

I. Laboratory Information:

Laboratory Supervisor:

Department:

Building:

Room(s):

Laboratory Safety Officer (LSO):

(If no LSO is named, the laboratory supervisor maintains that role.)

II. Hazard Identification:

a) Identify the Hazardous Chemical or Hazard Group:

1. List chemical name and CAS number if a single chemical is covered by this form:

Chemical name:

CAS number

2. Or, identify the hazard group from the HCOC list http://www.uvm.edu/~esf/inv_input_plain.php and list the names of those chemicals specific to your lab operations:

b) Maximum quantity to be used or stored in the next year:

☐ <1 L or 100 gm ☐ 1 L/100 gm to 5 L/1 kg ☐ 5 L/1 kg to 20 L/5 kg ☐ > 20 L/5 kg

c) Identify the state and concentration that will be used:

☐ Solid

☐ Gas

☐ Liquid

☐ Dilute (<5%);

☐ Intermediate (5-25%);

☐ Concentrated (>25%)

d) What hazards do these material(s) present?

☐ Flammable

(flashpoint <100 F)

☐ Combustible

(100 F < flashpoint <200 F)

☐ Water Reactive

☐ Corrosive

(pH>10 or pH < 4)

☐ Pyrophoric

☐ Oxidizer

☐ Shock sensitive

☐ Time sensitive

☐ Stench material

☐ Cyanide

☐ Acute Toxicity or
Sensitizer

☐ Chronic Toxicity

☐ Carcinogen,
Teratogen, Mutagen

☐ Other

III. Chemical Safety Information and Training:

a) What Chemical Safety information is available for these chemicals (check all that apply)?

☐ SDS/MSDS - Location: _____

☐ Technical literature - Location: _____

☐ Chemical labels with hazard warnings

REMINDER : All lab personnel must be aware of locations of safety information for any hazardous material. That training must be documented

b) Chemical Safety First Aid/Emergency Response Considerations:

Are there first aid or emergency response procedures necessary for all of these chemicals beyond rinsing with water? ☐ Yes ☐ No

If Yes, specify: _____

REMINDER : All lab personnel must be aware of emergency response procedures for hazardous materials. That training must be documented

IV. Safety Controls and Equipment:

a) Administrative Controls:

Do these chemicals require use of a designated area? ☐ Yes ☐ No

Does the area of use need to be decontaminated after use? ☐ Yes ☐ No

Are there lab-specific SOP's that apply to the use of this (these) materials? ☐ Yes ☐ No

b) Engineering Controls:

☐ Fume hood ☐ Glove Box ☐ Biosafety cabinet ☐ Snorkel or other local exhaust

☐ Safety shields ☐ Other: _____

c) Personal Protective Equipment (check all that apply):

Eye protection: ☐ goggles ☐ safety glasses ☐ face shield

Body protection: ☐ labcoat ☐ apron ☐ long pants ☐ closed toed, solid shoes

Hand protection: ☐ disposable gloves (<6ml) nitrile

☐ Protective gloves: Material: _____ Thickness: _____ mil

☐ Cut resistant ☐ Thermal protective ☐ Other

Respiratory Protection: ☐ Disposable particulate ☐ Cartridge ☐ PAPR ☐ _____
Other

d) Emergency Response Equipment:

Do you have the following available and maintained? ☐ emergency shower ☐ eyewash

☐ spill control equipment ☐ emergency exits ☐ emergency contact information

V. Medical Monitoring and Exposure Assessment:

a) Is medical monitoring required for users of these materials? ☐ Yes ☐ No

OSHA requires medical monitoring for workers who use respirators and for certain chemicals.

If yes or unsure, please contact Environmental Safety for further information.

b) How will exposure to these chemicals be assessed?

The OSHA Laboratory Standard requires that worker exposure to hazardous chemicals be assessed before work begins and during laboratory operations if necessary. Indicate how worker exposure will be assessed.

Describe "Other" if appropriate. See section 3 of the UVM Chemical Hygiene Plan for more information.

