





Poisons/Toxins

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This SOP covers chemicals in a solid, liquid, or gas phase that pose a health risk to individuals upon exposure via four routes: **ingestion, skin absorption, injection, and inhalation**. With each route of exposure, the likelihood of injury depends on the toxicity of the chemical involved, the concentration of the material, and the duration of contact. Under the Globally Harmonized System (GHS), they are classified as Category 1, 2, 3 or 4 Acute Toxins.

Please note that the use of Category 1 or 2 Acute Toxins might require additional precautions and safeguards that are beyond the scope of this SOP. For more information, please contact the Office of Research Safety at 706-542-5288.

		Routes of exposure					Hazard statement	Pictogram
		Oral (mg/kg body weight)	Dermal (mg/kg body weight)	Inhalation				
				Gases (ppm)	Vapors (mg/l)	Dust (mg/l)		
Toxicity range	Category 1	0 < LD ₅₀ ≤ 5	0 < LD ₅₀ ≤ 50	0 < LD ₅₀ ≤ 100	0 < LD ₅₀ ≤ 0.5	0 < LD ₅₀ ≤ 0.05	Danger Fatal if swallowed, or Fatal in contact with skin, or Fatal if inhaled.	
	Category 2	5 < LD ₅₀ ≤ 50	50 < LD ₅₀ ≤ 200	100 < LD ₅₀ ≤ 500	0.5 < LD ₅₀ ≤ 2.0	0.05 < LD ₅₀ ≤ 0.5	Danger Fatal if swallowed, or Fatal in contact with skin, or Fatal if inhaled.	
	Category 3	50 < LD ₅₀ ≤ 300	200 < LD ₅₀ ≤ 1000	500 < LD ₅₀ ≤ 2500	2.0 < LD ₅₀ ≤ 10.0	0.5 < LD ₅₀ ≤ 1.0	Danger Toxic if swallowed, or Toxic in contact with skin, or Toxic if inhaled.	
	Category 4	300 < LD ₅₀ ≤ 2000	1000 < LD ₅₀ ≤ 2000	2500 < LD ₅₀ ≤ 20000	10.0 < LD ₅₀ ≤ 20.0	1.0 < LD ₅₀ ≤ 5.0	Warning Harmful if swallowed, or Harmful in contact with skin Harmful if inhaled.	



Personal Protective Equipment & Personnel Monitoring



Lab Coat

Traditional lab coat or flame resistant lab coat when working with flammable materials.



Gloves

Nitrile or neoprene gloves typically provide adequate protection against minor splashes. Consult with your PI or supervisor to determine whether any materials involved in your process require alternative hand protection.



Eye Protection

ANSI Z87.1 - Compliant safety glasses, or safety goggles if a splash hazard is present.

Labeling & Storage

Store upright & tightly closed away from materials that are not particularly hazardous or which may be incompatible. Each container holding one of these items should comply with OSHA/GHS regulations. It is recommended that storage locations holding these items be labeled as a storage location for poisons/toxins to avoid an accidental encounter.

For poisons and toxins in a compressed gas cylinder, the cylinders should be individually anchored to a stable structure such as a wall with a chain or strap approximately $\frac{1}{2}$ to $\frac{3}{4}$ of the way up the cylinder. Additionally, cylinders should be tagged as full, in-use, or empty. Untagged cylinders are assumed to be full. Cylinders not in use should have regulators removed and safety caps in place. A gas detection system should be installed when feasible in order to quickly detect leaks.

Engineering Controls, Equipment & Materials

Fume Hood

Use of a fume hood when working with these substances is expected, particularly if the hazard is toxic by inhalation. If the use of a fume hood is impossible or impractical, please contact the Office of Research Safety (ORS) to determine whether additional respiratory protection is required. Respirators may be needed, particularly for sensitive populations.



Housekeeping

Spills Please refer to the Spill Control Guidelines for detailed information

Decontamination Decontamination methods vary based on the materials handled and equipment being used. Please review the chemical Safety Data Sheet for guidance on cleaning materials.

Any waste from this chemical class should be disposed of through the UGA Hazardous Waste Program. For assistance with arranging a waste pickup, you may contact the Environmental Safety Division (ESD) at 706-542-5801. Prior to pickup, any container used to hold hazardous waste should be labeled with the following:

- “Hazardous Waste”
- Chemical contents: Enough detail should be provided so that the full contents of the container are readily apparent. Labeling may include any of the following:
 - Percentages (Ex: 70% water, 30% hydrochloric acid)
 - Volumes (Ex: 1L of acetone, 500mL of water)
 - Chemical classes (Ex: halogenated solvents)
 - Method (Ex: EPA 515.1 Herbicide Extraction Solvent Waste)
 - Referenced Log (Ex: See Laboratory Waste Log, Volume 2)
 - Utilizing Chematix waste profiles
 - Any other labeling method providing enough detail to accomplish this requirement
- One or more of the following waste characteristics recognized by EPA: Ignitable, Corrosive, Reactive, or Toxic.

Waste

First Aid & Emergencies

Skin Contact Immediately remove contaminated clothing and shoes; flush skin with water 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 affected person into fresh air. Get medical attention immediately.
Ingestion	Get medical attention immediately.

Contacts

Office of Research Safety: 706-542-5288
Environmental Safety Division: 706-542-5801
Poison Control: 800-222-1222

References

Prudent Practices in the Laboratory: Handling and Management of Chemical Hazards, National Research Council, 2011

NFPA 45: Standard on Fire Protection for Laboratories, National Fire Protection Agency, 2015

Code of Federal Regulations, Occupational Health and Safety Standards, 29 CFR, 1910.1200: Hazard Communication