Principal Investigator: Insert PI name here **Laboratory:** Insert building and lab number here

This hazard assessment encompasses chemical safety information for bromine . Users of these types of chemicals must review this document, understand the associated hazards, and the controls or processes necessary to handle them safely prior to using these chemicals in the laboratory. NOTE: pre-approval of the Principal Investigator (PI) or Supervisor is required before purchasing or use in the laboratory.

BROMINE

Bromine is dark brown with a very pungent odor, it is the only halogen and nonmetal to exist as a liquid at room temperature and pressure. It is a powerful oxidizing agent that may react violently with strong reducing agents and many metals, and also reacts readily with water or moisture in the air to evolve hydrobromic acid. At low concentrations (<10 ppm) the vapor is a severe irritant, and at higher concentrations it is extremely destructive to the tissues of the eyes and lungs, and may be fatal if inhaled or swallowed. Bromine will attack many types of plastic, paper, wood, and fabric may also combust in the presence of bromine.

PERSONAL PROTECTIVE EQUIPMENT

Ensure your lab coat completely covers your arms and any exposed skin on your wrist

Viton gloves are required for open use; pouring and transfers from container.

ANSI Z87.1 compliant safety goggles must be used for any handling

CONTAINER LABELING AND STORAGE

Bromine must be stored in the manufacturer's container, or a compatible secondary container labeled with the full chemical name and primary hazard. **Note: Bromine will deteriorate the plastic cap of the container over time**, the cap should be inspected periodically for any signs of damage and replaced as needed within the fume hood. The bottle must also be stored in a sealable secondary container of fluorinated plastic lined with sodium thiosulfate, or metabisulfite, to neutralize any errant vapor when not in use, replacing sodium thiosulfate as needed.

ENGINEERING CONTROLS

Fume Hood	All work with bromine must be conducted in a properly functioning chemical fume hood with a valid annual recertification

ADMINISTRATIVE (WORK PRACTICE) CONTROLS

Transport	Transporting bromine from the chemical storage locker to the laboratory requires the use of sealed secondary containment and a cart.
Spills	The PI must be notified of all spills in the laboratory. For minor spills of bromine in the fume hood neutralize the spill immediately with sodium thiosulfate or metabisufite before cleaning the area and collecting the waste for disposal by EHS. **Do not attempt to clean large spills or spills outside of the hood!** Evacuate the lab and call EHS at (703) 993-8448 for assistance from 8am to 5pm, remain onsite

	(outside of the laboratory) to provide details to the first responders. For unknown or large spills after hours, or in the event of fire, evacuate the lab and contact 911 for emergency assistance.
Waste	Never dispose of hazardous waste in the laboratory sink or trash unless authorized to do so by EHS. Select a compatible container for the waste and affix a hazardous waste label with the name of the chemical(s) being accumulated to the container. Use a funnel or spigot to transfer the waste into the container and use secondary containment to catch spills. Keep containers closed unless adding waste to the container. Open systems should be provided with a sealed waste container. Do not fill waste containers to greater than 90% capacity. **Neutralization is required as part of the waste cleanup procedure whenever responding to a small spill of bromine in the fume hood.**

FIRST AID AND EMERGENCIES

Skin or Eye Contact	Remove contaminated clothing or PPE; flush the affected area with water for 15 minutes. Seek immediate emergency medical attention
Inhalation	Move to fresh air and seek immediate emergency medical attention
Ingestion	Do not induce vomiting, rinse out mouth with water, and seek immediate emergency medical attention
Release	Evacuate the area immediately and contact 911

Initial below to acknowledge that you have read and understood this document and the associated hazards and controls necessary for the safe use of these types of chemicals in this laboratory.

Name	Initials	PI or Supervisor Initials	Date