

Principal Investigator: _____

Date Approved: _____

This document covers basic chemical safety information for hydrazine and other corrosive and flammable particularly hazardous substances (PHS). The use of hydrazine or any corrosive and flammable PHS is subject to pre-approval by the Principal Investigator (PI) and/or Supervisor. PI and/or Supervisor may use the sheet attached to this SOP to document any lab specific training for Hydrazine or Other Corrosive and Flammable PHS. **DO NOT USE HYDRAZINE OR ANY CORROSIVE AND FLAMMABLE PHS UNTIL YOU HAVE OBTAINED THE NECESSARY PRE-APPROVAL.**




Hydrazine and Other Corrosive and Flammable PHS

Hydrazine is used for organic synthesis, oxygen scavenging, and rocket fuel. It is a dangerously unstable, toxic, carcinogenic, and corrosive compound when in anhydrous form. It is corrosive to glass and can detonate even in the absence of oxygen. Hydrazine hydrates (from 15 to 64 wt%) are considered less toxic and flammable, and should be used instead of anhydrous hydrazine whenever possible. *If you plan to use anhydrous hydrazine you must consult with EH&S before proceeding.*

Carcinogens, reproductive toxicants, and substances with a high degree of acute toxicity are considered particularly hazardous substances (PHS). This SOP covers **anhydrous hydrazine** and other PHS that are also corrosive and flammable. This category includes the following chemicals: **methylhydrazine, 2-methylaziridine, acrolein, 3-buten-2-one (aka methyl vinyl ketone), (R)-(+)-3-butyn-2-ol, benzyl-2,3,4,5,6-d5 chloride**, and any other chemicals with a similar hazard profile.

Corrosive and flammable PHS cause destruction of exposed tissues, are defined by the National Fire Protection Agency (NFPA) as having a flashpoint below 100 °F (37.8 °C), can be fatal in small doses, have the potential to cause cancer as the result of prolonged exposure, cause mutations as the result of sub-lethal exposures, and have the potential to interfere with fertility, fetal development, and/or lactation as the result of prolonged exposures.



Personal Protective Equipment & Personnel Monitoring		
 Lab Coat	 Gloves	 Eye Protection
Flame resistant lab coat and a chemical-resistant lab apron.	Nitrile or chloroprene gloves to protect against splash contact. Use butyl rubber (Viton) when handling acrolein and methylhydrazine. Consult glove selection chart for heavy handling of corrosives.	ANSI Z87.1-compliant safety glasses or safety goggles, or face shield if a splash hazard is present.

Labeling & Storage

Store corrosive and flammable PHS away from other materials that are not particularly hazardous or which may be chemically incompatible. Store within a flammable storage cabinet with self-closing hinges or in a refrigerator rated for flammable storage. Any container greater than 1 gallon (4L) in size must be stored in a flammable storage cabinet. The maximum amount of flammables allowed outside a flammable storage cabinet, safety can, or approved refrigerator is 10 gallons. Containers holding corrosives must be stored below eye level. Primary containers should be labeled according to the UNC Charlotte Chemical Hygiene Plan. The secondary container's label must contain the chemical name and corresponding hazards. Containers of corrosive and flammable PHS must be stored in leak-proof secondary containment within a Designated Area. Also, if not plainly visible (e.g. through a cabinet window), labelling must be applied to storage locations where these are stored to avoid an inadvertent encounter. Review the specific chemical safety data sheets (SDS) for incompatibilities and light, air, moisture, and heat sensitivity information.

Engineering Controls, Equipment & Materials

Fume Hood

It is advisable to use a fume hood or glove box when working with materials which are toxic by inhalation. If your protocol does not permit the handling of such materials in a fume hood, contact EHS to determine whether additional respiratory protection is warranted.

Cautions & Considerations

Static Electricity

Transfer flammable chemicals from glass containers to glassware or from glass container/glassware to plastic whenever possible. Transferring these types of chemicals between plastic containers or metal containers may lead to a fire hazard due to static electricity. Use bonding and grounding wires if plastic or metal containers must be used.

Housekeeping

Spills

Notify others in the area of the spill, including your supervisor. Evacuate the location where the spill occurred. Call 911 from any campus phone (or 704-687-2200 from a cell phone). Report any exposure to EHS at 704-687-1111. Remain on-site (at a safe distance) to provide detailed information to first responders.

Decontamination

Clean any work surfaces which may have come in contact with these substances with soap and water.

Waste

Refer to the UNC Charlotte Chemical Hygiene Plan for details. Please note that these substances may be considered 'acutely hazardous' when disposed as waste.

First Aid & Emergencies

Skin Contact

Immediately remove contaminated clothing and shoes; flush skin with water in a safety shower for at least 15 minutes. Get medical attention immediately.

Eye Contact

Check for and remove contact lenses. Immediately flush eyes with water for at least 15 minutes. Get medical attention immediately.

Inhalation

Move person into fresh air. Get medical attention immediately.

Ingestion

Get medical attention immediately.

