

RESEARCH LAB SAFETY MANUAL & USER'S DECLARATION

LABORATORY USER NAME:	
STAF/STUDENTS ID:	
SUPERVISOR NAME:	
SCIENCE OFFICER VERIFICATION (Chop & Signature):	

1.0 SCOPE

- This safety document describes the standard operating procedures (SOP) and safety practices encountered and to be practiced in the Faculty Dentistry, UiTM Research Laboratories.
 - *It is mandatory that all individuals who perform work in the lab be fully aware of this document's existence, understand its contents, and satisfy the testing requirements associated with it.*
 - All the knowledge and safety instruction stated is the responsibility of laboratory staff, Principal Investigator and Student's.
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2.0 EMERGENCY RESPONSE

- ***If possible, first get out of immediate danger.***
- ***To report any medical emergency or fire, call 9-9-9 from any phone.***
- ***In the event of a fire, or if you feel the building's occupants are in danger:***
 - o ***Call UiTM Campus Sg. Buloh Security & Police (Emergency Response Team) at 03-6126 5226 or Dial 0 for UiTM Operator (Fixed Line)***
 - o ***Activate the building's fire alarm system before calling 9-1-1.***
 - o ***Evacuate the building immediately!***

For other emergencies, contact University Security & Police at 03-6126 5226 or Dial 0 for UiTM Operator (Fixed line)

When calling:

- *Stay on the line with the dispatcher.*
 - *Provide the address of the building involved and your exact location when calling from a cell phone. The building address is located on the Emergency Contact sign on the door of your lab.*
 - *Provide a thorough description of the incident to ensure that proper resources are dispatched.*
 - *Do not hang up until the dispatcher tells you to do so.*
 - *Follow up the call*
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3.0 LAB PRACTICES

- A worker **should never perform a job if she/he believes it to be unsafe or if inadequate PPE is available or sufficient safety measures are in not place.**
 - If a worker feels a job cannot be performed safely, she/he should see her/his supervisor immediately for resolution.
 - If a worker feels pressured into performing a job they believe to be unsafe, they should contact their PI and/or the Laboratory Staff incharge
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3.1 Lab Access Restrictions

Lab access is provided to members of the research team as determined by the Principal investigator/Supervisor / Science Officer: For Visitors & Others seeking access must make prior arrangements before entering the lab as described below:

- Visitors to the lab must first obtain prior approval by the lab staff/Science Officer before entering. Visitors must also be accompanied by a member of the research team.
 - Support workers must discuss the nature of their work with the PI to determine if they may enter and whether they may work without oversight by research team members.
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3.2 Personal Behaviors

- Workers must be familiar with the hazards of the materials with which they are working.
 - No food or drink is permitted in the lab.
 - No unauthorized experiments are permitted.
 - Personnel must have pre-approval by his/her direct supervisor in order to perform work alone.
 - Work should not be conducted if the researcher is feeling tired or otherwise impaired.
 - No rough-housing is permitted in the lab.
 - When performing an operation, consider if nearby workers require additional protection and take appropriate measures.
 - Employ good housekeeping rules by maintaining a clean, uncluttered work area.
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3.3 Electrical Safety

- Labs often rely on custom electrical circuits and devices to perform their work.
- However, there are limitations to what labs are able to do without the assistance of a licensed electrician.
- When lab members intend to design, fabricate or modify electrical circuits that have voltages that exceed either 30 volts ac rms or 60 volts dc, they must first discuss the work with the Science Officer
- The Science Officer will then contact a UiTM electrician to see if their assistance is required.

3.4 Lab Incidents, Accidents and Property Loss

Note: If you have any emergency, first take appropriate measures as described elsewhere in this manual.

*If you have an incident your lab, whether it was an actual accident or just a “near miss”, it should be reported in 24 hour to **Laboratory Staff Incharge or Science Officer***

Ms Norashikin Salleh (Science Officer) : 03-61266509

Mr Mohd Mazly Mohammad (Fire Safety): 03-61266574

Mr Redzwan Hasni (Fire Safety): 03-61266432

Mrs Norsazlinda Shamsuddin (First Aid Responder): 03-61266531

4.0 HAZARD CONTROL METHODS

4.1 Hierarchy of Hazard Control Five commonly used methods to reduce the risk of hazards are shown in priority order:

1. *Elimination*
2. *Substitution or reduction*
3. *Engineering controls*
4. *Administrative controls*
5. *Personal protective equipment (PPE)*

While many are familiar with examples of PPE, it is important to understand the other methods and why they need to be employed first, before PPE, for hazard mitigation.

