



Standard Operating Procedure (SOP)



FLAMMABLES

Effective Date: 8/23/2013

Revised Date: 8/23/2013

INTRODUCTION

This SOP applies to the various chemicals that are Flammable. Flammables fall under the following categories:

- Flammable gas – a gas that, at STP, forms a flammable mixture with air at a concentration of 13% by volume or less OR that, at ambient temperature and pressure, forms a range of flammable mixtures with air wider than 12% by volume, regardless of the lower limit.
- Flammable liquid – a liquid having a flash point below 100°F.
- Flammable solid – a solid, other than a blasting agent or explosive, that (1) has an ignition temperature below 212°F, or (2) is capable of causing a fire through friction, absorption of moisture, or spontaneous chemical change, or (3) burns so vigorously and persistently as to create a serious hazard.
- Combustible liquid – a liquid having a flash point at or above 100°F (definition listed for storage considerations).

GENERAL LAB RULES

1. No eating, drinking, smoking, handling contact lenses, or applying cosmetics in the laboratory.
2. Persons shall wear buttoned lab coat, long pants, safety glasses or goggles and appropriate gloves when working with hazardous chemicals.
3. Mouth pipetting is prohibited; mechanical pipetting devices are to be used at all times.
4. All procedures are performed carefully to minimize the creation of splashes or aerosols.
5. Wash hands
 - after handling chemicals materials,
 - after removing gloves, and
 - before leaving the laboratory.

Additional Lab Specific Rules Here

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POTENTIAL HAZARDS

Fire is the main hazard with Flammables.
 Never use flammable materials near sources of heat, flame, sparks or static discharge (direct sunlight, furnaces, pilot lights etc.)
 Do not use in unventilated areas. Use in fume hood.
 Vapors are heavier than air. These can pool in low-lying areas and travel significant distances to an ignition source.

HEALTH HAZARDS

- Chronic exposure by inhalation or skin contact may result in liver or kidney damage, CNS disorders, blood disorders and GI tract disorders.
- Symptoms of acute exposure can lead to:
 - Dermatitis
 - Dizziness
 - Incoherency
 - Nausea
 - Vomiting
 - Abdominal pain
- May irritate eyes, nose and respiratory tract
- Can be absorbed through the skin and may cause dermatitis

PERSONAL PROTECTIVE EQUIPMENT

EYE PROTECTION

- Safety glasses, goggles or face shields shall be worn.
- Ordinary (street) prescription glasses do not provide adequate protection. Adequate safety glasses must meet the requirements of the Practice for Occupational Education Eye and Face Protection (ANSI Z87.1-1989) and must be equipped with side shields.

HAND PROTECTION

- Use disposable nitrile gloves when working with chemicals. Check chemical compatibility chart for breakthrough time when using
- Laboratory personnel should thoroughly wash hands with soap and water before and immediately upon removal of gloves.

LAB COATS, ETC.

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- Button lab coats, closed toed shoes, long pants and long sleeved clothing shall be worn when handling FLAMMABLES. Flame resistant lab coat should be worn. Protective clothing shall be worn to prevent any possibility of skin contact with FLAMMABLES.

WORK PRACTICES

- Work in a chemical fume hood if air concentrations above 10% of the lower flammable limit may be reached, if the chemical is irritating to the eyes and respiratory system, and/or is toxic by inhalation. Contact Facilities and Campus Services (x4255) immediately if fume hood is malfunctioning.
- Know the location of the nearest fire extinguisher before beginning work.
- Avoid using ignition sources (Bunsen burners, hot plates, electrical equipment with frayed or cracked wiring, etc.) and/or creating static electricity in areas where highly flammable chemicals are used.
- Ensure proper grounding. Be sure to ground metal containers when transferring flammable liquids.
- Keep containers of flammable chemicals closed at all times when not in use to prevent accumulation of flammable vapor concentrations.

SPECIAL HANDLING PROCEDURES AND STORAGE REQUIREMENTS

- Do not store with incompatible material.
- Incompatible with acids and oxidizers.
- FLAMMABLES are to be stored in a designated flammable cabinet when not in use.

Additional Lab Specific Special Handling/Storage Procedures

WASTE DISPOSAL

- Chemicals shall not be drain disposed unless prior approval is given by EH&S.
- Excess FLAMMABLES and all waste material containing FLAMMABLES must be placed in a container labeled with the following **“HAZARDOUS WASTE FLAMMABLES”** , AND INCLUDE THE FULL CHEMICAL NAME.
- Contact EHS at x3427 for hazardous waste removal.

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EMERGENCY PROCEDURES

Emergency Numbers:

Fire and Medical Emergencies	x5911 (911 on cell phone)
Environmental Health and Safety	x3427
Hillcrest Urgent Care (employees)	336-760-8999
Student Health (students only)	x5218
Poison Control	800-222-1222

FIRST AID

1. If chemical exposure occurs, remove contaminated clothing and flush exposed area for 15 to 20 minutes using emergency eyewash station and/or safety shower.
2. If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Call x5911 for medical assistance.
3. Call x5911 and describe the extent of injuries.
4. Report all accidental exposures to EHS and Human Resources (employees) or Student Health (students).
5. Complete an [online injury/illness report](#) if there is an over-exposure to the chemical or if there is an accident involving the chemical.

SPILL AND ACCIDENT PROCEDURES

If the chemical spilled is considered a carcinogen, reproductive toxin or highly toxic chemical, contact x3427 and evacuate area immediately, regardless of spill amount.

For all other spills use the chart below for spill reporting and response:

SPILL QUANTITY	PROPER SPILL RESPONSE
Spill less than 500 mL	Contact Environmental Health and Safety (x3427) and clean up spill using spill kit.
Spill greater than 500 mL	Do not attempt to clean up spill. Leave the area and immediately report to WFU Police (x5911) and EHS (x3427).