

**STANDARD OPERATING PROCEDURE**

**Nitric Acid**

According to the Safety Data Sheet (SDS) for **Nitric Acid** special precautions must be taken when working with this chemical. Below are some of the characteristics of **Nitric Acid** followed by some recommendations in handling the chemical and finally any paperwork needed in order to use the chemical in the laboratory. This Standard Operating Procedure will be followed along with the requirements of the Chemical Hygiene Plan.

GHS Classifications: **Signal Word: Danger**

**Pictograms: Oxidizing Toxicity and Corrosive Toxicity**

Additional Classification: **Department of Homeland Security (DHS) Chemical of Interest**

Brief description of proposed chemical work: **Nitric Acid is a colorless, fuming and highly corrosive liquid. It is commonly used as a laboratory reagent.**

**Section 1: Brief Safety Overview:**

● The Principal Investigator is responsible for training employees using the material on site. The training should include a discussion of the known and potential hazards; an explanation of the relevant policies, techniques and procedures including the proper use of personal protective equipment, emergency/spill procedures and containment equipment (engineering controls).

● Limit access to authorized users.

● Minimize the possibility of inadvertent ingestion, inhalation and direct skin or eye contact with the substance.

● Chemical has been entered in the Chemical Inventory (EHS Assistant)

● Require annual training.

**Section 2: Research Laboratory Procedures**

* **Handling Instructions**

Example: (Preparation of the stock solutions): **Preparation can depend upon the laboratory practices. Proper laboratory procedure must be followed and employees must be trained to handle the material.**

* **Storage:**

**Nitric Acid should be separated from acids, alkalis, reducing agents and combustibles. Concentrated Nitric Acid must be stored as an oxidizer and away from organics. No chemicals should be stored above eye level. Chemical containers must be closed and labeled.**

***Location – Engineering controls***

Ventilation (example: Fume Hood, Canopy Hoods, etc): **Fume Hood**

Designated area (specify): **Fume Hood**

***PPE required:***

Skin/Body Protection (example: Lab Coat) **Laboratory Coat**

Eye protection

Face shield

Respirator (example: N95):

Hand protection (example: Nitrile gloves): **Neoprene gloves**

* **Cleanup/Decontamination procedures for work area after use:**

**Laboratory personnel should use 70% Ethanol to decontaminate work surfaces after use.**

* **Disposal Procedures**

**All full strength and diluted Nitric Acid waste must be collected and disposed of through Environmental Health and Safety. Waste must be collected in an appropriate specifically labeled, leak-proof container.**

**Section 3: Occupational Exposures**

* **Routes of Exposure**

Skin - **Very hazardous in case of eye and skin contact.**

Inhalation - **Very hazardous in case of inhalation.**

Ingestion- **Very hazardous in case of ingestion.**

Injection- **N/A**

* **Toxicological Effects**

Acute Effects/ Precautionary Safety Measures: **Very hazardous after an acute exposure to eyes, skin or by ingestion. Liquid or spray mist may produce tissue damage or burns. Severe over-exposure may result in death.**

Chronic Effects/ Precautionary Safety Measures: **Prolonged exposure may be toxic to lungs, mucous membranes, upper respiratory tract, skin and eyes. Repeated exposure can produce target organs damage.**

* **Occupational Exposure Response and First Aid Measures**

Skin: **Wash skin with disinfectant soap and cover the contaminated skin with anti-bacterial cream. Seek immediate medical treatment.**

Eyes: **Flush eyes for at least 15 minutes while holding eyelids open. Remove contacts if they do not flush out. Seek immediate medical treatment.**

Inhalation: **Remove victim from the exposure area and take to fresh air immediately. Seek immediate medical treatment. Do not perform mouth-to-mouth resuscitation.**

Ingestion: **Do not induce vomiting. Seek immediate medical treatment.**

* **Emergency Procedure for Chemical Spills and Accidental Releases**

**Small Spills (less than 1 gallon):**

**Small spills which do not enter drains can be cleaned by trained personnel. Proper PPE must be worn when cleaning the spill. Post the door with the chemical spill sign from the spill kit. Use Sodium Bicarbonate, Sodium Carbonate, Calcium Carbonate or Neutrasorb to contain, neutralize and absorb any freestanding liquid. Collect all contaminated materials in a bag labeled as “Nitric Acid waste” and contact Environmental Health and Safety for chemical pickup.**

**Large Spills (more than 1 gallon):**

**For large spills outside the fume hood, evacuate all personnel from the space, shut the door and if possible turn of the power to the room. Post the door with the chemical spill sign from the spill kit, and call the Environmental Health and Safety Emergency Response Team, and report the spill. If the spill occurs inside the fume hood, shut the sash, evacuate all personnel from the space and shut the door. Report the spill by contacting the Environmental Health and Safety Emergency Response Team.**

This Standard Operating Procedure must be placed in the Chemical Hygiene Plan and the SDS must be accessible. Also, all laboratory personnel must be familiar with safe handling practices (i.e., training with documentation of training) when working with these chemicals. This must be incorporated into the comprehensive chemical hygiene plan of the laboratory. If you have any questions regarding a comprehensive mandatory laboratory chemical hygiene plan please contact your Representative at Environmental Health and Safety (292-1284).

For any other questions or concerns, please contact:

PI contact information

Name:

Primary Contact Number:

Emergency Contact Number:

P.I. Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_