

## JOB SAFETY ANALYSIS


**Worksheet Number or Identifier:**

Chemistry Teaching Labs

**Job/Operation Title:**

Academic Laboratory Work

**Date:**

01/08/2021

**Department/Division/Section:**

Chemistry

**Developed By:**

Chris Frydenlund

**Location(s):**

 RBS: 1034, 3015, 3017, 3018, 3019, 3021, 3022, 3023, 4005,  
4007, 4012, 4013, 4014

**Reviewed By:**

Paula Tate

**Person(s) Performing This Job:**

Students, faculty and staff

**Supervisor:**

Jason DiStefano

**Start Date:**

All Spring, Summer, and Fall semesters.

**Duration:**

24/7

Task/Step	Potential Hazards	Recommended Safe Job Procedures
1. Preparation	<ol style="list-style-type: none"> <li>1. Blood borne pathogens</li> <li>2. Combustible materials</li> <li>3. Corrosive materials</li> <li>4. Flammable materials and liquids</li> <li>5. Flammable/reactive chemicals</li> <li>6. Heaters</li> <li>7. Ignitable materials and liquids</li> <li>8. Reactive materials and liquids</li> <li>9. Sharp objects</li> </ol>	You must come prepared to work in the academic laboratory environment. You must read the laboratory protocol prior to coming to class. This ensures you understand the hazards associated with the lab, the controls available to prevent hazardous situations, and how to properly complete the protocol. You must also take the mandatory safety training for laboratory personnel.
2. Conduct the academic experiment.	<ol style="list-style-type: none"> <li>1. Blood borne pathogens</li> <li>2. Bodily fluids</li> <li>3. Corrosive materials</li> <li>4. Flammable materials and liquids</li> <li>5. Flammable/reactive chemicals</li> <li>6. Combustible materials</li> <li>7. Heaters and boilers (steam)</li> <li>8. Ignitable materials and liquids</li> <li>9. Reactive materials and liquids</li> <li>10. Sharp objects</li> <li>11. Ventilation</li> </ol>	Ensure the SDS is available. Ensure emergency eyewash and showers are available. Follow the protocols, and know the procedure for fire, chemical spill or biological hazards. Use approved methods to transfer chemicals from one container to another. Ensure all training has been completed. Ensure a laboratory technician supervises all work within the laboratory.

Task/Step	Potential Hazards	Recommended Safe Job Procedures
3. Completion/cleanup	1. Blood borne pathogens 2. Bodily fluids 3. Combustible materials 4. Corrosive materials 5. Flammable materials and liquids 6. Flammable/reactive chemicals 7. Heaters and boilers (steam) 8. Ignitable materials and liquids 9. Reactive materials and liquids 10. Ventilation 11. Sharp objects	Laboratory technician is familiar with waste streams and only mixes compatible chemicals/agents. All waste should be labeled as per UT Tyler Waste Policy. Students should know the proper clean up procedures for the particular experiment; lab technicians should impart this knowledge and supervise accordingly. Consult manufacturer's instructions on donning and doffing PPE, hand washing, and spill clean up. Read the SDS for chemical clean up and decontamination. Wash hands for 30 seconds, use paper towel to turn off water (hand sanitizer does not work on dirty hands).

### POTENTIAL HAZARDS OF THIS JOB: PHYSICAL

Hazards	Prob.	Sev.	Consequences
Combustible materials	1	2	Chemical burns
Corrosive materials	1	2	Cuts and abrasions
Flammable materials and liquids	1	2	Exposure (inhaling, swallowing, or absorbing) to harmful levels of gases, vapors, aerosols, liquids, fumes, or dust)
Flammable/reactive chemicals	1	1	Penetration by sharp object
Heaters and boilers (steam)	1	1	Splashed by
Ignitable materials and liquids	1	2	Thermal burns
Reactive materials and liquids	1	1	
Sharp objects	1	1	
Ventilation	2	2	

### POTENTIAL HAZARDS OF THIS JOB: CHEMICAL

Hazards	Description/Health Hazards
Strong acids	NFPA 704 Health 3; corrosive, poison, toxic
Corrosive organic molecules	NFPA 704 Health 3; poison, toxic, carcinogen
Toxic organic molecules	NFPA 704 Health 3; poison, toxic, carcinogen
Strong bases	NFPA 704 Health 2; corrosive, poison, toxic
Various salts	NFPA 704 health hazard 2; irritation, poison

**POTENTIAL HAZARDS OF THIS JOB: BIOLOGICAL**

<b>Hazards</b>	<b>Prob.</b>	<b>Sev.</b>	<b>Consequences</b>
Blood borne pathogens	1	1	Allergic reactions
Bodily fluids	1	1	Bloodborne diseases (Hepatitis B or C, HIV) Respiratory illness

**HAZARD CONTROL MEASURES USED FOR THIS JOB**

<p><b>Administrative Controls:</b></p> <ul style="list-style-type: none"> <li>Emergency procedures</li> <li>Fire protection program</li> <li>Housekeeping practices</li> <li>Inspections (ongoing) work areas, equipment, tools, etc.</li> <li>Inspections (pre-job) - work areas, equipment, tools, etc.</li> <li>Material handling procedures</li> <li>Monitoring (biohazards)</li> <li>Monitoring (hazardous atmospheres)</li> <li>Operating instructions (equipment)</li> <li>Operating procedures (process)</li> <li>Policy or policies</li> <li>Safety and health program</li> <li>Safety checklists (use to document inspections)</li> <li>Safety Data Sheets (SDS)</li> <li>Signage</li> <li>Trained personnel</li> <li>Work practices</li> <li>Work schedules (adjust time)</li> </ul>	<p><b>Required Training:</b></p> <ul style="list-style-type: none"> <li>Hazard Communication (HAZCOM).</li> <li>Laboratory safety.</li> <li>Personal protective equipment (PPE).</li> </ul>
<p><b>Engineering Controls:</b></p> <ul style="list-style-type: none"> <li>Air filtration</li> <li>Chemical reduction</li> <li>Chemical substitution</li> <li>Ventilation and exhausting</li> </ul>	<p><b>Required PPE:</b></p> <ul style="list-style-type: none"> <li>Clothing - chemical resistant</li> <li>Clothing - long pants</li> <li>Eye protection</li> <li>Nitrile gloves</li> <li>Personal protective equipment</li> <li>Safety glasses</li> <li>Side shield</li> </ul>
<p><b>Required Permit(s):</b></p> <ul style="list-style-type: none"> <li>Completion of required training.</li> </ul>	<p><b>Other Information:</b></p> <ul style="list-style-type: none"> <li>This is a continuous process.</li> </ul>

JSABuilder chemical Description/Health Hazards is from the CAMEO database maintained by the U.S. EPA, NOAA, and the U.S. Coast Guard ([www.cameochemicals.noaa.gov](http://www.cameochemicals.noaa.gov)).

<b>Probability</b>	<b>Severity</b>
1 - Low	1 - Low
2 - Medium	2 - Medium
3 - High	3 - High