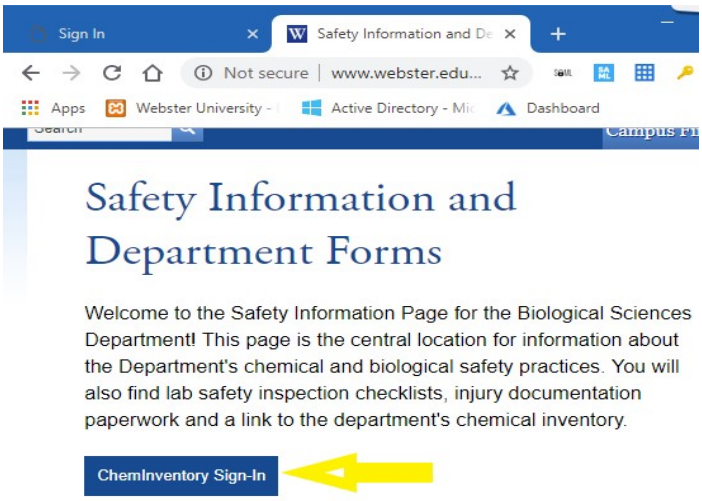
Appendix A: Chemical Inventory Access

Chem Inventory logging in with Single Sign-On (SSO)

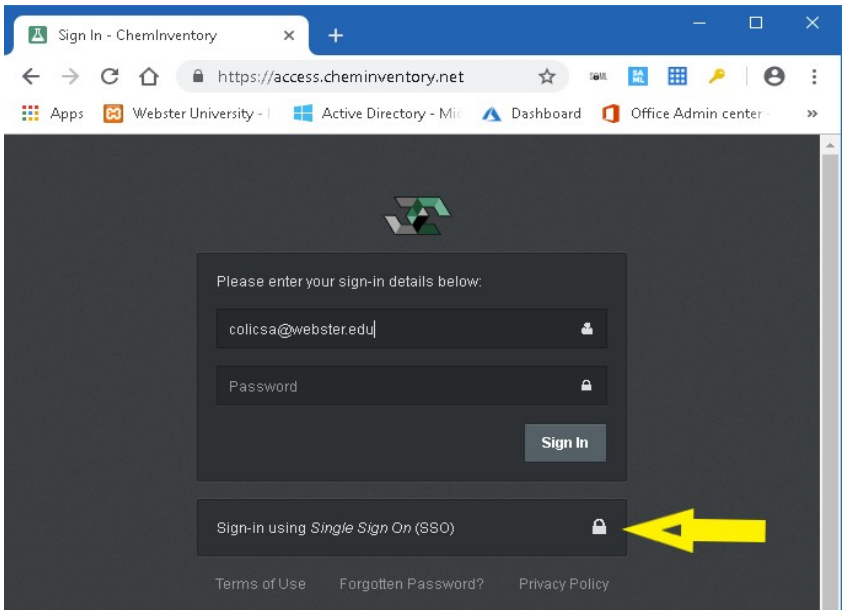
Login URL

By default, users can sing in into ChemInventory at **https://access.cheminventory.net/** or going to **http://www.webster.edu/arts-and-sciences/academics/biological-sciences/safety-information.html** and selecting ChemInventoty Sign-In.

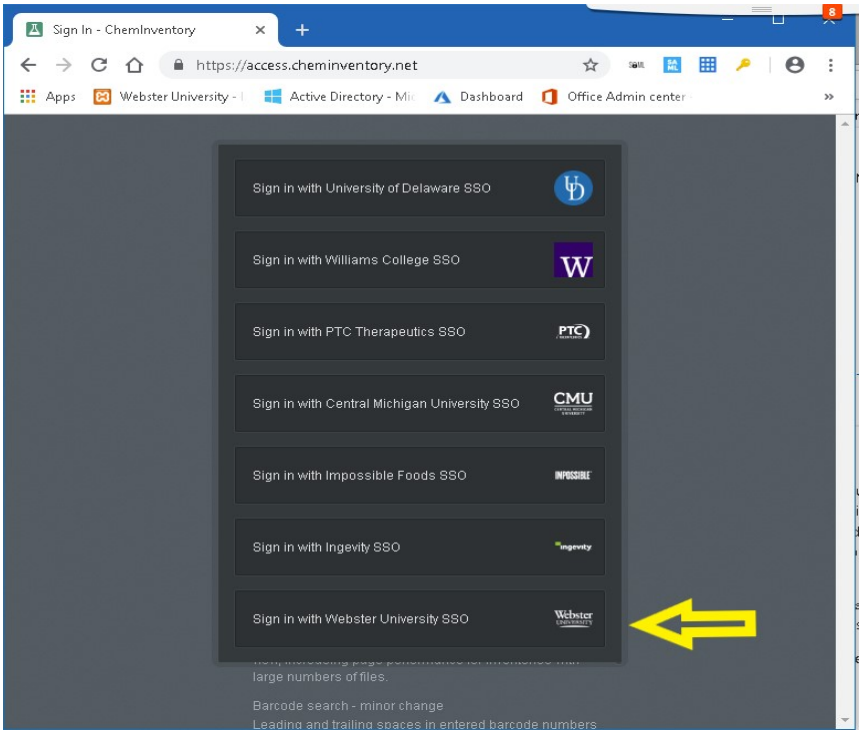


Follow these steps to log into ChemInventory application using Federated authentication:

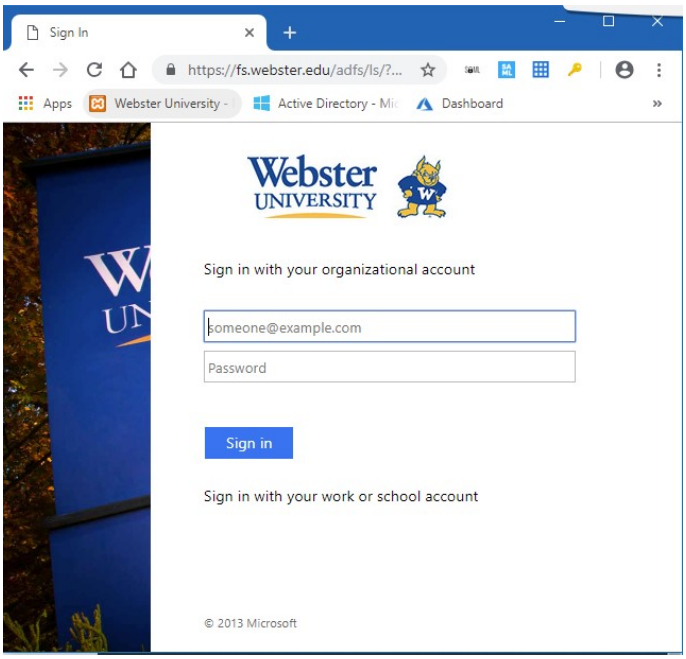
- From the Chem Inventory log in screen, Select Sing-in using *Single Sign On (SSO)*



- Select Sign in with Webster University SSO



- You will be redirected to Webster University Federated login page. Enter your credentials in order to gain access to your ChemInventory application.



Request Access

Access to ChemInventory is restricted to authorized users only. If you have not already been granted access, then please complete and submit the request form on the SSO page, or email the Chemical Safety Officer.

Appendix B: Permit for New Chemicals, New Processes, Particularly Hazardous Substances and Particularly Hazardous Processes

Chemical Risk Assessment Form

Review Date:	Reviewed by:	Authorized by:

Step 1—ENTER INFORMATION ABOUT THE TASK, ITS LOCATION AND THE PEOPLE COMPLETING THE RISK ASSESSMENT					
Location name:	Building:	Room:	Date:	Assessed by:	
Chemical (Manufacturer's name and chemical name)		Is the chemical a hazardous substance? ☐ Yes ☐ No		If yes, list the hazard statement:	
Description of tasks/activities/use:					
Are there any licensing or permit requirements? ☐ Yes ☐ No	If "yes", provide details		Health surveillance requirements (list "n/a" if not required)	A current SDS is attached to this form ☐ Yes	
Exposure Route of Chemical (check all that apply)					

☐ Inhalation ☐ Skin (absorption) ☐ Eye ☐ Ingestion ☐ Injection ☐ Other—Specify:	
What are the storage requirements?	What are the waste/disposal requirements?

Describe the following systems of work planned and already in place for the activity/task: • Training ○SOPs • Existing Controls ○ Inspections • Emergency Situations	
Is there past experience with the chemical that may assist in the assessment? (circle all that apply) •Existing controls ○Industry Standards ○Training •SOPs ○Accidents and near-misses ○Standards •Accident investigations ○Legislation and regulations ○Guidance	Please describe:

First Aid and Emergency Requirements (circle all that apply) •Additional first aid kit contents ○Special first aid requirements (e.g., Oxygen) •Emergency eyewash ○Safety Shower •Spill kit ○Neutralizing agent •Restricted access (in case of spill or other release)	Please describe:

STEP 2: RISK RATING—RISK MATRIX AND DEFINITIONS

LIKELIHOOD	CONSEQUENCE					
		Insignificant	Minor	Moderate	Major	Severe
	Almost certain	Medium	High	High	Extreme	Extreme
	Likely	Medium	Medium	High	Extreme	Extreme
	Possible	Low	Medium	Medium	High	Extreme
	Unlikely	Low	Low	Medium	High	High
	Rare	Low	Low	Low	Medium	High

Likelihood
Almost certain—will not occur in most circumstances when the activity is undertaken (greater than 90% chance of occurring)
Likely—will probably occur in most circumstances when the activity is undertaken (51 to 90% chance of occurring)

Consequence
Insignificant—First aid treatment, minor injury, no time off work
Minor—Single occurrence of medical treatment, minor injury, no time off work

Possible—might occur when the activity is undertaken (21 to 50% chance of occurring)	**Moderate**—Multiple medical treatments, non-permanent injury, less than 10 days off work
Unlikely—could happen at some time when the activity is undertaken (1 to 20% chance of occurring)	**Major**—Extensive injuries requiring medical treatment (e.g., surgery), serious or permanent injury/illness, greater than 10 days off work
Rare—may happen only in exceptional circumstances when the activity is undertaken (less than 1% chance of occurring)	**Severe**—Severe injury/illness requiring life support, actual or potential fatality, greater than 250 days off work

Risk Category	Risk Priority Rating for Action		
	Risk Acceptability	**Action**	**Recommended time frame for action**
Extreme	Not acceptable	• Cease or isolate source of risk • Implement further risk controls • Monitor, review and document the controls	• Immediate • Up to 1 month • Ongoing
High	Generally (in most circumstances) not acceptable	• Implement risk controls if reasonably practicable • Monitor, review and document the controls	• 1 to 3 months • Ongoing
Medium	Generally (in most circumstances) acceptable	• Implement risk controls if reasonable practicable • Monitor, review and document the controls	• 3 to 6 months • Ongoing
Low	Acceptable	• Monitor and Review	• Ongoing

STEP 3—REVIEW CHEMICAL PROCESS	
For each step of the process being assessed: • Review the prompts/examples for each exposure route in each category • Determine and record an inherent risk score using the risk matrix in Part 2 • In the comments box, describe the route of exposure and any other	**Hierarchy of Control (Control Types)** El—Elimination S—Substitution

applicable information • Specify the type of risk control used in the step • Describe the risk controls to be used in the step, both planned and already in place • If the described risk controls are not already in place, please complete the Safety Action Plan form (**Appendix R**) in addition to this form • Determine the residual risk score (risk remaining when risk control in use) by using the risk matrix	En—Engineering Is—Isolation G—Guarding Sh—Shielding A—Administrative T—Training In-Inspection M—Monitoring H—Health Monitoring P—PPE

	Inherent Risk Score	Comments (when/where the exposure is present)	Control Type	Control Description (Current and Proposed)	Residual Risk Score
Storage •Inhalation ○Eye •Skin (absorption) ○ Ingestion •Injection ○Other					
Handling •Inhalation ○Eye •Skin (absorption) ○ Ingestion •Injection ○Other					
Mixing/Pouring •Inhalation ○Eye •Skin (absorption) ○ Ingestion					

•Injection ○Other						
Using/Applying •Inhalation ○Eye •Skin (absorption) ○ Ingestion •Injection ○Other						
Spill/Leak •Inhalation ○Eye •Skin (absorption) ○ Ingestion •Injection ○Other						
Other steps (describe) •Inhalation ○Eye •Skin (absorption) ○ Ingestion •Injection ○Other						
Disposal •Inhalation ○Eye •Skin (absorption) ○ Ingestion •Injection ○Other						

STEP 4—IMPLEMENTATION AND CONSULTATION PROCESS
Determine the person responsible for reviewing the completed risk assessment and the person responsible for implementing its recommendations, including the

identified controls. These will usually be different people.

Obtain the authorization of the chemical hygiene committee.

Ensure that all employees undertaking the activity have been consulted.

Record below the names of the people consulted:

Reviewing member of Chem Hygiene Committee		Employee(s)	
Employee(s)		Employee(s)	
Employee(s)		Employee(s)	
Person responsible for implementing Safety Action Plan:		Employee(s)	

Attachments	
Current SDS	☐ Yes
Safety Action Plan	☐ Yes ☐ Not applicable

Extra Writing Room—Use this section to enter extended comments or descriptions

Permit Approval

Employee/Student Name	
PHS being used	
Maximum quantity of PHS approved for use	
Location of use of material (building and room)	
Other restrictions to this material's use (i.e. working alone)	

Employee (Student) Declaration:

I declare that I have read and I understand this New Chemical/PHS Protocol Form for this material (noted above). I agree to follow all procedures in this form and all applicable procedures in the Chemical Hygiene Plan.

Signature: _____ Date:_____

Committee Approval (Sign and date):

Chemical Safety Officer: _____ Date:_____

Hygiene Committee Representative: _____ Date:_____

Hygiene Committee Representative: _____ Date:_____

Hygiene Committee Representative: _____ Date:_____

Appendix C: Chemical Reaction Chart

CODE	Potential Reaction
H	Heat Generation
F G	Fire
GT	Innocuous and non-flammable gas generation Toxic Gas formation
GF E	Flammable Gas formation Explosion
P	Violent Polymerization
S	Solubilization of toxic substance May be hazardous, but
U	Unknown

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	101	102	103	104	105	106
1																																								
2			G																																					
3			H	H																																			
4		H	H	H																																			
5			H																																				
6			H																																				
7	Azo Compounds, Diazo	H	H	H	H				G	H																													
8		H	H																																			
9										H																												
		GT GF	GT GF	GT GF																																		
		H,F GF	H,F GF	H,GT GF		GF GT			H G																													
			H F						H G																														
			H F																																				
			H F																																				
		H GT	H,F GT					H GT	H G		H GF																												
		H G	H,F GT	H G	H P			H P	H G		H,P G	H G	U																										
			H F						H G																														
	Mercaptans and Other Organic Sulfides	GT GF	H,F GT						H G																														
	Metals, Alkali and Alkaline Earth, Elemental	H,F GF	H,F GF	H,F GF	H,F GF	H,F GF	GF H	GF H	GF H	GF H	GF H	GF H		GF H				H E	GF H	GF H	GF H																	
	Metals, Other Elemental & Alloys as	H,F	H,F	G					H,F		GF							H	GF		H,F																	
	Metals, Other Elemental & Alloys as Metals and Metal Compounds, Toxic	H,F	H,F						H,F									H																				
		GF HF	H,F E	H GF	H,E GF	GF H				H G		GF H		GF H				GF H		GF H	GF H																	
		H,GT GF	H,F GT																			H P				GF H												
			H,F GT								H E											H,E GF				H,E GF												
	Hydrocarbons, Aliphatic, Unsaturated		H F																				H E															
	Hydrocarbons, Aliphatic, Saturated		H F																																			
	Peroxides and Hydroperoxides, Organic	H G	H E		H F	H G		H GT	H,F E	H,F GT		H,E GT						H E			H,F GT	H E	H G		H G	H,E GF	H,P GT		H P								
			H F						H G										H P			GF H				GF H												
	Organophosphates, Phosphothioates, Phosphodithioates	H	H								H																											
		GT GF	HF GF																												GT								
		H P	H P	H P	H P			H P	H P		H P	H P	U								H P	H P	H P		H P	H P					H P	H P		H P	34				
	Combustible and Flammable Materials, Miscellaneous	H G	H,F GT																			H,F G				H,F GF					H,F GT								
		H E	H E	H E					H E		H E			H E								H E	H E	H E							H E	H E		H E	H E	101				
		P H	P H	P H					P H		P H	P H	U								P H	P H	P H	P H	P H						P H			P H		102				
		H GT		H GT	H F	H F	H,F GT	H,F GT	H E	H,F GT		H,E GT		H F	H F		H,F E	H E	H GF	H,F GT	H F	H,F GT	H,F E	H,F E	H F		H,F E	H,F GT	H E	H F	H F	H G	H F	H,F GT	H,F GT	H,F G	H,F G	H E	H,F GT	103	
		H GF	H,F GT	H GF	H,F GF	H,F GF	H GF	H G			H GT	H	F			H,F E	H E	H GF	H GF	H,F GF						H GF	H E				H E	H GF	H,GT GF			H GF	H E	H,P GF	H,F E	104	
	Water and Mixtures Containing Water																	H G			H GF	H GF			H GF									GT GF					GF GT	105	106

<---EXTREMELY REACTIVE! DO NOT MIX WITH ANY CHEMICAL OR WASTE MATERIAL! EXTREMELY REACTIVE!--->

Appendix D: Incident Report Form

INCIDENT REPORT FORM

Reporting Employee's Name: Click or tap here to enter text.

