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| Chemical: **Azides** | Print Date: |
| Revision # | Prepared By: | Date Prepared: |
| Effective Date: | Reviewed By: | Date Reviewed: |
|  | Approved By: | Date Approved: |
| Revision History: |  |  |

# Purpose

Organic azides are a useful organic chemistry building block. There has been incredible interest in their use in peptide synthesis, combinatorial synthesis, and heterocycle formation. They are commonly used in named organic reactions include Huisgen cycloaddition, Staudinger ligation and Curtis rearrangement. They can be made through a variety of methods most involving toxic sodium azide, or explosive diazonium salts.

# Physical & Chemical Properties/Definition of Chemical Group

CAS#: N/A

Class: Explosive, Toxic Molecular Formula: R-N3

Form (physical state): Solid or liquid Color: varies

Boiling point: N/A

# Potential Hazards/Toxicity

Organic azides are typically shock and heat sensitive explosives. The stability greatly varies depending on the organic azide. Please seek additional information on the specific organic azide that is being used. In general, the lower the carbon to nitrogen ratio, the more unstable the compound tends to be, making it more hazardous. They also have similar toxicity to organic cyanides. Isolation, purification, and storage are all hazardous and should be avoided when possible. Avoid contact with acid as gaseous and toxic hydrogen azide can form.

# Personal Protective Equipment (PPE)

## Respirator Protection

Lab personnel intending to use/wear a respirator mask must be trained and fit-tested by EHS. 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.
* 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

## Hand Protection

Handle with nitrile or chloroprene gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

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

Refer to glove selection chart from the link below: <http://www.ansellpro.com/download/Ansell_8thEditionChemicalResistanceGuide.pdf>

## Eye Protection

ANSI approved safety glasses or goggles. Face shield also recommended

## Skin and Body Protection

Flame resistant lab coats should be worn. These laboratory coats must be appropriately sized for the individual and be buttoned to their full length. Laboratory coat sleeves must be of a sufficient length to prevent skin exposure while wearing gloves. Full length pants and close-toed shoes must be worn at all times by all individuals that are occupying the laboratory area. The area of skin between the shoe and ankle should not be exposed.

## Hygiene Measures

Avoid contact with skin, eyes, and clothing. Wash thoroughly after handling. Wash hands before eating. Remove contaminated clothing and wash before reuse

# Engineering Controls

Work with this chemical in a certified ducted fume hood. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. A blast shield is also recommended. Some azides may require use of a properly ventilated glove box.

# First Aid Procedures

## If inhaled

Move victim to fresh air. Monitor for respiratory distress if not breathing give artificial respiration. Consult a physician

## In case of skin contact

Remove contaminated clothing and/or shoes. Wash exposed area with soap and plenty of water. Take victim immediately to hospital. Consult a physician

## In case of eye contact

Rinse thoroughly with water for at least 15 minutes (remove contact lenses if easily possible) and consult a physician.

## If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician

# Special Handling and Storage Requirements

**Special handling:** When possible use as dilute solutions. Isolation, purification, and storage should be avoided when possible. Storage will depend on each specific azide. Some require approved freezer and they should be stored in secondary containment and labeled accordingly. **Spill and Accident Procedure**

**Spill** – Assess the extent of danger. Help contaminated or injured persons. Evacuate the spill area. Avoid breathing vapors. If possible, confine the spill to a small area using a spill kit or

absorbent material. Keep others from entering contaminated area (e.g., use caution tape, barriers, etc.).

## All Dry/Powdered Spill Cleanup Materials:

Use the appropriate dry absorbent/ neutralizer such as the Universal Absorbent (General/solvent/oil/etc. spills), Dry Acid Neutralizer (Acid spills), Dry Base Neutralizer (Base spills), or Dry Hydrofluoric Acid Neutralizer (HF spills).

Sprinkle the absorbent material on the outer edges of the spill and continue sprinkling the powder inward to the middle of the spilled material until the absorbent/neutralizer has soaked up the spill and neutralized it. By beginning on the outer edges, the spill will be contained as you move inward. Sweep up the absorbent and place it in a garbage bag that is supplied in the kit.