4.2 Elimination ***Hazard elimination** is the best way to provide hazard mitigation by physically removing the hazard. An example would be to use a non-toxic material in place of a toxic one where possible.*

4.3 Substitution *In many cases, **hazards can be reduced by substituting a less toxic material or a smaller amount of the material.***

4.4 Engineering Controls Engineering controls are **lab systems or features that protect all workers by removing the hazard from the lab**, or sequestering the hazard. Examples of engineering controls include:

- *fume hoods or other local exhaust systems to remove vapors and/or particles at source*
- *specialized storage systems such as flammables, acids, and corrosives cabinets, sharps containers, etc.)*
- *safety shields on tools*
- *“glove boxes” to contain hazardous materials*

For more detailed information on the engineering controls required in your lab, consult the protocols and procedures for specific lab processes and/or discuss with your lab PI or supervisor.

4.5 Administrative Controls *Administrative controls play an important part of reducing hazard risk when the above methods are not sufficient. Below are administrative controls that are in place for this laboratory.*

4.5.1 Lab Signage

- ❖ The number of signs should be kept to a reasonable minimum and be clear and concise.
- ❖ Information relating to the general hazards, PPE, and rules of the lab will be posted on each laboratory entrance from the main hall.

4.5.2 Lab Training

Before performing any work in the laboratory, **each USER must receive training as assigned by the Principal Investigator/supervisor/Laboratory Staff /Science Officer.**

This training may include:

- ✓ Core training required for all lab users as well as task-specific training based on the role of the worker in the lab.
- ✓ The training may be delivered through various methods, including assignment of online modules, distribution of hardcopies or by hands-on training.

4.5.3 Training for Shared Lab Spaces

Shared lab environments require additional consideration in terms of assignment of appropriate lab training for the space. The workers must be trained to understand all of the hazards that exist within the space.

- ✓ For shared spaces that are used by multiple PIs working independently or by co-PIs that have different research teams, a lab-specific safety manual should be developed by the PIs for the lab. Additional lab-specific training can be assigned by the PIs as needed.

4.5.4 Lab Chemical /Apparatus Ordering

- Lab personnel will order all chemicals in accordance with the Faculty & UiTM ordering policy. (E-procurement)
 - This policy is designed to provide guidelines for how chemicals are ordered and delivered to laboratories.
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4.5.5 Chemical Labeling

All chemicals, including those stored in temporary storage,

- Must be properly label using Relabel Chemical / Material / Kits Stickers (Provided by Faculty)*
- Do not (X) write over information printed on chemical labels.*

For temporary storage, include all the information from the chemical inventory list as well as the creation date of the temporary storage.

Responsible Officer

Mrs Zatul Iffah Omar : 03-61266531

Mrs Siti Hafidah Abd Latif : 03-61266528

4.5.6 Chemical Inventories

- A chemical inventory of the laboratory is to be performed on a yearly or more frequent basis.
 - The best way to maintain a chemical inventory is to make real-time adjustments as chemicals are ordered or depleted.
 - **Please read all CSDS (Chemical Safety Data Sheet) and COA (Chemical of Analysis) to understand what chemicals require inventory, hazards, safety precautions and how to properly handle and store them.**
 - The completed inventory is to be printed and stored in the General Chemical Store.
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4.6 Personal Protective Equipment

The information provided below is intended only to provide an overview of Personal Protective Equipment (PPE) requirements that may exist for your lab.

PPE should be considered the last avenue in providing work protection and be implemented only if elimination, substitution, and engineering and administrative controls cannot provide sufficient protection.

In general,

- **Closed-toe shoes and leg coverage** must be worn in the lab at all times.
- **Safety glasses** must be worn under the following circumstances in labs:
 - Performing sawing, grinding or cutting operations
 - When there is any foreseeable risk of injury to your eyes.
 - Use of any chemical.
- **Lab safety coats and gloves** must be worn when handling chemicals and biomaterials.

For more detailed information on the PPE required in your lab, consult the protocols and procedures for specific lab processes and/or discuss with your lab PI or supervisor.

If you feel you are engaged in a process that places you at risk, it is your responsibility to wear the appropriate PPE, if available, or halt work until the proper PPE can be procured.

5.0 CHEMICAL EMERGENCIES

5.1 Chemical Contact

- *The treatment of a chemical exposure takes precedence over spill cleanup, spill containment, or property damage including water damage from the use of an eyewash or safety shower.*
- ***In the event of chemical contact with skin or eye, flush the affected area with water for a minimum of 15 minutes.*** Use the nearest safety shower and eye wash station in the laboratory. If possible, obtain assistance to remove contaminated PPE and clothing after flushing has begun.
- *If contact is made through inhalation, immediately move to an area of fresh air away from the exposure.*
- *After immediate treatment for the exposure has been completed, contact your supervisor/ laboratory staff or Science Officer.*
- *Have the CSDS information for the chemical(s) available for reference. This information can be found in your laboratory or General Chemical Store.*

5.2 Large Chemical Spill

A large spill is a spill greater than 200mL or 200 g OR any amount of an extremely hazardous substance OR beyond the cleaning capabilities or comfort level of the laboratory or laboratory workers.