☐ Professional judgment of Lab Supervisor; Consulted with RM&S ☐ Yes ☐ No

☐ Area Monitoring ☐ Personal Monitoring

VI. Storage Considerations:

a) Where will these materials be stored? ☐ Flammables cabinet ☐ Corrosives cabinet

☐ Household refrigerator ☐ Flammable-rated refrigerator/freezer

☐ General storage (standard cabinets and shelves)

b) Do these materials require secondary containment? ☐ Yes ☐ No

c) Are storage areas clearly marked with hazard signs? ☐ Yes ☐ No

VII. Method of disposal & Pollution Prevention:

a) Disposal: ☐ Hazardous waste disposal via ES; ☐ Neutralized/Consumed during process

☐ Sink disposal (non-hazardous liquids only, with ES approval)

b) Pollution prevention: (check all that of these methods that were applied):

☐ Substitution of less hazardous chemicals ☐ Reduction in the amount of chemical used

☐ Change in procedure

In accordance with UVM's Policy on Laboratory Health & Safety, I accept responsibility for the proper use and disposal of these materials in the laboratory work described above and have assigned chemical safety responsibilities within the laboratory to people with appropriate training and/or experience.

Laboratory Supervisor Signature:

Date:

Consult www.uvm.edu/safety for further information or contact Risk Management & Safety at safety@uvm.edu. Please retain these forms for review by laboratory staff and RM&S personnel.

UVM Hazardous Chemicals of Concern list and Chemical Storage Guide

This is a list of the hazardous chemicals most commonly used in UVM laboratories and appropriate storage classes for those chemicals. In some cases, it may be necessary to organize chemical storage other than in the groups described here. This should be done in consultation with Environmental Safety Facility staff (656-5400), in order to assure that regulatory requirements are observed.

Annually, a Hazardous Chemical of Concern inventory is conducted by the ESF. Its purpose is to prepare reports for the State Department of Emergency Management and local fire departments about the amounts of hazardous chemicals stored at UVM.

If a chemical is not found on this list, consult the ESF staff for more information about its associated hazards. Remember that **only 1 quart of waste chemicals considered Acutely Toxic by the EPA may be stored in the laboratory at a time.**

01 - Inorganic Acids

Boron trichloride
Hydriodic Acid
Hydrobromic Acid
Hydrochloric Acid (muriatic acid)
Hydrofluoric Acid
Hypophosphorous acid
Phosphoric Acid
Sulfuric Acid
Titanium Tetrachloride
Ferric Chloride
Phosphorus Pentoxide
Sulfur Trioxide

02 - Organic Acids

Acetic Acid
Acetic Anhydride
Acrylic Acid
Benzyl Chloride *Acutely Toxic per EPA*
Butyric Acid
Cresol
Dichloroacetic acid
Difluorophosphoric Acid
Formic Acid
Phenol (Carbolic acid)
Photographic fixer
Picric Acid solution
Propionic Acid
Tetra chloroethane
Thioacetic Acid
Trichloroacetic acid
Trifluoroacetic Acid
Chloroacetic Acid
Fluoroacetic Acid *Acutely Toxic per EPA*
Sulfamic acid
Tannic Acid
Trichloroacetic Acid

03 - Oxidizing Acids

Chromic Acid
Chromosulfuric Acid (Chromerge)
Nitric Acid
Perchloric Acid
Chromic Acid
Periodic Acid
Phosphotungstic Acid

04 - Inorganic Bases

Ammonium Hydroxide
Potassium Hydroxide solution
Sodium Hydroxide solution
Calcium hydroxide
Iodine
Potassium Hydroxide
Sodium Hydroxide

05 - Flammable and Combustible Liquids

Acetaldehyde
Acetone
Acetonitrile
Acrylonitrile *carcinogenic*
Allyl Alcohol *Acutely Toxic per EPA*
Amyl Acetate
Amyl Alcohol
Amyl Chloride
Amyl Mercaptan
Benzaldehyde
Benzene *carcinogenic*
Butyl acetate
Butyl Alcohol
Butylamine
Carbon Disulfide *Acutely Toxic per EPA*
Carbonyl Sulfide