Reporting Employee's Work Area: Click or tap here to enter text.

Person Injured: Click or tap here to enter text. Date of Incident: Click to enter text.

Location of Incident: Click or tap here to enter text. Time of Incident: Click to enter text.

Possible Contributing Factors to Incident:

☐ Weather Conditions ☐ Chemicals (attach SDS) ☐ Uneven/Wet Surface

☐ Equipment ☐ Other (explain below)

Explanation of incident and action taken:

Click to enter text

Witness Name: Click here to enter text. Witness Phone Number: Click to enter text.

Witness Name: Click here to enter text. Witness Phone Number: Click here to enter text.

Witness Name: Click here to enter text. Witness Phone Number: Click here to enter text.

Click to enter text. Click or tap here to enter text.

Reporting Employee's Signature Date

_____

_____

To be filled out by the chemical hygiene committee.

1. Describe what changes to the policy and procedures in the hygiene plan or laboratory that would mitigate or prevent future incidents. Include an anticipated due date:

Committee Approval (Sign and date):

Department Chair: _____ Date:_____

Hygiene Committee Representative: _____ Date:_____

Hygiene Committee Representative: _____ Date:_____

Hygiene Committee Representative: _____ Date:_____

FILE THE COMPLETED MEMORANDUM FORM WITH THE CHEMICAL HYGIENE PLAN

Appendix E: Test Procedure for Peroxides

TEST PROCEDURE FOR PEROXIDES

Ethers (particularly cyclic ethers and those synthesized from primary or secondary alcohols (such as tetrahydrofuran, diethyl ether and diisopropyl ether) form peroxides. Aldehydes, alkenes that have allylic hydrogen atoms (cyclohexene), compounds having benzylic hydrogens on a tertiary carbon atom (such as isopropyl benzene) and vinyl compounds (vinyl acetate) may also form peroxides. Although peroxides are not powerful explosives, they are extremely sensitive to shock, sparks, light, heat, friction, and impact. When peroxide-forming compounds are distilled, the peroxide has a higher boiling point than the parent compound and remains in the distilling flask as a residue that can become overheated and explode. **Thus, NEVER distill any compound that may contain peroxide impurities to dryness to avoid explosion.**

Peroxide formation often occurs in stored ethers. Since ethers are frequently used solvents and form peroxides easily, the solvent container should be dated when opened. **If not used within one month, the container must be tested for peroxide formation. DO NOT test an uninhibited ether, which has been opened for more than SIX months, or an inhibited ether, which has been opened and stored more than ONE year.**

Peroxide Detection

Follow the directions on a commercial peroxide test strip, typically by placing several drops of the liquid suspected of containing peroxides onto the test strip and waiting a minute to develop.

Alternatively, add 1 ml of the liquid suspected of containing peroxide to a solution of 0.1 g sodium iodide in 1 mL of glacial acetic acid. If the mixture turns brown, a high concentration of peroxide is present; whereas a yellow solution indicates that a low level of peroxide exists in the solution.

Peroxide Removal

Any organic liquids containing measurable peroxides should be flagged as hazardous waste and not moved until the hazardous waste pickup. Inform the Chemical Safety Officer that you have peroxide-containing Hazardous Waste so the waste hauler can take appropriate precautions.

Appendix F: Laboratory Inspection Checklist

Laboratory Safety Checklist

Laboratory Information
Laboratory Director/Principal Investigator: **Location:**

Traditional Laboratory Safety Checklist	**Yes**	**No**	**N/A**	**COMMENTS**
Training and Documentation				
Up-to-date inventory maintained for all hazardous materials?				
Chemical Safety Data Sheets (SDS) maintained and readily available at all times lab personnel are present?				
Workplace hazard assessment and certification completed?				
Lab personnel know the location of chemical inventory, SDS and related reference material?				
Lab personnel received institutional safety training (provided by Chemical Safety Officer)?				
Lab personnel received supplemental laboratory-specific safety training for the hazards present in the laboratory?				
Lab personnel familiar with physical hazards of chemicals in work area?				
Lab personnel familiar with health hazards of chemicals in work area?				
Lab personnel able to describe how to detect the presence or release of hazardous materials?				
Lab personnel know how to protect themselves and others from effects of hazardous materials?				
Lab personnel familiar with Chemical Hygiene Plan?				
Spill and Emergency Planning				
Lab personnel familiar with the fire safety and building evacuation procedures including evacuation routes, nearest fire exits, fire alarm pull stations, and fire extinguishers?				
Emergency procedures and phone numbers clearly posted?				
First aid materials readily available?				
Are any "antidotes" or special first aid materials required and available (e.g., Hydrofluoric Acid = Calcium Gluconate)?				

Spill cleanup materials available and laboratory personnel familiar with their use?				
Safety shower and eye wash accessible within 10 seconds and unobstructed (e.g., no trash cans)?				
Safety shower tested and documented within past month?				
Eye wash tested, flushed, & documented at least weekly?				
Fire alarm pull stations, strobes, speakers, and fire extinguishers unobstructed and visible?				
Exits clearly marked and unobstructed?				
Personal Protection Clothing, Equipment and Engineering Controls				
Personnel wear shoes that fully cover feet and full length clothing to protect legs?				
Long hair confined? Jewelry, lanyards and other loose articles are confined or removed?				
Lab coats of appropriate material available and worn?				
Appropriate gloves available and worn?				
Glasses, goggles, face shields, are of appropriate type and worn?				
Chemical hood available? If yes…				
Chemical hood free of clutter?				
Chemical hood inspected within last 12 months and capable of drawing at least 100 LFPM (or more if appropriate)?				
Chemical hoods equipped with air flow indicator?				
Perchloric acid operations conducted in specialized wash down chemical hoods?				
Biological Safety Cabinet available? If yes…				
Biological Safety Cabinet clutter-free & surfaces decontaminated?				
Biological Safety Cabinet certified within last 12 months?				
Mechanical pipetting used, no mouth suction?				
Chemical Safety				
Are chemicals used in this area? If yes…				
Appropriate labels are found on all hazardous chemical containers?				
Containers are in good condition (e.g., labels intact, metal cans free of rust) and closed when not in use?				
Containers properly segregated by hazard class (e.g., flammables away from oxidizers, acids separate from bases, incompatible acids separated)?				
Storage of chemicals above eye level is avoided?				

Flammable liquids stored in OSHA/NFPA approved cabinets and safety containers?				
Flammables liquids requiring refrigeration stored in either explosion proof or flammable resistant refrigerators and freezers (i.e., no regular refrigerators)?				
Ignition sources avoided when using/storing flammables?				
Corrosives stored in acid cabinets or other appropriate cabinets?				
Peroxide formers properly labeled and inventory tracked?				
Picric acid sufficiently wet?				
Large containers (4L or greater) stored near the floor?				
Bottle carriers or carts utilized when transporting hazardous chemicals between work areas?				
Proper signs delineate designated areas where high hazard chemicals are used?				
Designated area properly cleaned and decontaminated?				
Non-Ionizing Radiation Safety				
Is non-ionizing radiation used in the area? If yes…				
Laser – Class 1?				
Laser – Class 2?				
Laser – Class 3a?				
Laser – Class 3b?				
Laser – Class 4?				
Personal protective equipment (e.g., eye protection) or shielding available specific to the Class lasers used?				
Laser hazard warning signage posted?				
Compressed and Cryogenic Gas Safety				
Are compressed gas cylinders used in this area? If yes…				
Cylinders stored upright and properly secured (**double** chained to a wall or immoveable cabinet) at all times?				
Caps properly secured when cylinders are not in use?				
Regulators always used, proper regulators used for type gas, pressure bled when not in use?				
Cylinders in good condition and clearly marked?				
Flammables stored separately from oxidizers, toxics in secure area, etc.?				
Cylinders of flammable gases stored in ventilated enclosures?				
Cylinders moved on cylinder trucks with regulators removed and				

caps secured?				
Cylinders of toxic gases (e.g., NFPA health hazard 3 or 4 and 2) stored and used in continuously ventilated enclosures?				
Cryogenic gas cylinder pressure relief values in proper working condition?				
Oxygen monitor available in areas with increased likelihood of oxygen deficient atmospheres?				
Equipment and Physical Hazards Safety				
Are equipment safety signs posted and in good condition?				
Are all guards and shields in place and secured?				
Are safe work practices (long hair tied back, no loose clothing, etc.) being adhered to by all equipment users?				
Is equipment in good repair with evidence of proper maintenance?				
Are electrical cords in good condition, out of travel paths, and free of any cracks or breaks in insulation?				
Is proper PPE available and being used by equipment operators?				
Is a tagging system in place to prevent use of damaged equipment?				
Is access to the equipment restricted?				
Have all users been trained to operate this equipment?				
Are any additional or new hazards present at or around the equipment?				
Have there been any modifications to the equipment?				
General Laboratory Safety				
Smoking, eating, and drinking prohibited in lab?				
Lab is maintained secure; door is locked when no one is in lab?				
Appropriate warning signs posted near lab entrance?				
Unobstructed aisles maintained at least 36 in. wide throughout?				
Lab benches and work areas free of clutter?				
Shelves and cabinets in good condition?				
Shelves have seismic restraints, e.g., lips or wires?				
Shelves and cabinets secured to walls?				
Storage above eye level minimized and items restrained from falling?				
Refrigerators and freezers clearly labeled "Not for Storage of Food for Human Consumption"?				

No storage of food or drink in refrigerators in lab?				
Waste Management				
Wastes are not discarded via trash or drain disposal unless specifically approved by the appropriate institutional authority (e.g., Chemical Safety Officer)?				
Is hazardous chemical waste generated in this area? If yes…				
Chemical inventory management/ordering system in place and checked before ordering new chemicals?				
Waste containers tightly closed unless actively adding or removing waste?				
Waste storage area has communication equipment readily available?				
Satellite Accumulation Area (SAA) is located at or near where waste is generated?				
Maximum SAA storage capacity not exceeded (55-gallons per hazardous waste stream)?				
Waste containers are in good condition (not leaking, rusted, bulging or damaged)?				
Each container is marked with the words “Hazardous Waste”?				
Each container is marked with full chemical names identifying the contents stored inside (no abbreviations or formulas)?				
Waste containers are kept closed unless adding waste?				
Waste containers storing liquid hazardous waste at or near sinks and drains are stored within secondary containment?				
Secondary containment is in good condition (e.g., free of cracks, gaps and impervious to leaks)?				
Is sharps waste (e.g., needles, syringes, scalpel blades, or other instruments that has the potential to cut, puncture, or abrade skin) generated in this area? If yes…				
Sharps wastes are immediately discarded into proper puncture resistant containers?				
Sharps containers are readily available and managed appropriately (e.g., not overfilled)?				
Is biological waste generated in this area? If yes…				
Biological waste liquids decontaminated (if applicable) prior to drain disposal?				
Biological waste solids discarded as regulated medical waste and autoclaved or disinfected as appropriate?				

This file is adapted from “Identifying and Evaluating Hazards in Research Laboratories: Guidelines developed by the Hazard Identification and Evaluation Task Force of the American Chemical Society’s Committee on Chemical Safety”.

Appendix G: References

Prudent Practices in the Laboratory (2011):

http://www.nap.edu/read/12654/chapter/1

NIOSH Pocket Guide to Chemical Hazards:

http://www.cdc.gov/niosh/npg/

Safe Science: Promoting a Culture of Safety in Academic Chemical Research (2014):

http://www.nap.edu/catalog/18706/safe-science-promoting-a-culture-of-safety-in-academic-chemical

13th Report on Carcinogens - National Toxicology Program:

http://ntp.niehs.nih.gov/pubhealth/roc/roc13/index.html

Air Products SafetyGrams on Compressed Gases:

http://www.airproducts.com/company/Sustainability/environment-health-and-safety/product-safety-safetygrams.aspx

OSHA Lab Standard:
https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10106

Adapted from: St. Louis Community College Chemical Hygiene Plan, Florissant Valley Campus, 2016. Snider, John: author. Many thanks for his generosity in sharing his institution's CHP.

Appendix H: Laboratory Accident Prevention Contract

Biological Sciences Lab Safety Agreement

1. Be prepared for lab! Read all instructions and safety precautions before your scheduled lab period starts. Also follow all written and verbal instructions given during lab.

2. Perform only authorized experiments. Do not take materials home from lab. Do not work alone in lab unless you have written permission to do so.

3. Know the locations of exits and of all safety equipment in the lab. Safety equipment includes an eyewash station, safety shower, fire extinguisher, and a brush with dustpan.

4. Personal belongings must be stored in the cubbies provided.

5. Eating, drinking (including water), handling contact lenses, applying cosmetics, and storing food for human consumption are not permitted in laboratory areas. Food and drinks must be stored outside the laboratory area

6. Wear appropriate clothing on lab days. You will not be allowed to participate in lab and will lose credit for lab if your attire presents a safety hazard.

    a. Closed-toe shoes are required in labs. Long skirts or pants and/or a lab coat or chemical-resistant apron may also be required.

    b. Tie back long hair and do not wear loose clothing or dangling jewelry when working in the laboratory.

7. Goggles must be worn whenever you (or anyone else at your lab table) is/are working with chemicals, materials that may shatter such as glass, or equipment that produces heat.

8. Pipetting by mouth is not permitted. Always use the mechanical pipetting devices provided. Work over a bench, not the floor or your feet, when transferring liquids from one container to another by any method. Use secure test tube racks or unbreakable beakers or other suitable containers when transporting samples in the laboratory.

9. Check chemical labels before use to make sure that you are using the correct chemical and the correct concentration.

10. Review instructions and the chemical label regarding the physical and chemical hazards presented by each chemical you will use. Consult the Safety Data Sheet for additional information if needed.

11. Label all containers clearly.

12. If a chemical splashes in your eyes, rinse with water immediately at the eyewash station. Continue rinsing for at least 10–15 minutes. Get medical attention if eye irritation persists.

13. If a hazardous chemical contacts your skin or clothing, immediately remove all contaminated clothing. Rinse skin with water for 15 minutes at the sink or safety shower. Seek medical attention or advice if needed.

14. Use laboratory burners, hotplates and other heating devices only as instructed. Tie back long hair and keep clothing and skin from touching any heat source. Do not leave heating devices unattended.

15. Keep all flammable materials away from heat, sparks and open flames. Read/listen to instructions and check chemical labels to determine whether materials are flammable.

