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| Standard Operating Procedure |
| Sodium Azide |

*This is an SOP template and is not complete until: 1) Lab Specific information is entered into the box below 2) Lab Specific information is added to the various sections, 3) completed SOP has been approved by the PI, and 4) completed SOP has been signed and dated by all relevant lab personnel.*

Keep a copy and in your lab safety shared folder or binder.

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| Department: | Click here to enter text. | | | |
| SOP Preparation Date: | Click here to enter a date. | SOP Approval Date: | | Click here to enter a date. |
| Principal Investigator: | Click here to enter text. | | | |
| Lab Manager Name: | Click here to enter text. | | | |
| Laboratory Phone: | Click here to enter text. | | Office Phone: | Click here to enter text. |
| Emergency Contact: | Click here to enter text. | | Contact Phone: | Click here to enter text. |
| Laboratory locations covered by this SOP (building / room number): | | | | |
| Click here to enter text. | | | | |

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| Type of SOP: |  | Process |  | Hazardous Chemical |  | Equipment |

**Purpose**

Sodium azide is commonly used in research labs as a preservative in diluted solutions of 0.1% to 2% and in organic synthesis for the synthesis of triazoles, tetrazoles, aziridines, and primary amines.

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

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| CAS: | 26628-22-8 |  |
| Class: | Acute toxin, Water reactive, Potentially explosive chemical |
| Molecular Formula: | NaN3 |
| Form (physical state): | Solid |
| Color: | White |
| Boiling Point: | 275 oC |

**Potential Hazards / Toxicity**

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| --- | --- |
| **Potential Health Effects** | |
| **Target Organs:** | Heart, Central nervous system, Brain |
| **Inhalation:** | May be harmful if inhaled. May cause respiratory tract irritation. |
| **Skin:** | May be fatal if absorbed through skin. May cause skin irritation. |
| **Eyes:** | May cause eye irritation. |
| **Ingestion:** | May be fatal if swallowed. |

**HEIRARCHY OF CONTROLS:**

**Engineering Controls**

**Lab Specific Engineering Controls** (Add your lab’s specific engineering controls in this section).

Click here to enter text.

Handle using a certified chemical fume hood with adequate ventilation.

**Administrative Controls**

**Lab Specific Administrative Controls** (Add your lab’s specific administrative controls in this section).

Click here to enter text.

Adhere to the processes outlined in this SOP.

**Personal Protective Equipment (PPE)**

**Lab Specific PPE requirements** (Add your lab specific PPE requirements in this section).

Click here to enter text.

**Hand Protection**

Handle with gloves. Use proper glove removal technique to avoid skin contact with this product. Nitrile gloves are recommended.

**NOTE:** Consult with your preferred glove manufacturer to ensure that the gloves you plan on using are compatible with sodium azide.

Refer to glove selection chart from the links below:

<http://www.ansellpro.com/download/Ansell_8thEditionChemicalResistanceGuide.pdf>

OR

<http://www.allsafetyproducts.biz/page/74172>

OR

<http://www.showabestglove.com/site/default.aspx>

**Eye Protection**

* Wear chemical splash goggles or a face shield to protect from splash hazards and chemical vapors.

**Skin & Body Protection**

* Lab coat
* Full-length pants
* Closed-toe rubber or leather shoes

**Respiratory Protection**

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Respirators should be used only under any of the following circumstances:

* As a last line of defense (i.e., after engineering and administrative controls have been exhausted).
* When Permissible Exposure Limit (PEL) has exceeded or when there is a possibility that PEL will be exceeded. Contact RMS to schedule air monitoring.
* Regulations require the use of a respirator.
* An employer requires the use of a respirator.
* There is potential for harmful exposure due to an atmospheric contaminant (in the absence of PEL).
* As PPE in the event of a chemical spill clean-up process.

Lab personnel intending to use/wear a respirator mask must be trained and fit-tested. This is a regulatory requirement.

<https://riskmanagement.nd.edu/safety/occupational-health/respiratory-protection-plan/>

**Hygiene Measures**

Avoid contact with skin, eyes, and clothing. Wash hands before breaks and immediately after handling the product. Sodium azide is rapidly absorbed through skin.