05 - Flammable and Combustible Liquids, continued

Cyclohexane	
Diesel fuel	
Diethylamine	
Diisopropyl Ether	Time sensitive material
Dimethyl Carbonate	
Dimethyl Sulfide	
Dimethylhydrazine	carcinogenic
Dioxane	Time sensitive material
Ethyl Acetate	
Ethyl Acrylate	carcinogenic
Ethyl Alcohol	
Ethyl Ether	Time sensitive material
Ethylene Dichloride	carcinogenic
Fuel Oil, No. 2	
Fuel Oil, No. 6	
Furfural	
Furfurylamine	
Gasoline	
Heptane	
Hexane	
Hydrazine	
Isoamyl Alcohol	
Isobutyl Alcohol	
Isopropanol	
Isopropyl Ether	Time sensitive material
Kerosene	
Methyl Alcohol	
Methyl Chloroform	
Methyl Ethyl Ketone	
Methyl formate	
Methyl Hydrazine	<i>Acutely Toxic per EPA</i>
Methyl Isocyanate	<i>Acutely Toxic per EPA</i>
Mineral Spirits	
Morpholine	
Nitropropane	carcinogenic
Octane	
Paraldehyde	
Pentane	
Petroleum Ether	
Propyl Alcohol	
Propylene Oxide	
Pump Oil	
Pyridine	
Tetrahydrofuran	Time sensitive material
Toluene	
Toluene-based scintillation fluid	
Triethylamine	
Xylenes	

06 - Gases

Acetylene	
Ammonia	
Argon	
Arsine	<i>Acutely Toxic per EPA</i>
Butadiene	
Butane (Liquefied Petroleum Gas)	
Carbon Dioxide	
Carbon monoxide	
Chlorine	
Compressed Air	
Diborane	
Ethane, Refrigerated	
Ethylene	
Ethylene Oxide	
Formaldehyde	
Germane	
Helium	
Hydrogen	
Hydrogen Fluoride	
Hydrogen Sulfide	
Methane	
Nitric Oxide	<i>Acutely Toxic per EPA</i>
Nitrogen	
Nitrogen Dioxide	<i>Acutely Toxic per EPA</i>
Nitrous Oxide, Compressed	
Oxygen, Compressed	
Phosgene	<i>Acutely Toxic per EPA</i>
Propane	
Silane	
Sulfur Dioxide	
Sulfur Tetrafluoride	
Vinyl Chloride	

07 - Organic peroxides

Organic Peroxide solutions
Peracetic Acid
Benzoyl Peroxide
Peroxides, organic
Tert-butyl Hydroperoxide

08 - Oxidizers

Bromine
Hydrogen Peroxide Solution, >3%
Hypochlorite Solution (Bleach) >10%
Nitrates, inorganic
Peroxides, inorganic
Potassium Dichromate
Potassium Nitrate
Potassium Nitrite
Potassium Permanganate
Potassium Persulfate
Sodium Nitrate
Sodium Nitrite
Uranyl Nitrate

09 - Water Reactive, Pyrophoric & Explosive Materials

Calcium hydride	
Calcium, Metal	
Dinitrophenol	
Lithium Aluminum Hydride	
Lithium Hydride	
Magnesium, Metal	
Phosphorus	
Picric Acid, Wet	Time sensitive material
Potassium, Metal	Time sensitive material
Sodium borohydride	
Sodium hydride	
Sodium hydrosulfite	
Sodium, Metal	
Trinitrotoluene	