16. Do not pick up broken glass with your hands. Use tongs or a brush and dustpan and dispose of broken glass only as instructed (each lab should have a designated glass trash container).

17. Use sharps such as needles and scalpels only as instructed. When carrying out a dissection use scissors rather than scalpels as much as possible.

18. Dispose of chemicals and other lab materials only as directed by the instructor. Do not pour chemicals down the drain or dispose of them in the solid trash unless specifically authorized to do so by the instructor.

19. Notify instructor immediately of all spills and injuries.

20. Notify instructor if you have a health condition that may affect your safety in the lab including allergies to lab materials, a suppressed immune system, vision or coordination problems etc. Consult your healthcare provider if needed before participating in lab.

21. Wash hands thoroughly with soap and water before leaving the lab.

I have read and understand the safety guidelines for working in the lab and I agree to abide by these guidelines.

Print Name _____

Signed _____

Date _____

Appendix I: Safety Action Plan

Webster UNIVERSITY

HEALTH AND SAFETY ACTION PLAN

Review Date: Reviewed by: Authorized by:

STEP 1 – ENTER INFORMATION ABOUT THE ACTIVITY/TASK, ITS LOCATION AND THE PEOPLE COMPLETING THE RISK ASSESSMENT

Location name:	**Building No.:**	**Room No.:**	**Date:**	**Prepared by:**	**Chemical Hygiene Committee representative:**
Associated Risk Assessment No.:	**Employees/Students undertaking the activitiy:**				
Description of how the plant/equipment is used or the activity:					

STEP 2 – HEALTH & SAFETY ACTION PLAN

Where additional and/or proposed controls have been identified in a health and safety risk assessment complete the Health & Safety: Action plan.

- Order the controls into **short term, medium term** and **long term risk control priorities**;
- List the **proposed control** against the relevant **category**;
- Identify the **person responsible** for the proposed control;
- Review the Health & Safety: Action plan regularly and update the **progress** status for each proposed control; and
- Identify the **due date** for the additional and/or proposed controls to occur.

Short Term Risk Control Priorities					
No.	**Category**	**Proposed Control**	**Person Responsible**	**Progress**	**Due Date**

MEDIUM TERM RISK CONTROL PRIORITIES					
No.	**Category**	**Proposed Control**	**Person Responsible**	**Progress**	**Due Date**

Long Term Risk Control Priorities					
No.	**Category**	**Proposed Control**	**Person Responsible**	**Progress**	**Due Date**

STEP 3 – CONSULTATION PROCESS

STEP 3 – CONSULTATION PROCESS

Determine the person responsible for reviewing and implementing the Health & Safety: Action plan.

Obtain the authorization of the Department Chair.

Ensure the Chemical Safety Officer has been consulted. Ensure the personnel undertaking the activity have been consulted.

Record below the names of the persons consulted.

Department Chair		**Chemical Safety Officer**	
Employee/Student		**Employee/Student**	
Employee/Student		**Employee/Student**	
Person Responsible for implementation or escalation			

STEP 4 – COMPLETE THE IMPLEMENTATION OF THE PLAN

On the completion and review of the Health & Safety Action Plan, the responsible **management representative signs off** the following declaration.

1. The controls have been implemented as described.
2. The controls have eliminated or reduced the risk.

Department Chair:	**Signature:**	**Date:**

Appendix J: Hazardous Waste Management Policy

J.1.1 DEFINITION OF HAZARDOUS WASTE

A Hazardous Waste is any substance that: exhibits certain characteristics as defined by federal and Missouri rules and regulations, is unusable or unwanted in any way and poses a potential hazard to individuals, the environment or public health. To be considered hazardous waste, the material must possess at least one of the following qualities:

- Flammability
- Reactivity
- Toxicity
- Corrosivity

J.1.2 EXAMPLES OF HAZARDOUS WASTE:

- Opened surplus chemicals
- Unwanted products and material generated during a laboratory experiment
- Expired or off-specification chemicals (in containers that have been opened)
- Empty chemical drums containers with a capacity over 10 gallons
- Non-returnable gas cylinders and lecture bottles or pressurized chemicals
- Residue of spill clean-up materials-contaminated rags and absorbents
- Carcinogens and cytotoxic (antineoplastic) agents
- Non-radioactive lead shielding, lead blocks and lead scrap
- Photographic film processing solutions
- Used solvents
- Thermometers and other items containing mercury
- Paint, paint thinners, brush cleaners, linseed oil,
- Heavy metal-containing waste or products (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver).

J.1.3 SPECIAL WASTE TYPES:

The following categories of waste have additional disposal requirements and should NOT be mixed with regular hazardous waste. Contact the Chemical Safety Officer if you wish to dispose of any of these materials.

- Used oil --- motor, vacuum pump, lubricating
- Pesticides
- Batteries (any type)
- Prescription drugs and controlled substances,
- Solvent- or thinner-contaminated rags

J.2.1 HAZARDOUS WASTE DISPOSAL PROCESS

1) Collect Hazardous Waste in sturdy leak-proof containers for disposal

- Do not use the sinks or surrounding areas for handling, storing, or disposing of hazardous chemicals.
- Do not dispose of hazardous chemicals via the sink or in the trash.
- Evaporation is NEVER an acceptable waste disposal or minimization method.
    - Only insignificant, residual amounts of water associated with rinsed glassware or rinsed containers may be removed by evaporation.

2) Place Hazardous Waste in the proper waste stream

- Most waste will fall into one of the following categories:
    - Halogenated solvents (e.g., dichloromethane)
    - Non-polar, immiscible solvents (e.g., hexane)
    - Polar, miscible solvents (e.g., methanol)
    - Corrosive (acidic)
    - Corrosive (basic)
    - Heavy metals (contains arsenic, barium, cadmium, chromium, lead, mercury, selenium or silver)
- The highest-hazard waste streams are heavy metals, then halogenated solvents.
    - Material containing heavy metals should always be placed in a separate waste container to prevent heavy metal contamination of other waste streams. (If a few mL of heavy metal waste are added to 5 L of solvent, we have to dispose of all 5 L as heavy metal waste.)
    - Separate halogenated from non-halogenated solvents. They have different incineration requirements and must be handled differently by the waste hauler. (If a few mL of halogenated solvent are added to 5 L of ordinary non-halogenated solvent, the entire 5 L must be disposed of as halogenated material.)
- If a waste doesn't seem to fall into any of these categories, contact the Chemical Safety Officer for guidance.

3) Label waste containers

- All chemical waste containers must be properly labeled. Complete and attach a Hazardous Waste Label for any unlabeled waste containers.
- Always enter a start date (the date the first drop of material was placed in the container)
- On the waste label, identify constituents by chemical name.
    - No abbreviations, or chemical formulas!
- The label must contain the approximate amount or concentration of constituents.
    - Entering amounts or concentrations can save the department significant money, as waste haulers charge different fees for waste depending upon its composition.
    - If no concentrations or amounts are listed on the label, the waste hauler charges a higher fee to process the waste because they must assume that everything listed is present in large amounts.

4) Store waste containers properly.

- Caps must be tight. No open funnels or filling aids may be left in containers when waste is not actively being added.
- During waste collection, process waste containers (i.e., HPLC, photographic solutions) must have a cap with tight fitting hole for the fill tube.
- Never store flammables with oxidizers or acids with caustics.
- Labs must use bins for segregation and secondary containment.
- Flammable wastes are best stored in a fire rated flammables cabinet.

OTHER REMINDERS

Always wear eye/face protection, lab coat and gloves when working with hazardous chemicals.

Consult Safety Data Sheets (SDS) for more information on hazardous chemicals you may work with at Webster University

J.2.2 DISPOSAL PROCEDURES FOR SPECIFIC WASTE STREAMS

Webster University laboratories utilize and generate a wide variety of hazardous substances. This section contains information on how to handle some of the more common waste streams generated by the University.

ACIDS AND BASES

- Collect concentrated acids and bases in original containers whenever possible. This includes nitric, hydrofluoric, sulfuric, glacial acetic, hydrochloric, sodium hydroxide, ammonium hydroxide.
    - Hydrofluoric acid etches glass and must be collected in plastic containers.
    - The Chemical Safety Officer MUST be informed if you find Hydrofluoric acid in your lab. It requires special precautions to handle safely.
- Dilute acid and base solutions may be disposed of down a lab sink with copious amounts of water provided they are treated as follows:
    - Slowly stir acid into a large amount of an ice-water-to dilute to about 5% acid.
    - Prepare a base solution of one of the following: sodium carbonate (soda ash), calcium hydroxide (slaked lime), or sodium hydroxide. The base concentration should be 5 to 10 % for nitric and perchloric acids. (A one molar solution is about 4% (4 grams per 100 ml)).
    - Slowly stir diluted acid into the base solution until the pH is at least 5 but not greater than 10.
    - Slowly pour the neutralized solution down the drain with large amounts of water.
- No solvent or metal contaminated material is permitted for drain disposal.

AEROSOL CANS

If completely empty, aerosol cans may be disposed of as non-hazardous waste.

BATTERIES

Batteries are considered Universal Waste and are disposed of by the Facilities Department. There are many types of batteries on campus: lead-acid (automotive), mercury, lithium containing, ordinary household and rechargeable. Dispose of all battery types through an appropriately labeled container and call Facilities to pick up the container when full.

CADMIUM and CHROMIUM

Wastes containing more than 1ppm are regulated, so the amount of Cadmium or Chromium added to any waste container must be noted.

CHEMICAL CARCINOGENS AND MUTAGENS

If original containers or associated contaminated disposable labware are to be discarded, use an appropriately labeled container. Triple rinse empty containers and collect all rinsate as hazardous waste.

CONTAMINATED GLASSWARE

Chemically contaminated glassware, pipette tips, needles, blades and sharps are collected in a puncture-proof broken-glass container.

CYANIDES

Cyanides, nitrites and sulfides are among the most toxic and rapidly acting substances found in a chemical lab. Symptoms of toxicity occur if these materials are swallowed, inhaled or absorbed through the skin. Keep in locked and secure locations. Always use secondary containers to help prevent breaks or spills. Use an appropriately labeled container for disposal.

DRAIN DISPOSAL

The range of substances that can be potentially hazardous is enormous. Almost any substance can be a hazardous waste if it is disposed of in large quantities or in high concentrations. Federal and state hazardous waste laws permit laboratories to dispose of small amounts of some chemicals in quantities that do not pose a hazard to human health or the environment. It is the policy of Webster University to prohibit the drain disposal of all potentially hazardous chemicals and take a more conservative approach when confronted with a less defined disposal situation.

- Suitable for Drain Disposal: See section J.2.3
- NOT Suitable for Drain Disposal
    1. Inherently toxic, malodorous or lachrymatory chemicals
    2. Solutions containing heavy metals
    3. Flammable liquids (flash point < 140◦F) of any type.
    4. Organic solvents—methanol, acetone, hexane, chloroform, etc
    5. Paint and paint thinner
    6. Poisons, carcinogens, teratogens or embryotoxins
    7. Toxic dyes and stains
    8. Sodium azide
    9. Strong acids and bases (either in pH extremes/concentration)
    10. Chromic/sulfuric acid cleaning solutions
    11. Photographic fixer
    12. Motor oil, gasoline, degreasing solutions, antifreeze or other automotive fluid
    13. Pesticides

ETHER

Ether is a highly flammable liquid and can form potentially explosive peroxides over time. Containers of ether must be dated when opened and tested periodically for the presence of peroxides. Ether must be collected using an appropriately labeled container. Ether cans have expiration dates on the label. Dispose before they expire.

ETHIDIUM BROMIDE (ETBR) & PROPIDIUM IODIDE

Ethidium bromide staining and running buffer solutions must be disposed using an appropriately labeled container. For the collection of acrylamide gels that contain ethidium bromide, dispose of in a

five-gallon plastic pail.

Never use bleach to treat EtBr wastes. This actually increases toxicity.

NOTE: SYBR Safe® is sold as a safer alternative to Ethidium Bromide. It is less toxic and the stain and gels can be disposed as regular waste. SYBR Safe can be used in the same manner as solutions of EtBr. Tests indicate that it is just as, if not more sensitive than EtBr. It can also be read in the same manner with a standard UV or visible light trans-illuminator, or laser based scanner. SYBR Safe is provided ready to use as a concentrate, it can be cast directly in the gel or used as a post stain. It may also be used to stain RNA in gels. Recommended storage time is six months at room temperature.

FORMALIN/FORMALDEHYDE/GLUTARALDEHYDE/ PARAFORMALDEHYDE

Unwanted or unused formalin or formaldehyde must be disposed of in an appropriately labeled container.

NITRITES

Cyanides, nitrites and sulfides are among the most toxic and rapidly acting substances found in a chemical lab. Symptoms of toxicity occur if these materials are swallowed, inhaled or absorbed through the skin. Keep stored in locked and secure locations. Always use secondary containers to help prevent breaks or spills. Use an appropriately labeled container for disposal.

OILS

Uncontaminated instrument and machine oils such as centrifuge, diffusion pump and vacuum pump oils must be collected in plastic containers and labeled appropriately. Oils found in X-Ray machines and other similar devices may contain PCB's (polychlorinated biphenyls), especially if the equipment is old. DO NOT MIX PCB CONTAMINATED OIL WITH OTHER OILS.

PEROXIDE FORMING COMPOUNDS

Certain chemicals (such as isopropyl ether, diethyl ether, dioxane, 2-butanol and tetrahydrofuran) can form organic peroxides if they are exposed to air, become more concentrated, or age. These compounds may violently explode when combined with certain other compounds (i.e., metals) or when exposed to heat, shock, friction, light, or static discharge.

- Never move or open a container if crusty deposits formed on the material or its container, an oily, viscous layer appeared, or there are solids on the bottom.
- Clearly and explicitly label chemicals known to form peroxides.
- Always date the container when received and when opened.
- Limit the on-hand stock to a three (3) month supply or less.
- Air dry empty containers under the hood, flush with water, deface the label and put containers in the glass disposal container.
- Store away from heat and light.
- Protect from ignition sources, physical damage, contact with strong reducing agents or oxidizers, or other contamination.
- Ensure air-tight closures on containers, purge head space with nitrogen when possible.

- Keep a minimal working inventory.
- Never store in a freezer. Use explosion-proof or explosion-safe refrigerators, as needed.
- Never store in glass bottles with glass stoppers.
- Never attempt to clean containers that were used to store peroxide forming compounds by scraping or rubbing, especially if an oily deposit or crusty residue is present.
- Test for peroxide concentration before distilling or concentrating peroxide formers.
- Prevention of unwanted peroxides is paramount. Stabilization and disposal can cost up to $8,000 per container.

PESTICIDES

If old pesticides are found, please contact the head of Facilities.

PHARMACEUTICALS

The possession of controlled substances is only permitted with a valid DEA license. Keep Drug Enforcement Administration (DEA) regulated drugs under lock and key security until time of pick up.

PHENOL/CHLOROFORM

1. Collect liquid mixtures using labeled containers. Indicate percentages on the label.

2. Phenol/Chloroform-contaminated labware such as pipette tips and Eppendorf tubes with small volumes of liquid must be collected using an appropriately labeled container.

It is not acceptable to throw this type of waste into general trash containers, autoclave in biohazard bags, or dispose of as biological waste. It must be disposed of as hazardous chemical waste.

REACTIVES

Chemicals that are considered reactive can react violently with air, water or other substances and also have the potential to explode. These chemicals include sodium azide, picric acid, sodium cyanide and perchloric acid.

Segregate oxidizers from flammable and combustible materials, organic material and reducers;

Pyrophoric chemicals ignite spontaneously on contact with air. Keep these chemicals in a glove box.

Store breakable glass bottles inside a plastic bottle carrier.

Shock-sensitive and/or explosive materials (benzoyl peroxide) can spontaneously release large amounts of energy when struck, shaken, dropped or agitated. Some chemicals become increasingly shock sensitive with age. Inspect these regularly for degradation and dispose of promptly. Consult the Safety Data Sheet (SDS) before working with reactives.

Never contaminate reactive chemicals with heavy metals or incompatibles.

