastic sharp containers available in the Chemical Stores.

1. **SAFETY MEASURES FOR LABORATORY ACCIDENT**

* Mr Vuyisile Dondashe is the first aider, located in the Lower ground floor (room LG25; ext 8257)
* All injuries should be reported to the supervisor who will inform the safety officer;
* First aid kits are available in case of minor injuries;
* Major injuries must be logged in an incident report form (available from safety officer) and sent back to the safety officer who will send a copy to the HOD;
* In case of emergencies (medical, fire, chemical exposure), the staff member must be informed immediately, and they will call the first aid officer who should proceed to the scene and administer help;
* If first aid officer is not available contact campus protection security (CPU) ext no:8146;
* If necessary, the first aid officer may refer the injured party to the hospital or doctor and if the injury was due to chemical exposure provide the hospital or doctor with the relevant MSDS.

1. **RHODES ENVIRONMENTAL POLICY**

You are encouraged to visit the link at http://www.ru.ac.za/environment/policy to read about the University’s environmental policy implementation which includes: Waste reduction, hazardous waste management, energy efficiency, wise water use, etc.

1. **AGREEMENT WITH SAFETY PRACTICES**

As confirmation that you have read and understood the above please sign in the space provided below. Please kindly return the manual to Safety Officer once you have read it.

**NAME & SURNAME** **DATE**

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