If deemed necessary, or you are unsure of spill severity, immediately call University Security and Police at 03-6126 5226

Otherwise, take the following steps:

- ***Inform others*** in the area of the spill.
 - ***Turn off any gas burners*** without putting yourself in harm's way.
 - ***Retrieve SDS(s)*** without putting yourself in harm's way.
 - *Evacuate the area, closing the doors behind you.*
 - ***Contact your supervisor; laboratory staff or science officer***
 - *Post warning signs outside the area, and lock doors if possible to prevent re-entry.*
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5.3 Small Chemical Spill

A small spill is defined as a spill less than or equal to 200mL or 200 g AND not of an extremely hazardous substance AND within the cleaning capabilities and comfort level of the laboratory and laboratory workers.

If you are not sure, or uncomfortable with the cleanup, contact your supervisor and University Security and Police at 03-6126 5226

Otherwise, take the following steps:

- *Inform others in the area of the spill.*
- *Turn off any gas burners without putting yourself in harm's way.*
- **Retrieve SDS(s)** without putting yourself in harm's way.
- *Review applicable SDS(s) and determine controls, PPE, and need for assistance.*
- *Put on necessary protective clothing (gloves, safety goggles or glasses, and lab coat).*
- **Use a spill kit in the lab to absorb the spill.** *This may require acid or base neutralizing absorbent. Clean spill area working from outside toward the center.*
- **Rinse the spill area with water, and wipe up with paper towels.** *Label and retain spill materials for the Safety Team report.*
- *Contact your supervisor; laboratory staff or science officer*

5.4 Spill Investigation Report

A Spill Investigation Report form must be completed in the event of a spill or an uncontained release of chemicals into a drain. The form can be found from the laboratory Staff /Science Officer.

Responsible Officer (Chemical Spillage)

Mr Shahril Yazid Musa : 03-61266433

Mr Mohd Mazly Mohamad : 03-61266574

6.0 WASTE MANAGEMENT

6.1 Definition of Waste

A variety of solid and liquid wastes can be generated in the laboratory. Any lab worker or student that works with chemicals is required to understand how to safely handle, store, and dispose of these materials.

Once you determine a material:

- *cannot be reused,*
- *cannot be used for its intended purpose,*
- *has exceeded its shelf life,*
- *has no known owner or generator,*
- *is no longer wanted or needed, or*
- *is an end product of a process or experiment that cannot be used as feedstock in an existing process,*

IT IS A WASTE.

- *Please remember that maintenance fluids must, in most cases, be disposed of as waste.*
- *Liaison Officer to contact for urgent case;*

Laboratory Waste Officer:

Mrs Fara Fariza Zahar : 03-61266570

Mrs Norsazlinda Shamsuddin: 03-61266531

6.2 Hazardous Wastes

- **Waste classified as Hazardous Waste** must be disposed of properly, in accordance Hazardous Waste Management Regulation
- *If you have any questions regarding whether a waste material is hazardous or how to store or dispose of it, contact the Laboratory Staff/Science Officer*

6.3 Waste Pickup

All chemical waste generated laboratories must be disposed of by UiTM Waste Contractor

6.4 Illegal Disposal of Waste

Examples of illegal waste treatment include:

1. Leaving solvent-wetted materials or containers on the bench top or in the fume hood to evaporate.
2. Diluting a waste to render it non-hazardous.
3. Venting a pressurized aerosol can solely remove the contents.
4. Disposing a waste down the sink or drain without prior approval

6.5 Segregation of Waste

You must segregate your waste (biological/clinical/general/chemical)

- *Keep liquids and solids in separate containers*
- *Keep hazardous and non-hazardous waste in separate containers.*

You must physically segregate, by secondary containment (separate spill trays, cabinets, etc.), your hazardous waste while in storage from the following:

- ***non-hazardous waste***
- ***drains***
- ***incompatible waste***
- ***product chemicals***

- **ALL Biological waste/Microbiology waste/Carcass MUST autoclave FIRST**

All types of SOLID waste MUST

- Use Yellow Biohazard Bag***
- Use Waste Signage Label Sticker Provided (Faculty)***

Responsible Officer

Ms Norwani Mohammad : 03-61266570

6.6 Hazardous Waste Containers

Make sure the hazardous waste container

- is of a material that has long term compatibility with the waste.*
- must be closed/sealed to the manufacturer's specifications. The only time a hazardous waste container can be open is when you are actively putting waste in the container.*
- must be in good condition; replace deteriorated or damaged containers immediately.*

NON-COMPLIANT containers.

Examples of open containers include:

- *"zip-lock" bags with a damaged seal or with material in the seal*
- *a container with an improperly fitting or missing lid;*
- *a container or bag that has a crack, hole or tear*

7.0 DECLARATION STATEMENT

7.1

I'm hereby agreed and followed all the orders stated in this Research Laboratory Safety Manual of Faculty Dentistry, UiTM

Name :

Student/Staf ID :

Signature :

Date :

RESEARCH OFFICE,
FACULTY DENTISTRY,UiTM
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