10 - Toxic and Environmentally Hazardous Chemicals

Liquids

Acetone Cyanohydrin	
Acetyl acetone	
Acrolein	<i>Acutely Toxic per EPA</i>
Acrylyl Chloride	
Adiponitrile	
Aminopyridine	<i>Acutely Toxic per EPA</i>
Aniline	
Arsenous Trichloride	<i>Acutely Toxic per EPA</i>
Benzal Chloride	
Benzonitrile	
Benzyl Alcohol	
Bromoacetone	<i>Acutely Toxic per EPA</i>
Bromobenzene	
Bromoform	
Carbon tetrachloride	carcinogenic
Carbophenothion	
Chlorobenzene	
Chlordane	
Chloroacetaldehyde	<i>Acutely Toxic per EPA</i>
Chloroaniline	<i>Acutely Toxic per EPA</i>
Chloroform	carcinogenic
Chloromethyl Ether	Time sensitive material
Chloromethyl Ethyl Ether	Time sensitive material
Chloromethyl Methyl Ether	Time sensitive material
Cresol (all isomers)	
Cyanogen	<i>Acutely Toxic per EPA</i>
Cyanogen bromide	<i>Acutely Toxic per EPA</i>
Cyanogen chloride	<i>Acutely Toxic per EPA</i>
Cyanuric Fluoride	<i>Acutely Toxic per EPA</i>
Cyclohexanone	
Dichlorethane	
Dichloroethylene	
Dichlorophenoxyacetic acid (2,4 D)	
Dichlorophenylarsine	<i>Acutely Toxic per EPA</i>
Diethylene Glycol	

Dimethyl Carbamoyl Chloride	carcinogenic
Dimethyl Sulfate	carcinogenic
Dimethyl sulfoxide	
Dimethylformamide	
Dioxins, other (TCDD, etc)	
Epoxy resins	
Ethyl Cyanide	<i>Acutely Toxic per EPA</i>
Ethylene Dibromide	carcinogenic
Ethylene dichloride	
Ethylene Fluorohydrin	
Ethylene Glycol	
Ethyleneimine	<i>Acutely Toxic per EPA</i>
Fluoroacetyl Chloride	
Formalin	carcinogenic
Formamide	
Freon	
Furan	
Furfuryl Alcohol	
Glutaraldehyde Solution	
Hematoxylin Solution	carcinogenic
Hexachlorobenzene	
Hexachlorobutadiene	carcinogenic
Hexachloroethane	
Hydrocyanic acid	<i>Acutely Toxic per EPA</i>
Hydrogen cyanide solution	<i>Acutely Toxic per EPA</i>
Malathion	
Mercaptoethanol	
Mercury	
Methoxyethanol	
Methyl Bromide	
Methyl Iodide	carcinogenic
Methyl Vinyl Ketone	
Methylene Chloride	carcinogenic
Methylene iodide	
Nickel Carbonyl	<i>Acutely Toxic per EPA</i>
Nicotine & Salts	<i>Acutely Toxic per EPA</i>
Nitrobenzene	
Nitrosodimethylamine	<i>Acutely Toxic per EPA</i>
Nitrotoluene, m-,o-	
p-Dichlorobenzene	
Parathion	<i>Acutely Toxic per EPA</i>
pesticides, other	
Phenyl Thiourea	<i>Acutely Toxic per EPA</i>
Phenylhydrazine	carcinogenic
Photographic developer	
Piperidine	
Polychlorinated Biphenyls (PCB)	
Potassium thiocyanate	
Propargyl Alcohol	<i>Acutely Toxic per EPA</i>
Propenal	<i>Acutely Toxic per EPA</i>
Pyridinamine	<i>Acutely Toxic per EPA</i>
Tabun	
Tetrachloroethylene	carcinogenic
Tetraethyl Lead	<i>Acutely Toxic per EPA</i>
Tetramethylethylene diamine	
Thiophenol	<i>Acutely Toxic per EPA</i>
Toluene Diisocyanate (TDI)	<i>Acutely Toxic per EPA</i>