## Spill Socks:

Spill Socks are used to prevent spills from spreading. They can absorb spill materials as well as be used as a barrier when a spill is threatening to flow into a drain or any other area.

## What To Do With The Waste (used absorbents, etc.:)

Once you have cleaned up the spill and placed the used absorbents in the bag, please go the EHS website at [www.ehs.utah.edu](http://www.oehs.utah.edu/) . Fill out a hazardous waste pickup request completely.

Someone from EHS will come pick up the waste and dispose of it properly. Please allow up to 10 working days for the waste to be picked up.

Waste pickup requests must be submitted via the EHS website.

If you have questions regarding your spill kit or the individual contents, please contact EHS at

801-581-6590.

If you need to order another spill kit or any of the restocking items, please contact EHS at

801-581-6590 and ask for your Research Safety Specialist.

**Chemical Spill on Body or Clothes** – Remove clothing and rinse body thoroughly in emergency shower for at least 15 minutes. Seek medical attention. *Notify supervisor and EHS at*

801-581-6590 *immediately.*

**Chemical Splash Into Eyes** – Immediately rinse eyeball and inner surface of eyelid with water for 15 minutes by forcibly holding the eye open. Seek medical attention. *Notify supervisor and EHS at* 801-581-6590 *immediately.*

# Decontamination/Waste Disposal Procedure

Wearing proper PPE, decontaminate equipment and bench tops using soap and water or ethanol depending on the organic azide. Dispose of the used organic azide and disposables contaminated with organic azide as hazardous waste. Store the organic azide hazardous waste away from acids and acid waste.

## Medical Emergency Dial 911

**Life Threatening Emergency, After Hours, Weekends And Holidays** – Dial **911**

**Non-Life Threatening Emergency**– Go to the Redmed Clinic on the ground floor of the Union

building (801) 213-3303Hours: M - T, 8:00 a.m. to 5:00 F: 9:00 am – 3:30 p.m. *Note: All serious injuries must be reported to EHS at* 801-581-6590 *within 8 hours.*

**Needle stick/puncture exposure** (as applicable to chemical handling procedure)– Wash the affected area with antiseptic soap and warm water for 15 minutes. For mucous membrane exposure, flush the affected area for 15 minutes using an eyewash station. Seek medical

attention at Redmed Clinic. *Note: All needle stick/puncture exposures must be reported to EHS at 801-581-6590 within 8 hours.*

# Decontamination/Waste Disposal Procedure

Waste disposal procedures

General hazardous waste disposing guidelines:

Labeling Requirements for Hazardous Waste Containers:

* Fill out a hazardous waste pickup request completely via the SAM (Safety Administration Management) System or EHS website
* Someone from EHS will come pick up the waste and dispose of it properly. Please allow up to 10 working days for the waste to be picked up.

Waste pickup requests must be submitted via the EHS website.

Hazardous Waste Storage:

* Hazardous waste must be transferred to EHS for disposal within 90 days of being generated.
* Waste containers must be in secondary containment at all times to adequately contain the contents of the container/spilled materials.
* Hazardous waste must always be appropriately labeled with a University of Utah waste tag at all times.
* Containers must be closed when not in use.
* Storage of hazardous waste in fume hoods or under sinks is not recommended.
* Hazardous waste that meets the quantity threshold of 55 gallons of hazardous waste or 1 quart of extremely hazardous waste1 must be transferred to EHS for disposal within 3 days of reaching these set volumes.
* Report damaged containers to EHS. EHS can provide assistance to transfer the contents to an appropriate container.
* Mark storage areas according to the type of chemicals kept there (e.g. “Corrosive”, “Flammable”, etc.).
* Containers should be inspected weekly for signs of leaks, corrosion, or deterioration.

Hazardous Waste Disposal:

* Don't dispose of chemicals down the drain!
* Don't dispose of chemicals via trashcans.
* Don't use hoods to intentionally evaporate chemicals.
* Transport the hazardous waste to your designated pick-up location using a sturdy cart and secondary containment.
* Consult the hazardous waste pick-up schedule1 for the building specific times and locations of disposal.

# Safety Data Sheet (SDS) Location

*(State the location of SDS)*

Hardcopy or electronic copy must be available.

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# 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)* I have read and understand the content of this SOP:

# Name Signature Date