SODIUM AZIDE

Sodium azide is commonly used in low concentrations as a microbiocide to preserve samples. Avoid exposure to the pure material. Avoid weighing the solid by adding solvent to the material and diluting to working concentrations. Take care not to contaminate pure sodium azide with metals or foreign materials as this can lead to the formation of explosive metal azides. If used as a microbiocide,

purchase sodium azide in solution. Azide solutions can also form explosive metal azides in drain pipes. Collect solutions and pure material for disposal in an appropriately labeled container. Best practice is to make azide waste solutions basic >pH 10 before moving them to the waste closet.

SOLVENTS

All solvents must be collected using an appropriately labeled container. Aqueous, halogenated and non-halogenated waste streams should be separated. Halogenated solvents include methylene chloride and chloroform. Non-halogenated solvents include methanol, acetone and xylene. List all chemical constituents on the waste label. This includes any metals. The pH also is very important to note on the waste label. No excess solids or debris is allowed. For laboratories using large volumes of certain solvents, it may be possible to distill or purify these solvents for reuse. Consult the Chemical Safety Officer if you wish to explore this possibility.

STAINING SOLUTIONS

Staining solutions such as Wright's, eosin, iodine and methylene blue stains must be in an appropriately labeled container. You must list the solvent identity and concentration on the waste label (i.e., water, glacial acetic acid, 100% methanol).

SULFIDES

Cyanides, nitrites and sulfides are among the most toxic and rapidly acting substances found in a chemical lab. Symptoms of toxicity occur if these materials are swallowed, inhaled or absorbed through the skin. Store in locked and secure locations. Always use secondary containers to help prevent breaks or spills. Use an appropriately labeled container for disposal.

SCIENTIFIC EQUIPMENT- SURPLUS, REPAIR OR DISPOSAL

Any piece of scientific equipment must be carefully surveyed and decontaminated when it may have been in contact with potentially hazardous chemicals or biohazards.

J.2.3 SANITARY SEWER OR ORDINARY REFUSE DISPOSAL

Only dilute solutions of non-toxic materials shall be disposed of in the sanitary sewer system. This includes most normal biological metabolites and nontoxic cellular constituents (proteins, nucleic acids, carbohydrates, soluble fats, and their precursors and catabolites, common sugars, amino acids, non-toxic common salts (NaCl, MgCl2, etc) and biological buffers with pH between 5-10. (Phosphate buffers, saline, Tris, etc.).

Note that acid or base solutions containing organic or inorganic impurities (e.g. base baths or acidic solutions used to clean glassware) must not be flushed down the drain even if neutralized. These solutions must be collected for hazardous waste disposal in an appropriately labeled container.

In general, only the non-hazardous laboratory chemicals in the following table may be placed into the ordinary refuse (garbage) for disposal. Non-hazardous materials in aqueous solution may be poured down the drain with the exception of >2% slurries of sand-, earth-, gypsum-, cement or other insoluble material. Materials that do not appear on these lists MUST be collected for disposal by the Chemical Safety Officer.

Acids, pH>5	Calcium oxide	L-cysteine	Sephadex
Actin	Calcium phosphate	L-glutamic acid	Silica Gel
Agar	Calcium sulfate	L-histidine	Sodium borate
Agarose	Citric acid	L-leucine	Sodium bicarbonate
Alcohol <24%	Collagen	Lactose monohydrate	Sodium carbonate
Alanine	Dextrin	Lysine hydrochloride	Sodium chloride
Albumin, bovine	EDTA (acid free)	Maltose	Sodium citrate
Alumina	EDTA disodium salt	Manganese chloride	Sodium phosphate
Aluminum oxide	Egg albumin	Manganese sulfate monohydrate	Sodium sulfate
Ammonium acetate	Ferric citrate	Mannitol	Sorbitol
Ammonium phosphate dibasic	Ferric oxide	Magnesium borate	Stannic oxide
Ammonium sulfate	Ferrous sulfate hexahydrate	Magnesium carbonate	Stannous oxide
Amylase	Fetal bovine serum	Magnesium chloride	Starch
Amylose	Folic acid	Magnesium oxide	Sugars
Antifoam E Emulsion	Fructose	Magnesium phosphate	Tetraethylammonium chloride monohydrate
Asparagine	Gelatin	Magnesium sulfate	Thiamine hydrochloride
Aspartic acid	Glucose	Niacin	Tin
Bases, pH <10	Glutamic acid	Pectin	Titanium oxide
Boric Acid	Glycerol	Potassium borate	Tris base
Calcium acetate	Glycine	Potassium carbonate	Trypsin
Calcium borate	Glycogen	Potassium chloride	Yeast extract
Calcium carbonate	Inositol	Potassium phosphate	Zinc oxide
Calcium chloride	Iron	Potassium sulfate	
Calcium citrate	Iron oxide	Riboflavin	

NOTE THAT LIQUID NITROGEN OR DRY ICE MUST NEVER BE PLACED IN THE SINKS, AS THEY CAN CRACK THE SINK AND CAUSE DAMAGE TO THE PLUMBING.

J.3.1 WASTE MINIMIZATION

The Environmental Protection Agency's (EPA's) policy for hazardous waste management places the highest priority on waste minimization.

Waste minimization is any action that:

- Decreases the amount of hazardous waste generated, or
- Reduces the inherent toxicity of the waste.

The costs associated with the proper disposal of chemical wastes and the safe storage of chemicals in the research laboratory are inextricably linked. Researchers are encouraged to limit the amount of chemicals purchased. It is easier to order additional chemicals than to dispose of unwanted or unused surplus chemicals. REMEMBER: The disposal cost can exceed ten times the cost of the chemical.

In some cases, there are no acceptable waste disposal options.

Rethink how you purchase, handle and store laboratory chemicals to control the increasing costs of proper chemical waste disposal and the inherent hazards of storing and working with hazardous chemicals.

Waste minimization benefits you, the university and the environment by:

- Significantly lowering costs;
- Reducing potential health hazards;
- Reducing potential long-term liabilities for disposal;
- Promoting environmental ethics; and
- Preventing pollution.

It is the responsibility of every investigator who generates waste to incorporate the principles of waste minimization into experimental design.

J.3.2 SOURCE REDUCTION AND WASTE MINIMIZATION TIPS

- Substitute less hazardous chemicals whenever possible.
- When planning experiments or demonstrations, examine all wastes generated and ask how they could be minimize.
- Reduce the scale of processes so that less waste is generated.
- Evaporation under the hood (or on the bench) is NEVER an acceptable waste minimization method
- Minimize the volume of prepared solutions containing mercury and heavy metals.
- Clearly mark the contents of all chemical containers to prevent the generation of unknowns.
- Actively manage the inventory of all hazardous materials used in your laboratory or work location.
- Ask others in your department if they could use your unwanted chemicals.
- Neutralize, quench or destroy hazardous by-products as the last step in experiments.
- Separate halogenated from non-halogenated solvents.
- Separate aqueous and solvent wastes if possible.

Appendix K: Dept Chemical Safety Summary—Biological Sciences

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure

Departmental "Cheat Sheet" for Chemical Safety Procedures

Department Name: **Biological Sciences**

Person responsible for Chemical and/or Hazardous Waste: Nora Dunkel

Phone: 314-246-2244 (office)
661-348-1445 (cell)

Email: noradunkel51@webster.edu

Office: ISB/Browning Hall 402

Poison Control:	**1-800-222-1222**
Public Safety:	**314-968-6911**
CSO:	**314-246-2244**

Hazards Present in Department:

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
Acetonitrile	• Flammable • Chronic health effects	Flammables cabinet	• Heat • Sparks • Static electricity • Oxidizers • Acids • Reducing agents • Bases	Collect in "Flammable waste-polar" container. When a container is full, contact CSO for disposal as hazardous waste.	*Small spills:* Isolate the area, shut off ignition sources. Cover spilled liquid with kitty litter, then sweep up and place in "Spilled flammables" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety.	**Immediate medical attention is required for exposure by all routes.** *Eye/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately. Call Public Safety. *Ingestion/Inhalation:* Immediately call Poison Control and Public Safety. Move to fresh air.	• Breathing difficulties • Headache • Dizziness • Fatigue • Nausea/Vomiting **Metabolism may release cyanide,** which may result in the above symptoms, as well as weakness, collapse, unconsciousness, and possible **death**.

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
Bases, strong (NaOH, KOH, etc)	• Corrosive • Harmful if swallowed	Base cabinet (or separate bin within acid cabinet)	• Acids • Metals • Water • Heat	Collect in "Corrosive waste-basic" container (glass or HDPE. NOT METAL!) When a container is full, contact CSO for disposal as hazardous waste.	*Small spills:* Isolate the area. Cover spilled liquid with citric acid or sodium bicarbonate, then sweep up and place in "Corrosive Waste" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety.	*Eyes/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately. For all eye exposures and more than incidental skin exposures, call Public Safety. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation* Immediately call Poison Control and Public Safety.	*Inhalation* • Severe burns • Choking *Skin* • Severe burns *Ingestion:* • Severe swelling, • Perforation of stomach or esophagus • Severe damage to delicate GI tissue. *Eye* • Severe burns • Possible blindness
Compressed flammable gas (hydrogen, propane, etc)	• Flammable • Compressed gas • Toxic-asphyxiant	Double chained to wall or other immovable restraint, in a well-ventilated and spark-free space.	• Flame • Heat • Sparks • Oxidizers	<u>Small tanks:</u> Collect in Flammables Cabinet (in waste closet) for recycling. <u>Large cylinders:</u> Mark cylinder as "empty", return to cylinder storage room and secure with 2 chains.	"Spill" means uncontrolled release of gas from cylinder: Evacuate immediately and call Public Safety.	*Inhalation:* Move to fresh air and keep at rest. If breathing is difficult, immediately call Poison Control and Public Safety. *Skin exposure:* In case of frostbite, spray with water for at least 15 minutes. Call Public Safety for medical assistance.	• Asphyxiation • Unconsciousness • Drowsiness • Freeze burns • Cough • Shortness of breath • Dizziness • Coordination loss *Symptoms may vary, depending on exact material exposed to*

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
Compressed gases, air-replacing	• Compressed gas • Toxic-asphyxiant	Double chained to wall or other immovable restraint, in a well-ventilated and spark-free space.	• Heat	Mark cylinder as "empty", return to cylinder storage room and secure with 2 chains.	"Spill" means uncontrolled release of gas from cylinder: Evacuate immediately and call Public Safety.	*Inhalation:* Move to fresh air and keep at rest. If breathing is difficult, immediately call Poison Control and Public Safety. *Skin exposure:* In case of frostbite, spray with water for at least 15 minutes. Call Public Safety for medical assistance.	• Asphyxiation • Unconsciousness • Drowsiness • Freeze burns • Cough • Shortness of breath • Dizziness • Coordination loss *Symptoms may vary, depending on exact material exposed to*
Compressed oxygen gas (and other oxidizing gases)	• Compressed gas • Reactive (oxidizer)	Double chained to wall or other immovable restraint, in a well-ventilated and spark-free space.	• Flame • Heat • Sparks • Fuel	Mark cylinder as "empty", return to cylinder storage room and secure with 2 chains.	"Spill" means uncontrolled release of gas from cylinder: Evacuate immediately and call Public Safety.	*Inhalation:* Move to fresh air and keep at rest. If breathing is difficult, immediately call Poison Control and Public Safety. *Skin exposure:* In case of frostbite, spray with water for at least 15 minutes. Call Public Safety for medical assistance.	• Asphyxiation • Unconsciousness • Drowsiness • Freeze burns • Cough • Shortness of breath • Dizziness • Coordination loss *Symptoms may vary, depending on exact material exposed to*
Cyanate salts/ Cyanide salts *anything with (CN) in formula*	• Toxic • Irritant • Carcinogen (some) **Many cyanide salts are P-listed**	Locked cabinet.	• Acids • Ammonia • Heat **Contact with these can generate toxic**	Collect in designated "Cyanide Salts Waste Container". NO OTHER WASTE	If material contacts anything acidic, IMMEDIATELY EVACUATE THE BUILDING and call Public Safety. Inform them of the presence of cyanide	**IMMEDIATELY CALL POISON CONTROL** and Public Safety, regardless of exposure route or amount. TIME IS OF THE ESSENCE! 150 ppm of cyanide gas can be fatal in	*Salts:* Headache, nausea, thyroid effects, respiratory irritation. *Cyanide Gas*: **death,** coma, convulsions, paralysis, rash, nausea, chest pain,

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
	(waste pickup every 6 mos). Check with CSO if you use this material!		**cyanide gas**	SHOULD BE PLACED IN THIS CONTAINER When a container is full, contact CSO for disposal as hazardous waste. **P-listed.** If container is getting close to 6 months old, contact CSO to ensure prompt disposal	gas. *Small spills:* Solids—sweep up and place in the Cyanide Waste container. Solutions—cover spilled liquid with kitty litter, then sweep up and place in Cyanide Waste container. *Large spills:* Evacuate and call Public Safety	just 30 minutes. Can be absorbed through skin, eyes, mucous membranes, ingestion, and via inhalation.	irregular heartbeat, blindness, bluish skin color, suffocation, lung congestion.
Ethidium bromide	• Toxic-Fatal if inhaled • Harmful • Reproductive hazard • Chronic health effects	Cool, dark place	• Heat • Spark sources • Oxidizers	Place in designated "Toxic Waste" container. When a container is full, contact CSO for disposal as hazardous waste.	*Solid Spills:* Sweep up spilled material and place in designated "Spilled Ethidium Bromide" container. Contact CSO for disposal. Avoid dust formation. *Liquid Spills:* Isolate the area. Cover spilled liquid with kitty litter, then sweep up and place in "Spilled	*Eyes/Skin:* Rinse with running water for 15 minutes. For skin exposures, scrub with soap and water, and immediately remove contaminated clothing. For all eye exposures and more than incidental skin exposures, call Public Safety. *Ingestion:* Immediately call Poison Control and Public Safety.	*Inhalation* • Irritation • Possible genetic effects *Skin* • Irritation • Possible genetic effects *Eye* • Irritation • Possible genetic effects

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
					Ethidium Bromide" container. Contact CSO for disposal *<u>Large spills:</u>* Evacuate immediately and call Public Safety.	*Inhalation:* Move to fresh air and keep at rest. Immediately call Poison Control and Public Safety.	
Fluoride salts	• Toxic • Reactive • Irritant	Cool place. Segregate from acids and acidic compounds	• Acids (makes HF) • Water • Moisture	Collect in specified "reactive waste—Fluorides" container. Add water with each addition to keep concentrations low. When a container is full, contact CSO for disposal as hazardous waste.	*<u>Solid Spills</u>*: Sweep up spilled material and place in designated "Spilled Fluorides" container. Contact CSO for disposal. *<u>Liquid Spills:</u>* Isolate the area. Cover spilled liquid with kitty litter, then sweep up and place in "Spilled fluorides" container. Contact CSO for disposal *Large spills:* Evacuate immediately and call Public Safety.	*Eyes/Skin:* Immediately call Poison Control and Public Safety. Rinse with running water for 15 minutes. Remove contaminated clothing immediately. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air and immediately call Poison Control and Public Safety.	• Nausea • Headache • Cramps • Vomiting • Flu-like symptoms • Eye irritation • Skin irritation • Toxic if swallowed
Formaldehyde	• Toxic • Flammable • Corrosive • Chronic health effects	Flammables cabinet	• Strong oxidizers • Phenol • Hydrochloric acid • Bases	Collect in "Formaldehyde waste" container. When a container	*Small spills:* Isolate the area, shut off ignition sources. Cover spilled liquid with	*Eyes/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately.	*Inhalation* • Toxic *Skin* • Toxic

