

Principal Investigator: _____

Date Approved: _____

This document covers basic chemical safety information for nitric acid. The use of nitric acid 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 Nitric Acid. **DO NOT USE NITRIC ACID UNTIL YOU HAVE OBTAINED THE NECESSARY PRE-APPROVAL.**

Nitric Acid

Nitric acid - HNO₃ (also known as aqua fortis) is a corrosive acid and strong oxidizing agent. It may be harmful if ingested, inhaled, or absorbed through the skin. It can cause severe skin and eye burns resulting in irreversible damage. It is extremely destructive to the tissue of the mucous membranes and the upper respiratory tract. If you prepare Aqua regia (mixture of HNO₃: HCl at 1:3 ratio), a separate SOP is required.



Personal Protective Equipment & Personnel Monitoring			
			
Lab Coat	Gloves	Eye Protection	Face Shield
Traditional white lab coat and chemical-resistant apron when working with large volumes.	Butyl viton as outer reusable gloves and disposable Nitrile or Chloroprene as inner gloves. DO NOT WEAR LATEX GLOVES	ANSI Z87.1-compliant safety goggles, or face shield if a splash hazard is present.	

Labeling & Storage

Keep container tightly closed in a dry and well-ventilated area, away from direct sunlight. Opened containers must be carefully resealed and stored upright to prevent leakage. 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. Always store nitric acid in secondary containment. Note: Nalgene/polypropylene tray or a tub is the best suited secondary containment. Containers holding nitric acid need to be stored below eye level. Store nitric acid away from flammable and combustible materials. Incompatibles include reducing agents, bases, alkali metals, cyanides, powdered metals, and organic materials (including organic acids). It's advisable to further segregate nitric acid from hydrochloric acid.

Engineering Controls, Equipment & Materials

Fume Hood

Use fume hood to keep exposure to nitric acid as low as possible. If your protocol does not permit the handling of HNO₃ in a fume hood, contact EHS to determine whether additional respiratory protection is warranted.

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

Wearing proper PPE, decontaminate equipment and bench tops using soap and water. Dispose of the used chemical and contaminated disposables as hazardous waste following the UNC Charlotte EHS guidelines.

Waste

Nitric acid waste should never be combined with organics or reducing agents. The best practice is to store all nitric acid-containing waste streams in a dedicated container segregated from all other waste streams. Refer to the UNC Charlotte Chemical Hygiene Plan for more information on waste management.

First Aid & Emergencies

Skin or Eye Contact

Remove contaminated clothing and accessories; flush affected area with water. If symptoms persist, get medical attention.

Inhalation

Move person into fresh air. If symptoms persist, get medical attention.

Ingestion

Rinse mouth with water. If symptoms persist, get medical attention.

