Sodium Azide

Standard Operating Procedure

Revision Date 3/28/2022

Idaho State University Environmental Health and Safety

Potential Safety Hazards

Toxicity – Sodium Azide is extremely toxic (LD50 oral rat = 27 mg/kg)

Reactivity – Sodium Azide reacts with some substances, including water and aqueous solutions, to produce a toxic gas (hydrazoic acid). Violent reactions can occur with acids, bromine, carbon disulfide, dimethyl sulfate, and several heavy metals. Reference the Safety Data Sheet for a detailed list of reaction hazards.

Explosion Risk – The gas produced by reaction of sodium azide with water or aqueous solutions (hydrazoic acid) can form explosive mixtures. Reactions between sodium azide and heavy metals, including copper and lead in plumbing, can form heavy metal azides which are shock sensitive explosives. Reference the Safety Data Sheet for a more detailed list of explosion hazards.

Safe Work Practices

Inventory Management

- Minimize the amount of sodium azide stored in a laboratory. Acquire only the amount expected to be used in the near future.
- Avoid working with sodium azide in the raw form (colorless crystalline solid) when possible. Order kits and pre-diluted low concentration stock solutions to minimize the risk of a spill or unwanted reaction while mixing solutions.
- Utilize a less dangerous product than sodium azide if possible.

Engineering Controls

- Handle sodium azide and sodium azide solutions in an exhausted enclosure, such as a chemical fume hood or biosafety cabinet, if hydrazoic acid or aerosols may be produced.

Chemical Hygiene

- Designate specific areas for sodium azide work to minimize potential contamination.
- Keep sodium azide containers closed as much as possible.
- Change gloves frequently, even if they do not appear to be contaminated.
- Wash hands each time after removing gloves.
- Wipe down sodium azide work surfaces with a soap and water solution after work is complete, even if contamination is not visually apparent.

- Prohibit all food and beverages in all chemical laboratories to minimize the risk of ingestion.

Personal Protective Equipment (PPE)

- Wear appropriate PPE when working with sodium azide and sodium azide solutions.
- Appropriate PPE includes the following.
    - eye protection,
    - nitrile gloves (double glove for additional protection),
    - long pants,
    - closed toed shoes, and
    - lab coat.

Preparedness for a Sodium Azide Spill

Spill Awareness

- Recognition of a sodium azide spill typically involves visual observation of the colorless crystals or liquid solution form of the material that is not contained.

Spill Response

- Collect dry sodium azide crystals in a manner that does not generate dust and treat the collected material as a regulated waste.
- Absorb solutions of sodium azide and treat the absorbent as a regulated waste.
- Decontaminate any surfaces affected by the spill with soap and water.

Unneeded Material

- Manage sodium azide solids, solutions, and contaminated items as hazardous waste and dispose via the Environmental Health & Safety Department (https://www.isu.edu/ehs/).