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
	• Possible Carcinogen • Irritant		• Strong acids • Strong oxidizers • Heat • Flame • Ignition sources	is full, contact CSO for disposal as hazardous waste.	kitty litter, then sweep up and place in "Spilled formaldehyde" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety	For all eye exposures and more than incidental skin exposures, call Public Safety. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Immediately call Poison Control and Public Safety.	• Burns • Allergic reaction (chronic exposure) *Ingestion:* • Toxic *Eye* • Irreversible damage • Possible blindness
Halogens (Bromine, Iodine)	• Reactive (oxidizers) • Toxic • Fatal (inhaled) • Corrosive • Environmental Haz	Dark, well-vented cabinet or room.	• Reducing agents • Heat • Acids • Polyethylene • Powdered metals • Alkali metals • Stainless Steel • Iron • Copper • Organic material • Rubber • Aldehydes • Ketones • Amines • Amides • PHENOLS • Alcohol • Arsenic powder Violently incompatible:	Collect in designated "Reactive Halogen Waste waste" container; made of GLASS. When a container is full, contact CSO for disposal as hazardous waste.	***For spills outside hood*** <u>Bromine</u> (all spills): Evacuate building, then call Public Safety and CSO. <u>Iodine:</u> *Small spills:* • Evacuate room • Contact CSO for cleanup. *Large spills*: • Evacuate building, • Call Public Safety • Call CSO	*Eyes/Skin:* • Immediately take off contaminated clothing/shoes • WASH with soap and plenty of running water for 15 minutes. Remove contaminated clothing. • Call Public Safety and IMMEDIATELY TRANSPORT TO HOSPITAL • Continue rinsing eyes during transport to hospital *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air	*Inhalation* • Cough/wheezing • laryngitis • shortness of breath • Nausea/Vomiting • Headache • Cyanosis • Respiratory disorders • Nose bleeding • Vertigo • Hoarseness • Cardiovascular effects • Irritability • Loss of appetite *Skin* • Severe skin burns *Ingestion* • Burns • Nausea/Vomiting

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
			• Amines • Ammonia • Azides			and keep at rest. Immediately call Poison Control and Public Safety.	• Headache, • Cyanosis • Abdominal pain • Diarrhea • Hoarseness • Cardiovascular effects • Irritability *Eye* • Severe eye damage • Lachrymation, • Burning sensation
Heavy metal compounds (Ag, Ba, Cr, Cd, Pb)	• Toxic • Environmental hazard • Irritant (some) • Chronic health effects (some) • Reproductive hazard (some) • Developmental toxin (some) • Carcinogen (some) • Corrosive (some)	Cool, dry place.	• Strong oxidizers • Heat • Moisture	Place in designated "Heavy Metal Waste" container. When a container is full, contact CSO for disposal as hazardous waste.	*Solid Spills:* Sweep up spilled material and place in designated "Spilled Heavy Metals" container. Contact CSO for disposal. *Liquid Spills*: Isolate the area. Cover spilled liquid with kitty litter, then sweep up and place in "Spilled Heavy metals" container. Contact CSO for disposal *Large spills:* Evacuate immediately and call	*Eyes/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately. For all eye exposures and more than incidental skin exposures, call Public Safety. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air and keep at rest. Call Poison Control and Public Safety.	*Varies based on compound*

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
					Public Safety.		
Liquid nitrogen	• Cryogen (burns) • Asphyxiation	Designated Dewar	N/A	<u>Small amounts:</u> Allow to evaporate in chemical fume hood. <u>Large amounts</u> (remaining in dispensing dewar): Contact gas supplier for dewar removal.	*Large spills:* Evacuate and call Public Safety	*Inhalation:* Move to fresh air and keep at rest. If breathing is difficult, immediately call Poison Control and Public Safety. *Skin exposure:* In case of frostbite, spray with water for at least 15 minutes. Call Public Safety for medical assistance.	*Inhalation:* • Asphyxiation • Loss of consciousness • Drowsiness • Cough • Shortness of breath • Dizziness • Loss of coordination *Skin* • Freeze burns
Mercury (elemental and salts)	• Toxic • Reactive (explosive) (salts) • Repro Toxin • Chronic health effects • Environmental Haz	Locked cabinet.	• Fulminates	Place in designated "Heavy Metal Waste" container. When a container is full, contact CSO for disposal as hazardous waste.	*Small spills* (1 thermometer): Evacuate the room, close the door and call CSO for cleanup. Do NOT use a broom! This actually spreads mercury further. *Large spills* (more than 1 thermometer): Evacuate and call Public Safety.	*Eyes/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately Call Public Safety. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air and keep at rest. Call Poison Control and Public Safety immediately.	*Acute exposure:* • Neurological disorders • CNS depression • Kidney effects • Liver effects • Developmental effects *Chronic exposure:* • Brain damage • CNS damage • Developmental effects
Metal powders	• Reactive • Spontaneously flammable in	Glass dessicator in cool, dry	• Fuel • Air • Oxidizers	Collect in designated glass "Powdered metal	*Small spills:* Remove all sources	*Skin:* Brush off loose particles from skin. Immerse in cool	*Eye:* • Irritation (temporary)

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
	air • Flammable • Environmental hazard	place.	• Water • Heat • Ignition sources • Strong acids • Strong bases • Amines	waste" container. When a container is full, contact CSO for disposal as hazardous waste.	of ignition. **Do not expose spill to water**. Sweep up spillage using spark-proof tools and collect in "spilled metal powder" container for disposal. Avoid dust formation. *Large spills:* Evacuate immediately and call Public Safety.	water/wrap with wet bandages. For more than incidental skin exposure, call Public Safety. *Eye:* Rinse with running water for 15 minutes. Call Public Safety. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air. Call Public Safety if symptoms occur.	
Methanol	• Flammable • Toxic • Chronic health effects	Flammables cabinet	• Oxidizers • Strong acids • Acid anhydrides • Acid chlorides • Strong bases • Metals • Peroxides	Collect in "Flammable waste-polar" container. When a container is full, contact CSO for disposal as hazardous waste.	*Small spills:* Isolate the area, shut off ignition sources. Cover spilled liquid with kitty litter, then sweep up and place in "Spilled flammables" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety.	*Eye/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately. For more than incidental exposures, call Public Safety. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air and keep at rest. If breathing is difficult, immediately call Poison Control and Public Safety.	**Symptoms may appear more than 30 hours post-exposure. Call Poison Control for anything more than incidental exposure.** *Inhalation* • Blurry vision • Nausea • Drowsiness • Resp. irritation • Headache • Dizziness • CNS effects *Skin exposure:* • Dermatitis

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
							• **May cause inhalation symptoms** *Ingestion:* • Death • Blindness • Coma • Organ damage • Edema • Narcosis • Nausea • Headache • **May cause inhalation symptoms** *Eye exposure:* • Irritant *Chronic exposure:* • Tremors • CNS changes • Blindness • Death
Mineral acids, oxidizing (e.g., nitric, sulfuric)	• Corrosive • Reactive (oxidizers) • Toxic	Acid cabinet	• Fuel • Heat • Water • Oxidizers • Reducing agents • Powdered metals • Peroxides • Flammables • Organics	Collect in "Corrosive waste-acids" container (glass or HDPE. NOT METAL!) When a container is full, contact CSO for disposal as hazardous	*Small spills:* Isolate the area. Cover spilled liquid with sodium bicarbonate, then sweep up and place in "Corrosive Waste" container. Contact CSO for disposal.	*Eyes/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately. For all eye exposures and more than incidental skin exposures, call Public Safety.	*Inhalation* • Severe burns • Choking *Skin* • Severe burns *Ingestion:* • Severe swelling,

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
			• Textiles • Bases • Ammonia	waste.	*Large spills:* Evacuate and call Public Safety.	*Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air and keep at rest. Call Poison Control and Public Safety.	• Perforation of stomach or esophagus • Severe damage to delicate GI tissue. *Eye* • Severe burns • Possible blindness
Mineral acids, non-oxidizing (e.g., HCl)	• Corrosive • Irritant	Acid cabinet	• Bases • Light • Metals • Strong oxidizer • Air • Heat	Collect in "Corrosive waste-acids" container (glass or HDPE. NOT METAL!) When a container is full, contact CSO for disposal as hazardous waste.	*Small spills:* Isolate the area. Cover spilled liquid with sodium bicarbonate, then sweep up and place in "Corrosive Waste" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety.	*Eyes/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately. For all eye exposures and more than incidental skin exposures, call Public Safety. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air and keep at rest. Call Poison Control and Public Safety.	*Inhalation* • Severe burns • Choking *Skin* • Severe burns *Ingestion:* • Severe swelling, • Perforation of stomach or esophagus • Severe damage to delicate GI tissue. *Eye* • Severe burns • Possible blindness
Nitrate and nitrite salts	• Reactive (oxidizer) • Toxic (nitrites) • Irritant • Chronic health effects	Cool, dark place. Segregate from reducing agents and	• Ammonium salts (explosive combo) • Combustibles • Textiles • Flammables • Heat	Collect in specified "reactive waste—Oxidizers" container. Add water with each addition to keep	<u>*Solid Spills*</u>: Sweep up spilled material and place in designated "Spilled Nitrates" container. Contact CSO for disposal.	*Eyes/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately. For all eye exposures and	*Inhalation* • Irritation • Cyanosis • Chemical asphyxiation *Skin* • Irritation

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
		fuel.	• Moisture • Reducing agents • Oxidizers	concentrations low. When a container is full, contact CSO for disposal as hazardous waste.	<u>*Liquid Spills:*</u> Isolate the area. Cover spilled liquid with kitty litter, then sweep up and place in "Spilled nitrates" container. Contact CSO for disposal *Large spills:* Evacuate immediately and call Public Safety.	more than incidental skin exposures, call Public Safety. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air and keep at rest. Call Poison Control and Public Safety.	• Cyanosis • Chemical asphyxiation *Eye* • Irritation • Cyanosis
Organic acids (e.g., acetic acic)	• FLAMMABLE • Corrosive	Flammables cabinet	• Bases • Heat • Ignition sources • Oxidizers • Metals	Collect in "Corrosive waste-acids" container (glass or HDPE. NOT METAL!) When a container is full, contact CSO for disposal as hazardous waste.	*Small spills:* Isolate the area. Cover spilled liquid with sodium bicarbonate, then sweep up and place in "Corrosive Waste" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety.	*Eyes/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately. For all eye exposures and more than incidental skin exposures, call Public Safety. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air and keep at rest. Call Poison Control and Public Safety.	*Inhalation* • Severe burns • Choking • Headache • Dizziness • Fatigue • Nausea/Vomiting *Skin* • Severe burns *Ingestion:* • Severe swelling, • Perforation of stomach or esophagus • Severe damage to delicate GI tissue. *Eye* • Severe burns

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
							• Possible blindness
Oxidizers, misc (Conc H2O2, bleach, etc)	• Reactive (oxidizers) • Corrosive • Harmful to health • Environmental hazard	Cool, dark place. Segregate from flammables and reducing agents.	• Fuel • Flammables • Combustible material • Metals • Strong bases • Reducing agents	Collect in "Reactive waste-oxidizers" container. When a container is full, contact CSO for disposal as hazardous waste.	<u>*Small spills:*</u> Isolate the area. Cover spilled liquid with kitty litter, then sweep up and place in "Spilled oxidizer waste" container. Contact CSO for disposal. <u>*Large spills:*</u> Evacuate and call Public Safety.	*Eyes/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately. For all eye exposures and more than incidental skin exposures, call Public Safety. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air and keep at rest. Call Poison Control and Public Safety.	*Inhalation* • Burns *Skin* • Burns *Ingestion* • Burns *Eye* • Burns
Peroxide-Forming Acids: Perchloric acid and salts	• PEROXIDE FORMERS • Oxidizer • Reactive • Corrosive • Chronic health effects	Acid cabinet WRITE DATE OF RECEIPT AND OF OPENING ON BOTTLE Test for peroxides	• Flammables • Combustibles • Metals • Heat • Strong oxidizers • Powdered metals • Organic materials • Amines • Alcohols • Reducing agents	Collect in "reactive perchloric acid waste" container. Always add some water to container with waste (to minimize crystallization risk) When a container	<u>*Small spills:*</u> Isolate the area. Cover spilled liquid with kitty litter, then sweep up and place in "Spilled perchloric acid" container. Contact CSO for disposal. <u>*Large spills:*</u> Evacuate and call Public Safety.	*Eyes/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately. For all eye exposures and more than incidental skin exposures, call Public Safety. *Ingestion:* Immediately call Poison Control and Public	*Inhalation* • Burns *Skin* • Severe burns *Ingestion:* • Burns • Swelling • Danger of perforation

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
		every 6 months.		is full, contact CSO for disposal as hazardous waste. IF CRYSTALS FORM IN CONTAINER, **DO NOT TOUCH!** THE CONTAINER IS HIGHLY EXPLOSIVE. CONTACT CSO TO ARRANGE FOR SAFE DISPOSAL.		Safety. *Inhalation:* Move to fresh air and keep at rest. Call Poison Control and Public Safety.	*Eye* • Severe damage • Burns
Peroxide-forming solvents: Diethyl ether, THF	• PEROXIDE FORMERS • Reactive • Flammable • Irritant • Specific organ toxicity • Suspected carcinogen (some)	Flammables cabinet (separate bin for peroxide formers) WRITE DATE OF RECEIPT AND OF OPENING ON BOTTLE Test for peroxides every 6 months.	• Heat • Spark sources • Flames • Static electricity • Strong oxidizers • Strong acids • Light • Moisture	Collect in "Flammable waste-polar" container. When a container is full, contact CSO for disposal as hazardous waste. IF CRYSTALS FORM IN CONTAINER, **DO NOT TOUCH!** THE CONTAINER IS	*Small spills:* Isolate the area, shut off ignition sources. Cover spilled liquid with kitty litter, then sweep up and place in "Spilled flammables" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety	*Eyes/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately. For all eye exposures and more than incidental skin exposures, call Public Safety. *Ingestion:* Rinse mouth with water. Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh	*Inhalation* • Breathing difficulty • Headache • Cough • Chest pain • Dizziness • Fatigue • Nausea/Vomiting • Convulsions • Unconsciousness *Skin* • Irritation • Defatting • Dermatitis *Ingestion:*

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
				HIGHLY EXPLOSIVE. CONTACT CSO TO ARRANGE FOR SAFE DISPOSAL.		air. Call Public Safety if symptoms occur.	• Liver problems *Eye* • Irritation • Blurred vision • Redness • Tears
Peroxide formers, misc.	• Peroxide Formers • Reactive	*lockable dark cabinet* WRITE DATE OF RECEIPT AND OF OPENING ON BOTTLE Test for peroxides every 6 months	• Flammables • Combustible • Reducing agents • Powdered metals • Heat • Organics	Collect in designated "reactive waste" container. When a container is full, contact CSO for disposal as hazardous waste. IF CRYSTALS FORM IN CONTAINER, **DO NOT TOUCH!** THE CONTAINER IS HIGHLY EXPLOSIVE. CONTACT CSO TO ARRANGE FOR SAFE DISPOSAL.	*Small spills:* Isolate the area. Cover spilled liquid with kitty litter, then sweep up and place in "Spilled perchloric acid" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety.	*Eyes/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately. For all eye exposures and more than incidental skin exposures, call Public Safety. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air and keep at rest. Call Poison Control and Public Safety.	*Specific symptoms depend on compound*

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
Phenol (and phenolic compounds)	• Toxic (all routes) • Corrosive • Chronic health effects • Combustible • Suspected mutagen • Environmental hazard **Many phenolics are P-listed** (waste pickup every 6 mos). Check with CSO!	Acid cabinet (separate bin) *lockable dark cabinet; grounded if possible*	• Metal • Flammables • Static electricity	Collect in "phenol waste" or "phenol-chloroform waste" container. When a container is full, contact CSO for disposal as hazardous waste. **P-listed.** If container is getting close to 6 months old, contact CSO to ensure prompt disposal.	*Small spills:* Isolate the area. Cover spilled liquid with sodium bicarbonate, then sweep up and place in "Phenol Waste" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety	*Eyes/Skin:* Rinse with running water **and soap** for 15 minutes. Remove contaminated clothing immediately. Call Public Safety. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Immediately call Poison Control and Public Safety.	*Inhalation* • Toxic • Respiratory irritation • Burns • Dizziness • Drowsiness • Fatigue • Nausea/Vomiting *Skin* • Severe burns • Toxic *Ingestion:* • Toxic • Severe burns • Perforated GI tract • Severe swelling • CNS depression *Eye* • Severe burns • Permanent damage
Preserved biological specimens (solid)	• If dry: non-haz • If wet, treat as liquid	Flammables cabinet (if wet)	N/A	Regular trash	Sweep up and place in regular trash.	<u>Liquid exposure:</u> *Eyes/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing	*Liquid Exposure:* • Skin irritation • Respiratory irritation • Dermatitis • Headache