10 - Toxic and Environmentally Hazardous Chemicals, continued

Toluidine, o-	carcinogenic	Epinephrine	<i>Acutely Toxic per EPA</i>
Trichloroethane		Ethidium Bromide	
Trichloroethylene		Hematoxylin	carcinogenic
trichlorophenol (all isomers)		Hydroquinone	
Trichlorotrifluoroethene		Lead and compounds	
Trichlorophenoxy propionic acid (2,4,5 TP)		Lindane	
Triethanolamine		Mercuric Acetate	
Trifluoroethanol		Mercuric Oxide	
Vinyl Acetate Monomer		Mercury compounds, other	
Xylidine	carcinogenic	Methoxychlor	<i>Acutely Toxic per EPA</i>
Solids		Methylene Dianiline	carcinogenic
Acetyl Thiourea	<i>Acutely Toxic per EPA</i>	Mitomycin C	
Acrylamide	carcinogenic	Naphthylamine (beta)	carcinogenic
Aldicarb	<i>Acutely Toxic per EPA</i>	Nitroaniline	<i>Acutely Toxic per EPA</i>
Aldrin	<i>Acutely Toxic per EPA</i>	Nitrocresol	
alpha-Amanatin		Nitrodiphenyl	carcinogenic
Aminodiphenyl	carcinogenic	Nitrophenol	
Ammonium Arsenate		Nitrotoluene, p-	
Antimony and compounds		Osmium Tetroxide	<i>Acutely Toxic per EPA</i>
Antimony Trioxide	carcinogenic	Paraformaldehyde	
Antimycin A		Paraquat	
Arsenic Acid	<i>Acutely Toxic per EPA</i>	Pararosaniline	
Arsenic and compounds		Pentachlorophenol	
Arsenic Pentoxide	<i>Acutely Toxic per EPA</i>	pesticides, other	
Arsenic Trioxide	<i>Acutely Toxic per EPA</i>	Phenol	
Arsenous Oxide	<i>Acutely Toxic per EPA</i>	Phenyl methyl sulfonyl fluoride	
Asbestos	carcinogenic	Phenyl-naphthyl Amine	carcinogenic
Atrazine		Phenylmercury Acetate	<i>Acutely Toxic per EPA</i>
Barium & compounds		Phosmet	
Benzidine	carcinogenic	Potassium cyanide	<i>Acutely Toxic per EPA</i>
Benzil		Propidium iodide	
Benzopyrene	carcinogenic	Pyrene	carcinogenic
Beryllium And Compounds	<i>Acutely Toxic per EPA</i>	Resorcinol	
Biphenyl		Salicylic Acid	
Bis(Chloromethyl) Ketone		Selenium and compounds	
Brucine	<i>Acutely Toxic per EPA</i>	Silver & Compounds	
Cacodylic Acid	<i>Acutely Toxic per EPA</i>	Silvex (2,4,5-T)	
Cadmium and compounds		Sodium Arsenate	
Carbofuran		Sodium Azide (Time Sensitive, <i>Acutely Toxic per EPA</i>)	
Carbon Tetrabromide		Sodium Cacodylate	<i>Acutely Toxic per EPA</i>
Chromium & compounds		Sodium cyanide	<i>Acutely Toxic per EPA</i>
Cobalt Carbonyl		Sodium dichromate	
Colchicine		Strychnine	<i>Acutely Toxic per EPA</i>
Cyanides and compounds (other)	<i>Acutely Toxic per EPA</i>	Tetrodotoxin	
Cycloheximide		Thiourea	carcinogenic
Dichlorobenzidine	carcinogenic	Tolidine	carcinogenic
Digitoxin		Toluidine	carcinogenic
Dimethyl polysiloxane		Toxaphene	<i>Acutely Toxic per EPA</i>
Dimethyl-p-Phenylenediamine		Uranyl acetate	
Dinitrofluorobenzene		Vanadium Pentoxide	<i>Acutely Toxic per EPA</i>
		Warfarin	<i>Acutely Toxic per EPA</i>
		Zinc Chromate	carcinogenic
Dinitrotoluene	<i>Acutely Toxic per EPA</i>		
Endrin	<i>Acutely Toxic per EPA</i>		