Standard Operating Procedure

Sodium nitrite

*This is an SOP template and is not complete until: 1) lab specific information is entered into the box below 2) lab specific protocol/procedure is added to the protocol/procedure section and
3) SOP has been signed and dated by the PI and relevant lab personnel.*

 Print a copy and insert into your
*Laboratory Safety Manual* and *Chemical Hygiene Plan*.
Refer to instructions for assistance.

|  |  |
| --- | --- |
| **Department:** | Click here to enter text. |
| **Date SOP was written:** | Click here to enter a date. |
| **Date SOP was approved by PI/lab supervisor:** | Click here to enter a date. |
| **Principal Investigator:** | Click here to enter text. |
| **Internal Lab Safety Coordinator/Lab Manager:** | Click here to enter text. |
| **Lab Phone:** | Click here to enter text. |
| **Office Phone:** | Click here to enter text. |
| **Emergency Contact:** | Click here to enter text. |
| *(Name and Phone Number)* |
| **Location(s) covered by this SOP:** | Click here to enter text. |
| *(Building/Room Number)* |

**Type of SOP:** ☐ Process ☒Hazardous Chemical ☐ Hazardous Class

**Purpose**

(*State the procedure the specific chemical is used for in lab/the purpose of the chemical*)

**Physical & Chemical Properties/Definition of Chemical Group**

CAS#: 7632-00-0

Class: Strong Oxidizer

Molecular formula: NaNO2

Molecular Weight: 69 g/mole

Form (Physical State): White to slightly yellowish solid (Powdered solid)

Melting Point:271°C (519.8°F)

Boiling Point: 320°C (608°F)

 

**Potential Hazards/Toxicity**

**Routes of Entry:** Absorbed through skin, inhalation, and ingestion.

**Toxicity to Animals:**

WARNING: THE LC50 VALUES HERE UNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 175 mg/kg [Mouse]. Acute toxicity of the dust (LC50): 5.5 4 hours [Rat].

**Chronic Effects on Humans:**

MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Classified POSSIBLE for human. DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male [POSSIBLE]. May cause damage to the following organs: blood, cardiovascular system, Smooth Muscle.

**Other Toxic Effects on Humans:**

Very hazardous in case of ingestion, of inhalation. Hazardous in case of skin contact (irritant). Slightly hazardous in case of skin contact (permeator).

**Special Remarks on Chronic Effects on Humans:**

May cause cancer (tumorigen), affect gentic material (mutagen), cause adverse reproductive effects (fertility, fetotoxicity) and birth defects based on animal data. Passes through the placental barrier in animal.

**Special Remarks on other Toxic Effects on Humans:**

Acute Potential Health Effects: Skin: Causes skin irritation. May be absorbed through skin. Eyes: Causes eye irritation. May cause conjunctivitis. May cause permanent corneal opacification. Ingestion: Harmful if swallowed. Causes gastrointestinal tract irritation with nausea. May affect behavior, brain, nervous system (change in motor activity, muscular incoordination, loss of reflexes, convulsions, coma), blood (methemoglobinemia), liver, metabolism, cardiovasular system (decrease in blood pressure, rapid pulse) and urinary system. May also cause weakness. Inhalation: May be fatal if inhaled. May cause respiratory tract irritation, cyanosis, dyspena, pulmonary edema, asphyxia, chemical pneumonitis, upper airway obstruction caused by edema and possible death. May cause biochemical changes. May affect the blood (methemoglobinemia), and the cardiovascular system (tachycardia).

**Personal Protective Equipment (PPE)**

* *Eyes:* Wear splash safety goggles.
* *Skin:* Wear gloves and lab coat.
* *Clothing:* Wear long pants, shirt, and closed toe shoes while handling.

*Personal Protection in Case of a Large Spill:*Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Lab personnel intending to use/wear a respirator mask must be trained and fit-tested by ORS and should contact occhealt@uga.edu. This is a UGA requirement described in more detail in the [UGA Respiratory Protection Plan](https://esd.uga.edu/sites/default/files/respiratoryprotection.pdf) and supported by the [Office of Research Occupational Health and Safety Program](https://research.uga.edu/ohsp/).

**Engineering Controls**

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

**First Aid Procedures**

* *Inhalation*: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
* *Ingestion*: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Aspiration hazard if swallowed- can enter lungs and cause damage. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention.
* *Skin Contact*: In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
* *Eye Contact*: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

**Special Handling and Storage Requirements**

**Precautions:** Keep locked up. Keep away from heat. Keep away from sources of ignition. Keep away from combustible material. Do not ingest. Do not breathe dust. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as reducing agents, combustible materials, organic materials, metals, acids.

**Storage:** Oxidizer. Hygroscopic. Air sensitive. Keep container tightly closed. Keep container in a cool, well-ventilated area. Separate from acids, alkalies, reducing agents and combustibles. See NFPA 43A, Code for the Storage of Liquid and Solid Oxidizers.

Do not store above 23°C (73.4°F).

**Spill and Accident Procedure**

Carbon monoxide and/or carbon dioxide may be given off in a fire. In the event of fire, evacuate and bar further entry.

**Chemical Spill Dial 911**

**24-7 On-Call Response to Research, Environment, Health or Safety Concerns Dial 2-5561 from a campus phone or 706-542-5561 from a non-campus line.**

**Spill** – Follow the procedures set out in the [UGA Chemical and Laboratory Safety Manual.](http://research.uga.edu/docs/units/safety/manuals/Chemical-Laboratory-Safety-Manual.pdf)

[If there are any chemical-specific protocols for responding to a spill, insert them here or mark “none”:]

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**Medical Emergency Dial 911**

**Life Threatening Emergency, After Hours, Weekends And Holidays** – Dial **911** or the emergency phone numbers listed at the beginning of the UGA Chemical and Laboratory Safety Manual

*Note: All incidents that result in an injury or property damage must be reported to ORS / ESD using a University Incident/Accident Report.*

**Non-Life Threatening Emergency** – Follow the instructions in the UGA Chemical and Laboratory Safety Manual.

*Note: All incidents that result in an injury or property damage must be reported to ORS / ESD using a University Incident/Accident Report.*

**Decontamination/Waste Disposal Procedure**

**For general hazardous waste disposal procedures, see Appendix H of the UGA Chemical and Laboratory Safety Manual.**

**Chemical Specific Procedures: [to be inserted or marked as “none”]**

Decontamination of Equipment

Equipment that needs to be decontaminated (for repair or change of location etc.) must be washed with soapy water and rinsed with copious amounts of water.

 **Safety Data Sheet (SDS) Location**

UGA personnel can access Online SDS through a link in the upper left corner of the ESD home page (<https://esd.uga.edu>) and logging in by using their UGA email user name and password.

Online SDS can be accessed at **[to be inserted]**

**Protocol/Procedure**

*(Add specific description of procedure.)*

**Note:** Any deviation from this SOP requires written approval from PI.

**Documentation of Training** *(signature of all users is required)*

* Prior to conducting any work with the chemical, designated personnel must provide training to his/her laboratory personnel specific to the hazards involved in working with this substance, work area decontamination, and emergency procedures.
* The Principal Investigator must provide his/her laboratory personnel with a copy of this SOP and access to the SDS provided by the manufacturer.
* The Principal Investigator must ensure that his/her laboratory personnel have attended appropriate laboratory safety training or refresher training within the last 12 months.

**Principal Investigator SOP Approval**

Print name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Signature\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Approval Date:

I have read and understand the content of this SOP:

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