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
Preservation liquid for biological specimens (non-formaldehyde)	• Corrosive • Toxic (some) • Flammable *specific hazards depend on brand*	Flammables cabinet	• Oxidizers • Strong acids • Heat	Collect in "Flammable waste-polar" container. When a container is full, contact CSO for disposal as hazardous waste.	*Small spills:* Isolate the area, shut off ignition sources. Cover spilled liquid with kitty litter, then sweep up and place in "Spilled flammables" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety	*Eyes/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately. For all eye exposures and more than incidental skin exposures, call Public Safety. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air and keep at rest. Call Poison Control and Public Safety.	• Skin irritation • Respiratory irritation • Dermatitis • Headache
Reducing agents (thiosulfate, iodide salts, borohydrides, hydrides, etc)	• Reactive (reducers) • Toxic • May liberate flammable gas (some)	Cool, dark place. Segregate from oxidizers and spark sources. A small flammables cabinet would be appropriate to store reducing	• Oxidizers	Collect in "Reactive waste-reducers" container. When a container is full, contact CSO for disposal as hazardous waste.	*Small spills:* Isolate the area. Cover spilled liquid with kitty litter, then sweep up and place in "Spilled reducing agent waste" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety.	*Eyes/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately. For all eye exposures and more than incidental skin exposures, call Public Safety. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air	• Irritation • Headache • Shortness of breath • Nausea

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
		agents in.				and keep at rest. Call Poison Control and Public Safety.	
Spent silica (chromato, dessicant)	• Irritant • Possible chronic health effects	Dry place. Use in hood (if dry) or in well-ventilated area (if wetted)	• Oxidizers • Heat • Light	Collect in designated glass "Silica Waste" container. When a container is full, contact CSO for disposal as hazardous waste.	*Small spills:* Gently moisten with water, then sweep up spillage and collect in "spilled silica gel" container for disposal. Avoid dust formation! *Large spills:* Evacuate immediately and call Public Safety.	*Eyes/Skin:* Rinse with running water for 15 minutes. For all eye exposures and more than incidental skin exposures, call Public Safety. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air and keep at rest. Call Public Safety if you fell unwell.	*Inhalation* • Respiratory irritation • Long-term lung problems *Skin* • Irritation • Edema • Dryness • Chapped skin *Ingestion* • Stomach pain • Nausea • Sickness *Eye* • Irritation • Edema • Pain • Tear formation
Sodium azide	• Toxic—Fatal by all routes • Environmental hazard • Chronic health effects • Possible repro tox	Locked cabinet	• Water • Heat • Grinding, shock, friction • Fire • Ignition sources • Metals	Collect in specified "reactive azide waste" container. When a container is full, contact CSO for disposal	NEVER POUR DOWN SINK. Contact with pipes may generate highly explosive compounds. *Solid Spills:*	*Eyes/Skin:* IMMEDIATELY call Poison Control and Public Safety. Rinse with running water for 15 minutes. Remove contaminated clothing	*Inhalation* • Irritation • Death *Skin* • Irritation • Death

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
	• Possible carcinogen • Reactive (oxidizer) **P-listed.** Waste pickup every 6 mos. Check with CSO!		• Acids • Peroxides • Acid chlorides • Oxidizers	as hazardous waste. If container is getting close to 6 months old, contact CSO to ensure prompt disposal.	Sweep up spilled material and place in designated "Spilled Sodium Azide" container. Contact CSO for disposal. <u>*Liquid Spills:*</u> Isolate the area. Cover spilled liquid with kitty litter, then sweep up and place in "Spilled Sodium Azide" container. Contact CSO for disposal *Large spills:* Evacuate immediately and call Public Safety.	immediately. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air and keep at rest. Call Poison Control and Public Safety.	*Ingestion:* • Death *Eye* • Irritation • Death
Solvents, aromatic (eg., toluene, benzene)	• Flammable • Irritant • Chronic health effects • Repro Tox • Carcinogen (some)	Flammables cabinet	• Heat • Ignition sources • Static electricity • Halogens • Strong oxidizers • Halogenated hydrocarbon • Perchlorates • Nitric acid • Ozone • Mineral acids	Collect in "Flammable waste-non-polar" container. Container should be GLASS, not plastic. When a container is full, contact CSO for disposal	*Small spills:* Isolate the area, shut off ignition sources. Cover spilled liquid with kitty litter, then sweep up and place in "Spilled flammables" container. Contact CSO for disposal.	*Eyes/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately. For all eye exposures and more than incidental skin exposures, call Public Safety and Poison Control. *Ingestion:* Immediately call Poison Control and Public	*Inhalation* • Respiratory irritation • Respiratory damage • Respiratory arrest • Dizziness • Narcosis • Inebriation • Euphoria • Agitation • Nausea, • Headache

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
			• Sulfur • Rubber • Plastics	as hazardous waste.	*Large spills:* Evacuate and call Public Safety.	Safety. *Inhalation:* Move to fresh air and keep at rest. Immediately call Poison Control and Public Safety	• Tiredness • CNS disorders Skin: • Drying-out effect • Rough and chapped skin *Ingestion:* • Nausea • Vomiting *Eye exposure:* • Irritant
Solvents, halogenated (e.g., chloroform, methylene chloride, carbon tetrachloride)	• Toxic • Chronic health effects • Reproductive Toxin • Developmental toxin • Irritant • Carcinogen • Target organ effects	Flammables cabinet (someplace dark and vented)	• Light • Heat • Ignition sources • Moisture • Oxidizers • Aluminum • Acetone • Fluorine	Collect in "Halogenated waste" container. Container should be GLASS, not plastic. When a container is full, contact CSO for disposal as hazardous waste.	*Small spills:* Isolate the area. Cover spilled liquid with kitty litter, then sweep up and place in "Spilled halogenated solvents" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety.	*Eyes/Skin:* Rinse with running water for 15 minutes. Immediately call Public Safety and Poison Control. Remove contaminated clothing. For all eye exposures and more than incidental skin exposures, call Public Safety and Poison Control. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air and keep at rest. Immediately call Poison Control and Public Safety	*Inhalation* • Dizziness • Headache • Tiredness • Nausea • Unconsciousness • Cessation of breathing • CNS depression *Skin:* • Irritation *Ingestion:* • Nausea, vomiting • CNS depression *Eye:* • Irritation

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
Solvents, non-polar (e.g., hexanes, petroleum ether)	• Flammable • Toxic • Chronic health effects • Reproductive Toxin • Target organs effects	Flammables cabinet	• Heat • Ignition sources • Static electricity • Halogens • Strong oxidizers	Collect in "Flammable waste: non-polar" container. When a container is full, contact CSO for disposal as hazardous waste.	*Small spills:* Isolate the area, shut off ignition sources. Cover spilled liquid with kitty litter, then sweep up and place in "Spilled flammables" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety.	*Eye/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately. For all eye exposures and more than incidental skin exposures, call Public Safety. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air and keep at rest. If breathing is difficult, immediately call Poison Control and Public Safety.	*Inhalation:* • Breathing difficulties • Headache • Dizziness • Tiredness • Nausea/Vomiting
Solvents, polar (e.g., acetone, ethanol)	• Chronic health effects • Irritant • Flammable	Flammables cabinet	• Heat • Ignition sources • Strong oxidizers • Strong reducing agents • Strong bases • Halogenated compounds • Alkali metals • Amines • Peroxide	Collect in "Flammable waste-polar" container. When a container is full, contact CSO for disposal as hazardous waste.	*Small spills:* Isolate the area, shut off ignition sources. Cover spilled liquid with kitty litter, then sweep up and place in "Spilled flammables" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety.	*Eyes/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately. For all eye exposures and more than incidental skin exposures, call Public Safety and Poison Control. *Ingestion:* Immediately call Poison Control and Public Safety.	*Inhalation:* • Headache • Dizziness • Fatigue • Nausea/Vomiting • Pulmonary edema *Skin* • Irritation *Eye* • Irritation

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
						Inhalation: Move to fresh air and keep at rest. Immediately call Poison Control and Public Safety	

Revision Date: __5/14/19__

Approved by: ___Nora Dunkel, CSO_

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Res

Appendix L: Dept Chemical Safety Summary: Conservatory

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure

Departmental "Cheat Sheet" for Chemical Safety Procedures

Department Name: Conservatory of Theater Arts, College of Fine Arts

Person responsible for Chemical and/or Hazardous Waste: John Wiley

Phone: 314-968-6940

Email: wyliejc@webster.edu

Office Location: Loreto-Hilton Center

Poison Control:	**1-800-222-1222**
Public Safety:	**314-968-6911**
CSO:	**314-246-2244**

Hazards Present in Department:

Material	Hazard Type	Storage	Keep Away From…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
Aerosol cans (acrylic paint, oil-based paint, enamel, primer, rust-retardant, etc)	• Flammable • Compressed gas • Toxic (some) • Irritant (some) • Chronic health effects (some)	Flammables cabinet	• Flame • Heat • Oxidizers • Acids • Muriatic acid • Bases	*Empty:* Place in designated aerosol recycling boxes. Seal and mail to recycler when full. *Non-functional (with contents):* Place in designated "non-functional spray cans" area within flammables cabinet. Call CSO for disposal as hazardous waste when area is full.	*Small spills*: Isolate the area, shut off ignition sources. Cover spilled liquid with kitty litter, then sweep up and place in designated "Spilled spray paint" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety.	*Eye/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air and keep at rest. If breathing is	*Symptoms may vary, depending on exact material exposed to* *Inhalation* • Respiratory irritation *Skin* • Irritation • Sensitization *Eye* • Irritation *Chronic exposure:* • Coordination loss

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
						difficult, immediately call Poison Control and Public Safety.	• Weakness/fatigue • Mental confusion • Blurred vision • Drowsiness/dizziness • Nausea/Headaches • Paralysis • Liver/cardiac abnormalities • Nervous system damage
All-purpose cement (Contains toluene, heptane, ethyl acetate)	• Flammable • Toxic • Reproductive Toxin • Irritant • Environmental Hazard	Flammables cabinet	• Flame • Heat • Oxidizers	**Rags:** Keep in metal "oily rags" trash can with tight-fitting lid. **Liquid:** Collect in "Flammable waste" container. When a container is full, contact CSO for disposal as hazardous waste.	*Small spills:* Isolate the area, shut off ignition sources. Cover spilled liquid with kitty litter (or other inert absorbent material), then sweep up and place in "Spilled flammables" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety.	*Eye/Skin*: Rinse with running water for 20 minutes. Remove contaminated clothing; call Public Safety if you show any symptoms. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air and keep at rest. If breathing is difficult, immediately call Poison Control and Public Safety.	*Inhalation* • Dizziness • Drowsiness • CNS depression • Nausea/vomiting • Headache • Unconsciousness • Toxic to unborn child *Skin* • Skin irritation • Toxic to the unborn child *Ingestion* • CNS depression • Mouth/throat/stomach irritation • Toxic to unborn child *Eye* • Eye irritation (serious) • Watering/redness
Latex paint	• Irritant • Sensitizer	Closed container, well-ventilated area.	• Heat • Combustibles • Oxidizers	Mix liquid with sawdust or other absorbent material.	*Small spills:* Cover spilled liquid with sawdust or other absorbent material.	*Eye/Skin*: Rinse with running water for 15 minutes.	*Inhalation* • Headaches • Dizziness

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
			• Acids • Muriatic acid • Bases	Allow to dry, then dispose in regular trash.	Sweep up and place in regular trash once completely dry. *Large spills:* Evacuate and call Public Safety.	*Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation*: Move to fresh air and keep at rest. If breathing is difficult, immediately call Poison Control and Public Safety.	• Respiratory irritation *Skin* • Irritation • Allergic skin response *Ingestion* • Vomiting *Eye* • Irritation
Liquid plastic A & B	• Irritant • Environmental Hazard • Chronic health effects • Possible carcinogen	Closed container, well-ventilated area.	• Heat • Direct light • Acids • Muriatic acid • Bases • Oxidizers	Collect in designated "Environmentally Hazardous waste" container. When a container is full, contact CSO for disposal as hazardous waste.	*Small spills:* Isolate the area. Cover spilled liquid with kitty litter (or other inert absorbent material), then sweep up and place in "environmentally hazardous waste" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety.	*Eye/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing; call Public Safety if you show any burns or symptoms. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air and keep at rest. If breathing is difficult, immediately call Poison Control and Public Safety.	*Inhalation* • Respiratory irritation • Damage to nose/sense of smell *Skin/Eye* • Allergic-type skin reaction • Skin irritation • Skin/eye burns *Chronic exposure:* • Permanent damage to nose/sense of smell

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
Muriatic acid (Hydrochloric Acid)	• Corrosive • Irritant	Designated acid cabinet. Keep upright and place in bin for secondary containment Closed container, ambient conditions. Use in a well-ventilated area.	• Bases • Amines • Metals • Alkali metals • Permanganate • Fluorine • Oxidizers	Collect in "Corrosive waste" container (glass or HDPE. NOT METAL!) When a container is full, contact CSO for disposal as hazardous waste.	*Small spills:* Isolate the area. Cover spilled liquid with sodium bicarbonate, then sweep up and place in "Corrosive Waste" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety.	*Eye/Skin*: Rinse with running water for 15 minutes. Remove contaminated clothing; call Public Safety if you have any burns or symptoms. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air and keep at rest. Immediately call Poison Control and Public Safety.	*Inhalation* • Respiratory irritation • Cough • Wheezing • Difficulty breathing • Pneumonia (chemical) • Pulmonary edema • Inflammation/edema of bronchi and larynx • Respiratory spasms *Skin/Eye* • Skin burns (severe) • Severe eye damage
Oil paint, oil stain	• Flammable • Irritant • Chronic health effects • Possible carcinogen (some)	Flammables cabinet	• Flame • Heat • Oxidizers	**Rags***:* Keep in metal "oily rags" trash can with tight-fitting lid. **Liquid:** Collect in "Flammable waste" container. When a container is full, contact CSO for disposal as hazardous waste.	*Small spills:* Isolate the area, shut off ignition sources. Cover spilled liquid with kitty litter (or other inert absorbent material), then sweep up and place in "Spilled flammables" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety.	*Eye/Skin*: Rinse with running water for 15 minutes. Remove contaminated clothing; call Public Safety if you show any symptoms. *Ingestion*: Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air	*Inhalation* • Headaches • Dizziness • Respiratory irritation • Lung damage (if aspirated) *Skin* • Allergic-type skin reaction • Skin irritation *Eye* • Eye irritation *Chronic exposure* • Permanent nervous system

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
						and keep at rest. If breathing is difficult, immediately call Poison Control and Public Safety.	and/or brain damage possible *Symptoms may vary, depending on exact material exposed to*
Paint stripper (with methylene chloride)	• Toxic • Chronic health effects • Reproductive Toxin • Developmental toxin • Irritant • Carcinogen • Target organ effects	Flammables cabinet (someplace dark and vented)	• Light • Heat • Sparks • Moisture • Oxidizers • Aluminum • Acetone • Fluorine	Collect in "Halogenated waste" container. Container should be GLASS, not plastic. When a container is full, contact CSO for disposal as hazardous waste.	*Small spills:* Isolate the area. Cover spilled liquid with kitty litter, then sweep up and place in "Spilled halogenated solvents" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety.	*Eyes/Skin:* Rinse with running water for 15 minutes. **Immediately call Public Safety and Poison Control.** Remove contaminated clothing. For all eye exposures and more than incidental skin exposures, call Public Safety and Poison Control. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air and keep at rest. Immediately call Poison Control and Public Safety	*Inhalation* • Dizziness • Headache • Tiredness • Nausea • Unconsciousness • Cessation of breathing • CNS depression *Skin:* • Irritation *Ingestion:* • Nausea, vomiting • CNS depression *Eye:* • Irritation

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
Polyurethane coatings	• Flammable • Irritant • Chronic health effects • Possible carcinogen	Flammables cabinet	• Water • Flame • Heat • Alcohols • Amines	**Rags***:* Keep in metal "oily rags" trash can with tight-fitting lid. **Liquid:** Collect in "Flammable waste" container. When a container is full, contact CSO for disposal as hazardous waste.	*Small spills:* Isolate the area, shut off ignition sources. Cover spilled liquid with kitty litter (or other inert absorbent material), then sweep up and place in "Spilled flammables" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety.	*Eye/Skin*: Rinse with running water for 15 minutes. Remove contaminated clothing; call Public Safety if you show any symptoms. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air and keep at rest. If breathing is difficult, immediately call Poison Control and Public Safety.	*Inhalation* • Cough • Sneezing • Headache • Hoarseness • Nose/throat pain • Respiratory irritation • Hearing impairment • Loss of balance • Ringing in ears *Skin* • Skin irritation • Hearing impairment • Loss of balance • Ringing in ears *Ingestion* • Abdominal pain • Stomach upset • Nausea/Vomiting *Eye* • Eye irritation *Chronic exposure* • Hearing impairment • Loss of balance • Ringing in ears • Coordination loss • Tingling/numb extremities • Sensory loss • Personality changes • Weakness/Tremors • Changes in blood pressure/heart rate.