**Special Storage & Handling Requirements**

**Storage**

* Ensure the container is tightly closed at all times.
* Keep in a cool, dry, well-ventilated area away from incompatible materials and conditions.
* Do not store on metal shelves or use metal items (spatulas) to handle Sodium azide.
* Keep away from heat, air, light, and moisture.
* Do not allow product to get in contact with water during storage.
* Sodium azide and all other acutely toxic materials should be stored in a secondary container in a designated area away from other chemicals.
* Store away from metals, acids, carbon disulfide, bromine, chromyl chloride, sulfuric acid, nitric acid, hydrazine and dimethyl sulfate

**Handling**

* The lab where the material is being handled has an approved / certified emergency eyewash and safety shower.
* Ensure you are wearing the following minimum PPE: tightly fitting safety goggles, lab coat, full length pants, closed-toe rubber or leather shoes, nitrile gloves.
* Lab emergency contact information must be readily posted. Easy access to a cellular phone or land line is readily available.
* Avoid contact with skin, eyes, and clothing.
* Avoid formation of dusts and aerosols.
* Provide appropriate exhaust ventilation at places where dust is formed.

**EMERGENCY ACTION PLAN (EAP):**

**Lab Specific EAP** (Add your lab’s specific emergency action plan variances in this section).

Click here to enter text.

**First Aid Procedures**

**If inhaled…** Move to fresh air. If the person is not breathing, give artificial respiration. DO NOT use mouth to mouth resuscitation. If breathing is difficult, give oxygen. Call 911 from a campus phone or (574) 631-5555 from a cell phone to report exposure to Notre Dame Police Dept. (NDPD) dispatch.

**In case of skin contact…** Remove all contaminated clothing. Immediately (within seconds) flush affected area for FIFTEEN (15) minutes. Call 911 from a campus phone or (574) 631-5555 from a cell phone to report exposure to Notre Dame Police Dept. (NDPD) dispatch.

**In case of eye contact…** Remove any contact lenses. Use nearest emergency eyewash immediately for at least 15 minutes. DO NOT allow victim to rub eyes or keep eyes closed. Call 911 from a campus phone or (574) 631-5555 from a cell phone to report exposure to Notre Dame Police Dept. (NDPD) dispatch.

**If swallowed…** DO NOT INDUCE VOMITING. Never give anything by mouth to an unconscious person. Call 911 from a campus phone or (574) 631-5555 from a cell phone to report exposure to Notre Dame Police Dept. (NDPD) dispatch. Consult a physician.

**Spill and Accident Procedure**

**Personal precautions**

Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist, dust or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Do not attempt clean-up without minimum PPE.

**Environmental precautions**

Prevent further leakage or spillage – if safe to do so. Do not allow product to enter drains. Discharge into the environment must be avoided.

**Methods and materials for containment and clean-up**

Consider material compatibility prior to clean-up. Verify spill kit is available. Pick up and arrange disposal without creating dust. Sweep up and shovel. Do not flush with water. Keep in suitable, closed containers for disposal.

1. Immediately assess amount spilled, follow Lab Specific Emergency Action Plan procedures for hazardous materials incidents.
2. If a chemical exposure has occurred, a fellow lab worker shall call 911 from a campus line or 574-631-5555 from a cell phone to report exposure to Notre Dame Police Dept. (NDPD) dispatch.
3. Don compatible gloves and other protective PPE if not already being worn.
4. Secure / restrict access to the area of the spill to prevent spread of the chemical.
5. Use the available spill kit to stop and contain the spill. Bag the collected material.
6. Label and tag as hazardous waste and submit a pick-up request to RMS using the [online Chemical Discard Tag form](https://riskmanagement.nd.edu/safety/environmental/hazardous-waste/).

**Decontamination / Waste Disposal Procedure**

**Waste Labeling Requirements**

* Label waste container with the term “Hazardous Waste- sodium azide” and “Toxic” (or toxic GHS pictogram) to all sodium azide waste containers prior to the first drop of waste being added to the container.

**Store waste**

* Store hazardous waste in closed containers, in secondary containment and in a designated storage location.
* Double-bag dry waste using sealable transparent bags.
* Waste must be under the control of the person generating and disposing of it.

**Dispose of waste**

* Dispose of regularly generated chemical waste within 90 days.
* Use the [online Chemical Discard Tag form](https://riskmanagement.nd.edu/safety/environmental/hazardous-waste/) to request a pickup.
* Contact RMS at (574) 631-5037 for waste-related questions.

**Protocol / Procedure**

**Lab Specific Procedures** (Add your lab’s specific procedures in this section).

Click here to enter text.

**IMPORTANT NOTE: Any deviation from this SOP requires advance PI approval.**

**Documentation of Training**

* Prior to conducting any work with this material, Principal Investigator or designee must provide 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 a copy of the Material Safety Data Sheet (SDS) provided by the manufacturer available in MSDSOnline.
* The Principal Investigator must ensure that his/her laboratory personnel have attended appropriate/required laboratory safety training or refresher training within the last one year.

**I have read and understand the content of this SOP.**

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