



# Chemical Fact Sheet



## Sodium Azide Chemical Safety Fact Sheet

Sodium azide is typically used to inhibit microbial growth in laboratory buffers. Sodium azide inhibits cytochrome oxidase and growth of gram negative bacteria. Sodium azide's chemical formula is  $\text{NaN}_3$ ; the  $\text{N}_3$  group is called an "azide" compound. **Sodium azide must never come into contact with certain metals such as lead or copper, as contact with these metals can create an explosion hazard. Sodium azide is very toxic, and should not be disposed of in laboratory sinks.**

### Training

Only individuals who have received proper training may use sodium azide at the Harvard Institutes of Medicine (HIM) and New Research Building (NRB). The training shall include a review of this data sheet, a review of the specific material safety data sheet (MSDS) for the product, and include appropriate instruction from the supervisor or principal investigator about how to safely handle and store sodium azide, and what methods are available employees can use to protect themselves.

### Hazards of Sodium Azide

- Sodium azide is highly toxic via inhalation, ingestion, and through skin contact.
- It can be readily absorbed through the skin.
- It is a poison; the lethal dose, which causes the death of 50% (one half), ( $\text{LD}_{50}$ ) of observed in rats is 17 – 22 milligrams per kilograms (mg/kg).
- Exposure to sodium azide will result in irritation of the eyes and skin, headache, dizziness, nausea, vomiting, diarrhea, weakness, exhaustion, blurred (or temporary loss of) vision; low blood pressure, fainting, and trembling.
- Sodium azide reacts with water to form hydrazoic acid. Hydrazoic acid is toxic and volatile, and boils at 37 degrees Celsius ( $^{\circ}\text{C}$ ).

### The Following Practices Must Be Followed By Laboratories Using Sodium Azide

- Provide job-specific safety training to staff.
- Provide appropriate employee Chemical Hygiene Plan (CHP) training for processes with sodium azide.
- Sodium azide is a poison; exposure must be avoided by using a fume hood and through proper chemical handling.
- Latex and nitrile gloves have good resistance to sodium azide. A laboratory coat and safety glasses or goggles must also be worn when handling chemicals.
- Limit access to work areas with hazardous chemicals.
- Do not eat, drink, smoke, chew gum, apply cosmetics or lip balm in any laboratory, ever.
- Change disposable gloves frequently and always wash hands after glove removal.
- Mouth pipetting is prohibited.
- Azides must be stored away from metals. They must never be poured down the drain.
- Sodium azide powders, empty containers and contaminated equipment need to be disposed of as a hazardous waste in the laboratory satellite accumulation area.

### Occupational Exposure Limits

The National Institute of Occupational Safety and Health and the American Conference of Industrial Hygienists both recommend that employee exposures do not exceed a ceiling limit of approximately 0.3 micrograms per cubic meter ( $\mu\text{g}/\text{cm}^3$ ) for skin exposure. A ceiling limit is an exposure that may not be exceeded at any point in the workday. As a reminder, the use of personal protective equipment and a chemical fume hood is mandatory when handling, weighing, or preparing sodium azide solutions.

### Also See:

- MSDS for sodium azide
- HIM/NRB Chemical Hygiene Plan, which is available on the HIM/NRB EH&S Webpage: <http://www.himnrbehs.com/himnrbehs/chemicalSafety.asp>