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
Propane cylinder	• Flammable • Compressed gas	Flammables cabinet	• Flame • Heat • Oxidizers	*Both Empty and non-functionals (with contents):* Place in designated "used propane cylinder" area within flammables cabinet Call CSO for disposal as hazardous waste when area is full.	"Spill" means uncontrolled release of propane from cylinder: Evacuate immediately and call Public Safety.	*Inhalation:* Move to fresh air and keep at rest. If breathing is difficult, immediately call Poison Control and Public Safety. *Skin exposure:* In case of frostbite, spray with water for at least 15 minutes. Call Public Safety for medical assistance.	*Inhalation* • Asphyxiation • Loss of consciousness • Drowsiness • Cough • Shortness of breath • Dizziness • Loss of coordination *Skin* • Freeze burns *Symptoms may vary, depending on exact material exposed to*
PVC cement, primer	• Flammable • Irritant • Chronic health effects • Explosion (if dried out)	Flammables cabinet	• Flame • Heat • Oxidizers • Bases • Letting it dry out • Ammonia • Amines	**Rags:** Keep in metal "oily rags" trash can with tight-fitting lid. **Liquid:** Collect in "Flammable waste" container. When a container is full, contact CSO for disposal as hazardous waste.	*Small spills:* Isolate the area, shut off ignition sources. Cover spilled liquid with kitty litter (or other non-flammable absorbent material), then sweep up and place in "Spilled flammables" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety.	*Eye/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing; call Public Safety if you show any symptoms. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air and keep at rest. If	*Inhalation* • Nose/throat irritation • Pulmonary edema (if aspirated) • Respiratory irritation • Nausea/Vomiting • Headache, • Fatigue/Dizziness • Death (if aspirated) *Skin* • Skin irritation *Ingestion* • Nausea • Vomiting

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
						breathing is difficult, immediately call Poison Control and Public Safety.	*Eye* • Severe eye irritation • Stinging • Tearing • Redness • Swelling • Blurred vision
Solvents	• Flammable • Toxic (some) • Chronic health effects • Reproductive Toxin (some) • Target organ effects (some) • Irritant (some)	Flammables cabinet	• Flame • Heat • Oxidizers	**Rags:** Keep in metal "oily rags" trash can with tight-fitting lid. **Liquid:** Collect in "Flammable waste" container. When a container is full, contact CSO for disposal as hazardous waste.	*Small spills:* Isolate the area, shut off ignition sources. Cover spilled liquid with kitty litter (or other non-flammable absorbent material), then sweep up and place in "Spilled flammables" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety.	*Eye/Skin*: Rinse with running water for 15 minutes. Remove contaminated clothing; call Public Safety if you show any symptoms. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air and keep at rest. If breathing is difficult, immediately call Poison Control and Public Safety.	*Inhalation:* • Breathing difficulties • Headache • Dizziness • Tiredness • Nausea/Vomiting *Skin* • Irritation *Eye* • Irritation *Symptoms may vary, depending on exact material exposed to*
Wood stain, finish, varnish	• Flammable • Toxic • Irritant	Flammables cabinet	• Flame • Heat • Oxidizers	**Rags:** Keep in metal "oily rags" trash can with tight-fitting lid.	*Small spills*: Isolate the area, shut off ignition sources. Cover spilled liquid with kitty litter	*Eye/Skin*: Rinse with running water for 15 minutes. Remove	*Inhalation* • Irritation *Skin/Eye*

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
	• Chronic health effects • Possible carcinogen (some)		• Acids • Muriatic acid • Bases	**Liquid:** Collect in "Flammable waste" container. When a container is full, contact CSO for disposal as hazardous waste.	(or other non-flammable absorbent material), then sweep up and place in "Spilled flammables" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety.	contaminated clothing; call Public Safety if you show any symptoms. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air and keep at rest. If breathing is difficult, immediately call Poison Control and Public Safety.	• Irritation *Ingestion* • Harmful if swallowed *Chronic exposure* • Permanent nervous system and/or brain damage *Symptoms may vary, depending on exact material exposed to*

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Approved by: _Nora Dunkel, CSO_

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Res

Appendix M: Dept Chemical Safety Summary—Electronic and Photographic Media

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure

Departmental "Cheat Sheet" for Chemical Safety Procedures

Department Name: Electronic and Photographic Media, School of Communications

Person responsible for Chemical and/or Hazardous Waste: Christopher Bowman

Phone: 314-246-7004

Email: cbowman54@webster.edu

Office Location: SV143, Sverdrup (within darkroom)

Poison Control:	**1-800-222-1222**
Public Safety:	**314-968-6911**
CSO:	**314-246-2244**

Hazards Present in Department:

Material	Hazard Type	Storage	Keep Away From…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
Acetic acid (Stop Bath)	• Flammable • Corrosive • Toxic	Flammables cabinet.	• Oxidizers • Peroxides • Hydroxides • Carbonates • Bases/alkalis • Nitric acid	Dilute to less than 5% (vol/vol) for sink disposal. Otherwise, collect in designated "Flammable Hazardous Waste" containers. When a container is full, contact CSO for disposal as hazardous waste.	<u>Concentrated Stop Bath:</u> *Small spills*: Cover spilled liquid with sodium bicarbonate, then sweep up and place into designated "Spilled acetic acid" container. Contact CSO for disposal. *Large spills*: Evacuate and call Public Safety <u>Diluted Stop Bath:</u>	*Skin/Eyes*: Flush with water for 15 minutes. If you are exposed to acetic acid stronger than 5% (v/v), or if you experience symptoms, call Public Safety.	• Severe burning sensation • Visible burns • Severe eye damage

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
					Small spills: Cover spilled liquid with sodium bicarbonate, then sweep up and place into regular trash. *Large spills:* Evacuate and call Public Safety		
Developer (Laser 14 & Kodak D-76)	• Corrosive • Toxic- chemical asphyxiant • Reproductive Toxin • Carcinogen	Closed container, well-ventilated area.	• Oxidizers • Acids • Bases • Metals • Amines	<u>Concentrated:</u> Collect in designated "Corrosive Waste" containers. When a container is full, contact CSO for disposal as hazardous waste. <u>Diluted and used:</u> Flush down sink with copious water.	<u>Concentrated:</u> *Small spills:* sweep up and place into designated "Corrosive Waste" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety <u>Diluted and used:</u> Cover spilled liquid with sodium bicarbonate, then sweep up and place in regular trash.	*Skin/Eyes:* Flush with water for 15 minutes. Thoroughly scrub affected area (if possible) to reduce risk of cyanosis and asphyxiation IMMEDIATELY call Poison Control and Public Safety if you experience symptoms. *Ingestion:* IMMEDIATELY Call Poison Control and Public Safety. *Inhalation:* Move to fresh air; immediately call Poison Control and Public Safety.	*Inhalation* • Methemoglobinemia (chemical asphyxiation) • Cyanosis • Respiratory irritation • Faintness, weakness • Allergic reaction *Skin* • Skin irritation • Methemoglobinemia (chemical asphyxiation) • Cyanosis • Wheezing, chest tightness, hives, • Faintness, weakness • Allergic reaction *Ingestion* • Diarrhea • GI irritation • Allergic reaction • Wheezing, chest tightness, hives, *Eye* • Eye irritation

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
Developer Replenisher Concentrate	• Corrosive • Irritant	Closed container, well-ventilated area.	• Acids • Bases	<u>Concentrate:</u> Collect in designated "Fixer/Developer Replenisher" container. When a container is full, contact CSO for disposal as hazardous waste. <u>Diluted and used:</u> Flush down sink with copious water.	<u>Concentrate:</u> *Small spills:* Cover spilled liquid with sodium bicarbonate, then sweep up and place in "Developer Replenisher" container. Contact CSO for disposal. *Large spills*: Evacuate and call Public Safety <u>Diluted and used:</u> Cover spilled liquid with sodium bicarbonate, then sweep up and place in regular trash.	*Eye/Skin*: Rinse with running water for 15 minutes; call Public Safety for eye exposures and if you show any symptoms. *Ingestion*: Call Poison Control and Public Safety. *Inhalation:* Move to fresh air. Call Public Safety if you show symptoms.	*Skin* • Irritation *Ingestion* • Harmful if swallowed *Eye* • Irritation • Burns
Fixer Replenisher	• Corrosive • Irritant	Closed container, well-ventilated area.	• Acids • Bases	<u>Concentrate:</u> Collect in designated "Fixer/Developer Replenisher" container. When a container is full, contact CSO for disposal as hazardous waste. <u>Diluted and used:</u> Collect in Fixer Recovery Unit.	*Small spills:* Cover spilled liquid with sodium bicarbonate, then sweep up and place in "Fixer Replenisher" container. Contact CSO for disposal. *Large spills*: Evacuate and call Public Safety	*Eye/Skin*: Rinse with running water for 15 minutes; call Public Safety for eye exposures and if you show any symptoms. *Ingestion*: Call Poison Control and Public Safety. Give water (if victim conscious) to dilute concentration. *Inhalation:* Move to fresh air and	*Skin* • Irritation *Ingestion* • Harmful if swallowed *Eye* • Irritation • Burns

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
						immediately call Poison Control and Public safety.	
Photo-Flo 200 Solution (working strength)	• Not hazardous	Closed container, well-ventilated area.	N/A	<u>Diluted and used:</u> Flush down sink with copious water.	*Small spills:* Cover spilled liquid with kitty litter, then sweep up and place in regular trash. *Large spills:* Evacuate and call Public Safety	*Skin/Eyes*: Flush with water for 15 minutes. Get medical attention if symptoms occur or you feel unwell. *Ingestion:* Get medical attention if symptoms occur or you feel unwell. *Inhalation:* Move to fresh air; Get medical attention if symptoms occur or you feel unwell.	• Eye irritation • Skin irritation
Rapid Fixer, Part A	• Irritant • Reproductive Toxin • Environmental hazard	Closed container, well-ventilated area.	• Oxidizers • Combustible porous material (rags, sawdust, cotton, clothing)	<u>Concentrated Rapid Fixer A:</u> **Rags:** Keep in metal "reducer-soaked rags" trash can with tight-fitting lid. **Liquid:** Collect in designated "Reducing Waste" container. <u>Diluted for use (combined with Pt. B):</u>	*Small spills:* Cover spilled liquid with kitty litter, then sweep up and place in "Fixer Part A Waste" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety	*Eye/Skin*: Rinse with running water for 15 minutes; call Public Safety for eye exposures and if you show any symptoms. *Ingestion:* Call Poison Control and Public Safety.	• Skin irritation • Eye irritation

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
				Flush down sink with copious water.			
Rapid Fixer, Part B	• Corrosive • Destructive to metals	Closed container, well-ventilated area.	• Bases • Metals	<u>Concentrated Rapid Fixer B:</u> Collect in designated "Corrosive Waste" container. When a container is full, contact CSO for disposal as hazardous waste. <u>Diluted for use (combined with Pt. A):</u> Flush down sink with copious water.	*Small spills:* Cover spilled liquid with kitty litter, then sweep up and place in "Corrosive waste" container. Contact CSO for disposal. *Large spills*: Evacuate and call Public Safety	*Eye/Skin*: Rinse with running water for 15 minutes. Call Public Safety and Poison Control for eye exposures and if you show any symptoms. *Ingestion:* Call Poison Control and Public Safety. *Inhalation:* Move to fresh air and immediately call Poison Control and Public safety.	• Severe eye damage • Skin burns
Rapid Fixer solution, working strength	• Corrosive	Closed container, well-ventilated area.	N/A	Check pH with test strip. If below pH 2.5 or above 12.5, gently mix in sodium bicarbonate until pH is between 2.5 and 12.5. Flush down sink with copious water.	*Small spills:* Cover spilled liquid with kitty litter, then sweep up and place in regular trash. *Large spills:* Evacuate and call Public Safety	*Eye/Skin*: Rinse with running water for 15 minutes; call Public Safety for eye exposures and if you show any symptoms. *Ingestion*: Call Poison Control and Public Safety.	• Skin irritation • Eye irritation

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure

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Approved by: ___Nora Dunkel, CSO_

Appendix N: Dept Chemical Safety Summary—Visual Arts-Photography

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure

Departmental "Cheat Sheet" for Chemical Safety Procedures

Department Name: Photography, Dept of Art, Design and Art History

Person responsible for Chemical and/or Hazardous Waste: Robin Assner-Alvey

Phone: 314-246-7890

Email: assneralvey@webster.edu

Office Location: Hunt House, Second Floor

Poison Control:	**1-800-222-1222**
Public Safety:	**314-968-6911**
CSO:	**314-246-2244**

Hazards Present in Department:

Material	Hazard Type	Storage	Keep Away From…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
Acetic acid (Stop Bath)	• Flammable • Corrosive • Toxic	Flammables cabinet.	• Oxidizers • Peroxides • Hydroxides • Carbonates • Bases/Alkalis • Nitric acid.	Dilute to less than 5% (vol/vol) for sink disposal. Otherwise, collect in designated "Flammable Hazardous Waste" containers. When a container is full, contact CSO for disposal as hazardous waste.	*Small spills:* Cover spilled liquid with sodium bicarbonate, then sweep up and place into designated "Spilled acetic acid" container. Contact Chemical Safety Officer for disposal. *Large spills:* Evacuate and call Public Safety.	*Skin/Eyes:* Flush with water for 15 minutes. If you are exposed to acetic acid stronger than 5% (v/v), or if you experience symptoms, call Public Safety.	• Burning sensation • Visible burns
Developer (Laser 14 & Kodak D-76)	• Corrosive • Reproductive Toxin	Flammables cabinet	• Oxidizers • Acids • Bases	Collect in designated "Environmentally Hazardous Waste"	*Small spills:* Soak up with inert material (like kitty litter), sweep up and place	*Skin/Eyes:* Flush with water for 15 minutes.	• Redness • Itching • Pain

