

Principal Investigator: _____

Date Approved: _____

This Chemical Safety Protocol (CSP) covers basic chemical safety information for nitric acid and supplements the laboratory Chemical Hygiene Plan as appropriate. Additional lab-specific safety operating procedures for nitric acid may also be required. The use of any nitric acid is subject to pre-approval by the Principal Investigator (PI) and/or the designated Laboratory Responsible Safety Person. DO NOT USE NITRIC ACID UNTIL YOU HAVE OBTAINED THE NECESSARY PRE-APPROVAL AND TRAINING.

Nitric Acid

Nitric acid - HNO_3 (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 HNO_3 : HCl at 1:3 ratio), a separate CSP is required.



Personal Protective Equipment & Personnel Monitoring

**Lab Coat**

Traditional white lab coat and chemical-resistant apron when working with large volumes.

**Gloves**

Butyl viton as outer reusable gloves and disposable Nitrile or Chloroprene as inner gloves.

**Eye Protection**

ANSI Z87.1-compliant safety goggles, or face shield if a splash hazard is present.

**Face Shield**

Do not wear latex gloves.

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. 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 HNO_3 in a fume hood, contact the Office of Environment, Health, Safety, and Sustainability (EHSS) to determine whether additional respiratory protection is warranted.

Housekeeping

Releases

Immediately notify others in the area of the release and evacuate the location where the release occurred. Notify your PI/Responsible Safety Person and call Vanderbilt

University Public Safety (VUPS) at 615-421-1911 or use the Vandysafe app on your smart phone. Report any exposure through Risk and Insurance Management's Origami portal and mark that it occurred in research when prompted. Both VUPS and the Origami system will notify EHS of the incident. 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 EHSS guidelines.

Waste

Refer to the laboratory *Chemical Hygiene Plan* (Section 6.7) for information on proper chemical waste disposal procedures.

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.