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
	• Carcinogen		• Metals • Amines	containers. When a container is full, contact CSO for disposal as hazardous waste.	into designated "Heavy Metal Waste" container. *Large spills:* Evacuate and call Public Safety		• Burning sensation • Allergic-type reactions
Dichromate salts (Potassium dichromate)	• Toxic • Reactive-Decomposes violently when heated	Regular cabinet	Heat	Collect in designated "Heavy Metal hazardous waste" containers. When a container is full, contact CSO for disposal as hazardous waste.	*Small spills:* • Solids—sweep up and place in the Heavy Metal Waste container. • Solutions—cover spilled liquid with sodium bicarbonate, then sweep up and place in Heavy Metal Waste container. *Large spills*: Evacuate and call Public Safety	*Skin/Eyes:* Flush with water for 15 minutes. *Ingestion:* Call Poison Control and Public Safety. If you experience **any** symptoms: Call poison control and Public Safety.	• Coughing, • Burning sensation • Breathing difficulties • Vomiting • Cramps • Blurred vision
Ferricyanide salts (Potassium ferricyanide)	• Toxic • Irritant • Carcinogen	Regular cabinet. Keep in secondary containment (plastic bucket ok) to keep separate from acids.	• Acids (generates toxic cyanide gas) • ammonia, • heat (generates cyanide gas)	Collect in designated "Cyanide Waste Container". NO OTHER WASTE SHOULD BE PLACED IN THIS CONTAINER. When a container is full, contact CSO for disposal as hazardous waste.	If material contacts anything acidic, IMMEDIATELY EVACUATE THE BUILDING and call Public Safety. Inform them of the presence of cyanide gas. *Small spills:* • Solids—sweep up and place in the Cyanide Waste container. • Solutions—cover spilled liquid with kitty litter or other inert material, then sweep up and place in	**IMMEDIATELY CALL POISON CONTROL** and Public Safety, regardless of exposure route or amount. 150 ppm of cyanide can be fatal in just 30 minutes. Can be absorbed	*Salts:* • Headache, • Nausea, • Thyroid effects • Respiratory irritation. *Cyanide Gas:* • Rash • Nausea • Chest pain • Irregular heartbeat • Blindness

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
					Cyanide Waste container. *Large spills:* Evacuate and call Public Safety	through skin, eyes, mucous membranes, ingestion, and via inhalation.	• Bluish skin color • Suffocation • Lung congestion • Paralysis • Convulsions • Coma • **Death**
Fixer (Kodak & XUF 147)	• Irritant • Reproductive Toxin • Powder self-heats	Regular cabinet	Oxidizers, Bases, Acids, Halogenated compounds	Used-Place in silver recovery unit. Unused-Down sink if diluted.	*Small spills*: • Solids—sweep up and place in designated "spilled fixer" container. • Solutions—cover spilled liquid with kitty litter or other inert material, then sweep up and place in regular trash can. *Large spills:* Evacuate and call Public Safety	*Skin/Eyes*: Flush with water for 15 minutes.	• Eye irritation • Burns • Skin irritation
Gold chloride	• Sensitizer	Regular cabinet	Bases, peroxides, ammonia, reducing agents, fuels.	Collect in designated "Heavy Metal hazardous waste" containers. When a container is full, contact CSO for disposal as hazardous waste.	*Small spills*: Soak up with inert material (like kitty litter), sweep up and place into designated "Heavy Metal Waste" container. *Large spills:* Evacuate and call Public Safety	*Skin/Eyes*: Flush with water for 15 minutes.	• Allergic-type reaction. • Eye burns • Skin burns.
Silver nitrate	• Toxic • Corrosive • Reactive	Regular cabinet	Ammonia compounds, metals.	Place in designated silver recovery unit. If mixture is not compatible with silver	*Small spills*: Soak up with inert material (like kitty litter), sweep up and place into designated "Heavy Metal Waste" container.	*Skin*: Flush with water for 15 minutes. *Eyes:* Flush with	• Redness • Brown stains on skin • Blindness if eyes exposed

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
				recovery unit, collect in designated "Heavy Metal hazardous waste" container.	*Large spills*: Evacuate and call Public Safety	water, call public safety. Continue flushing eyes with water until medical help arrives	

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Approved by: __Nora Dunkel, CSO_

Appendix O: Dept Chemical Safety Summary—Visual Arts-Printshop

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure

Departmental "Cheat Sheet" for Chemical Safety Procedures

Department Name: Printshop, Dept of Art, Design and Art History

Person responsible for Chemical and/or Hazardous Waste: Tate Foley

Phone: 314-246-7586

Email: tatefoley85@webster.edu

Office Location: Hunt House, First Floor

Poison Control:	**1-800-222-1222**
Public Safety:	**314-968-6911**
CSO:	**314-246-2244**

Hazards Present in Department:

Material	Hazard Type	Storage	Keep Away From…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
Alcohol, denatured (Methanol: 40-60%, ethanol: 30-50%))	• Flammable • Toxic • Chronic Health Effects	Closed container, flammables cabinet. Use in well-ventilated area.	• Sparks • Heat • Oxidizers • Acids • Powdered metals • Halogens • Aldehydes	**Rags/steel wool:** Keep in metal "oily rags" trash can with tight-fitting lid. **Liquid:** Collect in "Flammable waste" container. When container is full, contact CSO for disposal as	*Small spills:* Isolate the area, shut off ignition sources. Cover spilled liquid with kitty litter, then sweep up and place in designated "Spilled alcohol" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety.	*Eye/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:*	**Symptoms may appear more than 30 hours post-exposure. Call Poison Control for anything more than incidental exposure.** *Inhalation:* • Convulsions • Blurry vision • Nausea • Drowsiness • Eye/Respiratory Irritation • Headache • Dizziness

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
				hazardous waste.		Move to fresh air and keep at rest. If breathing is difficult, immediately call Poison Control and Public Safety.	• Other CNS effects *Skin exposure:* • Dryness/ cracking • Dermatitis • Irritation/redness • **May cause inhalation symptoms as well** *Ingestion:* • Death • Blindness • Coma • Organ damage • Pulmonary edema • Dizziness/Stupor • Nausea • Headache • Loss of coordination • **May cause inhalation symptoms as well** *Eye exposure*: • Irritant • Watery eyes *Chronic exposure:* • Dizziness • Fatigue • Tremors • Permanent CNS changes • Blindness

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
							• Organ damage
Burnt Plate Oil (Linseed oil)	• Flammable • **Spontaneous ignition possible** through auto-oxidation of cloth or steel wool soaked in the product	Closed container, flammables cabinet. Use in well-ventilated area.	• Sparks • Heat • Oxidizers • Acids • Bases • Powdered metal • Aldehydes • **Cloth**	**Rags and steel wool:** Keep in metal "oily rags" trash can with tight-fitting lid. **Liquid:** Collect in "Flammable waste" container. When container is full, contact CSO for disposal as hazardous waste.	*Small spills:* Cover spilled liquid with kitty litter, then sweep up and place in designated "Spilled Burnt Plate Oil" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety.	*Eye/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately. Call Public Safety for eye exposures and if you show any symptoms. *Ingestion:* Immediately call Poison Control and Public Safety.	*Inhalation:* • Breathing difficulties • Coughing • Dizziness *Skin exposure:* • Dryness/ cracking *Ingestion:* • Nausea • GI distress *Eye exposure:* • Slight irritation
CML Oil Base Plus Black and Colors and Blends (Vanson)	• Chronic health effects • Sensitizer	Closed container, cool/dry location. Use in well-ventilated area.	N/A	**Rags:** Keep in metal "oily rags" trash can with tight-fitting lid. **Liquid:** Collect in "Oil Base Ink" container. When container is	*Small spills:* Isolate the area. Cover spilled material with kitty litter, then sweep up and place in designated "Spilled rubber based paint" container. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety.	*Eye/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately. *Ingestion:* Immediately call Poison Control and Public Safety. Wash	• Allergic reaction-type response

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
				full, contact CSO for disposal as hazardous waste.		out mouth with water. Keep person warm and at rest. *Inhalation:* Move to fresh air and keep at rest. If breathing is difficult, immediately call Poison Control and Public Safety.	
Copper sulfate bath	• Toxic • Irritant (eye, skin) • Environmental Hazard	Closed container, ambient conditions	• Powdered metals	Collect in designated "Etching Bath Waste" container. When container is full, contact CSO for disposal as hazardous waste.	*Small spills:* • Solid: Sweep up and place in "Etching bath waste" container • Liquid: Cover spilled liquid with sodium bicarbonate, then sweep up and place in "Etching bath waste" container. *Large spills:* Evacuate and call Public Safety; **If product enters drains or the environment, immediately inform CSO.** The EPA	*Eye/Skin:* Rinse with running water for 15 minutes; call Public Safety for eye exposures and if you show any symptoms. *Ingestion:* Call Poison Control and Public Safety.	***Symptoms may appear several hours post-exposure*** *Initial Symptoms*: • Dizziness • Disorientation • Confusion *May progress to:* • Unconsciousness • Paralysis • Convulsions

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
					requires that release of this material be reported to them within less than 24 hours.		
Enamel spray paint	• Flammable • Compressed gas • Suspected carcinogen • Irritant • Chronic health effects	Closed container, flammables cabinet. Use in well-ventilated area.	• Sparks • Heat • Oxidizers • Acids • Bases	**Empty cans:** Place in designated "Aerosol Can Recycling" box. Contact CSO when full to arrange for disposal. **Non-functional cans with paint inside**: Store in designated area in flammables cabinet; contact CSO for disposal as hazardous waste when area full.	*Small spills:* Isolate the area, shut off ignition sources. Cover spilled liquid with kitty litter, then sweep up and place in designated "Spilled spray paint" container. Contact CSO for disposal. *Large spills*: Evacuate and call Public Safety.	*Eye/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air and keep at rest. If breathing is difficult, immediately call Poison Control and Public Safety.	*Inhalation* • Respiratory tract irritation *Skin* • Irritation • Sensitization *Eye* • Irritation *Chronic exposure:* • Loss of coordination, • Weakness/fatigue • Paralysis • Mental confusion • Blurred vision • Drowsiness/dizziness • Liver and cardiac abnormalities
Ferric acid bath ($FeCl_3$)	• Corrosive • Irritant • Environmental Hazard	Closed container, ambient conditions	• Oxidizers • Bases	Collect in designated "Etching Bath Waste" container. When container is	*Small spills:* • Solid: Sweep up and place in "Etching bath waste" container • Liquid: Cover spilled liquid with sodium	*Eye/Skin:* Rinse with running water for 15 minutes; Call Public Safety for eye exposures and if you show any symptoms.	***Immediate symptoms:*** • Respiratory Spasms • Edema of entire respiratory tract, • Corrosion • Necrosis of GI tract

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
				full, contact CSO for disposal as hazardous waste.	bicarbonate, then sweep up and place in "Etching bath waste" container. *Large spills:* Evacuate and call Public Safety	*Ingestion:* Call Poison Control and Public Safety.	• Perforation of GI tract. **Symptoms that may appear several hours post-exposure include** • Gastric pain • Diarrhea • Vomiting • Nausea • Vomiting blood **After apparent recovery a person may experience these symptoms hours or days later:** • Metabolic acidosis • Convulsions • Acute liver necrosis • Coma and death.
Mineral Spirits (odorless)	• Flammable • Irritant/Narcotic • Chronic Health Effects	Closed container, flammables cabinet. Use in well-ventilated area.	• Sparks • Heat • Oxidizers	**Rags and steel wool:** Keep in metal "oily rags" trash can with tight-fitting lid. **Liquid:** Collect in "Flammable waste" container. When container is full, contact CSO for disposal as	*Small spills:* Isolate the area, shut off ignition sources. Cover spilled liquid with kitty litter, then sweep up and place in designated "Spilled Mineral Spirits" container. Stay out of low areas during clean-up. Contact CSO for disposal. *Large spills:* Evacuate and call Public Safety	*Eye/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately. *Ingestion:* Immediately call Poison Control and Public Safety.	*Inhalation* • Dizziness/drowsiness • Headache • Central nervous system depression • Fatal if swallowed and enters airways. *Skin/Eye* • Irritation • Defatting to skin

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
				hazardous waste.	from a safe location.	*Inhalation:* Move to fresh air and keep at rest.	*Ingestion* • Fatal if swallowed and enters airways. *Chronic Exposure* • Brain/CNS damage • Memory loss • Uncoordination • Loss of intellectual capacity.
Rubber Base plus black, colors and blends (Vanson)	• Sensitizer • Chronic health effects	Closed container, cool/dry location. Use in well-ventilated area.	N/A	**Rags:** Keep in metal "oily rags" trash can with tight-fitting lid. When container is full, contact CSO for disposal as hazardous waste.	*Small spills*: Isolate the area. Cover spilled material with kitty litter, then sweep up and place in designated "Spilled rubber based paint" container. Contact CSO for disposal. *Large spills*: Evacuate and call Public Safety.	*Eye/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately. *Ingestion:* Immediately call Poison Control and Public Safety. Wash out mouth with water. Keep person warm and at rest. *Inhalation:* Move to fresh air and keep at rest. If breathing is difficult, immediately call Poison Control and	• Allergic reaction-type response

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
						Public Safety.	
S/D Rubber Base Blending Inks	• Irritant • Chronic health effects • Fatal if aspirated • Toxic (some) (R9300 NC Warm Red contains Barium, 19-22%)	Closed container, cool/dry location. Use in well-ventilated area.	N/A	Not considered hazardous waste. Closed containers may be disposed of in regular trash.	*Small spills:* Cover spilled material with kitty litter, then sweep up and place in regular trash. *Large spills:* Evacuate and call Public Safety.	*Eye/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air and keep at rest. If victim feels unwell, immediately call Poison Control and Public Safety.	*Inhalation* • Respiratory irritation • Allergic reaction-type response possible *Skin/Eye* • Skin irritation • Dermatitis • Allergic reaction-type response possible *Ingestion* • GI irritation *Chronic exposure* • Organ damage
Stencil Remover Liquid No. 4 (sodium metaperiodate, 1-5%)	• Corrosive • Serious eye damage • Chronic Health Effects • **Spontaneous ignition possible** through auto-oxidation of	Closed container, ambient conditions. Use in well-ventilated area.	• Oxidizers, • Acids • Bases	**Rags:** Keep in metal "oxidizer-soaked rags" trash can with tight-fitting lid. **Liquid:** Collect in designated "Oxidizing Waste"	*Small spills:* Cover spilled liquid with kitty litter, then sweep up and place in designated "Spilled Stencil Remover" container. Contact CSO for disposal. *Large spills:* Evacuate	*Eye/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately. Call Public Safety for eye exposures and if	• Dermatitis • Red skin • Irritation of mucous membranes

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
	cloth soaked in the product • Environmental Hazard			container. When container is full, contact CSO for disposal as hazardous waste.	and call Public Safety. **If product enters drains or the environment, immediately inform CSO.** The EPA requires that release of this material be reported to them within less than 24 hours.	you show any symptoms. *Ingestion:* Immediately call Poison Control and Public Safety.	
Ulano "Proclaim" Emulsion	• Irritant • Sensitizer • Environmental Hazard	Closed container, cool/dry location. Use in well-ventilated area.	• Oxidizers • Acids • Bases	Collect in designated "Environmentally Hazardous Waste" container. When container is full, contact CSO for disposal as hazardous waste.	*Small spills*: Isolate the area. Cover spilled material with kitty litter, then sweep up and place in designated "Spilled emulsion" container. Contact CSO for disposal. *Large spills*: Evacuate and call Public Safety. **If product enters drains or the environment, immediately inform CSO.** The EPA requires that release of this material be reported to them within less than	*Eye/Skin:* Rinse with running water for 15 minutes. Remove contaminated clothing immediately. *Ingestion:* Immediately call Poison Control and Public Safety. *Inhalation:* Move to fresh air and keep at rest. If breathing is difficult, immediately call Poison Control and Public Safety.	• Skin irritation • Dermatitis • Allergic reaction-type response possible

Material	Hazard Type	Storage	Keep Away from…	Dispose by…	Spill Response?	Exposure Response	Symptoms of Exposure
					24 hours.		

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Approved by: _Nora Dunkel, CSO_

Appendix P: Placeholder Appendix