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Developed By: University Department of Environmental Health and Safety

Standard Operating Procedures For Handling, Storage and Disposal of Sodium Azide

Purpose

The purpose of this document is to establish specific standard operating procedures for handling, storage, and disposal of sodium azide. The requirements established in this SOP are in conjunction with the University's Chemical Hygiene Plan.

Overview

Sodium azide is an inorganic, rapidly acting, highly toxic chemical. It is also very reactive, decomposing explosively upon shock, concussion, heating ($>275^{\circ}\text{C}$), or friction. Sodium azide reacts with various metals to form shock-sensitive compound. When mixed with acid or water, sodium azide may rapidly change into a toxic and explosive gas (hydrogen azide). Its potential reaction to water and metals is particularly dangerous when disposed down the drain.

Symptoms of sodium azide exposure are similar to those of cyanide. Exposure to small amounts may lead to rapid breathing, restlessness, dizziness, weakness, headache, nausea, vomiting, rapid heart rate, red eyes, clear drainage from the nose, cough, skin burns and blisters. Larger amounts may lead to convulsions, low blood pressure, low heart rate, loss of consciousness, and respiratory failure leading to death. Long term effects of those who have survived sodium azide poisoning may include brain and heart damage. Warning: sodium azide may be absorbed through the skin.

Sodium azide is used in the making of automobile airbags, airplane escape chutes, organic synthesis, inorganic synthesis, biochemistry, and has biomedical uses.

Standard Operating Procedures

Handling

1. The Material Safety Data Sheet and this SOP must be reviewed before use of sodium azide in the laboratory.
2. The laboratory's principal investigator must develop specific written experimental procedures for the use of sodium azide in the laboratory before any work can be permitted to begin. The written procedures must be approved by the Department of Environmental Health and Safety.
3. All manipulations with sodium azide, especially those that can generate vapors, fumes or sprays, must be done in a properly working chemical fume hood, glove box, local exhaust system or other suitable containment device that exhaust directly outside.
4. Proper personal protection equipment (PPE) must be worn at all times to prevent eye and skin contact. Consult the MSDS for PPE recommendations. The minimum requirements are lab coats, chemical safety goggles, and rubber or neoprene gloves.
5. Be sure to inspect all PPE prior to and after use.
6. The laboratory must be equipped with a working eyewash station and safety shower.
7. Always practice good laboratory hygiene. Wash hands, face, neck and forearms frequently. Wash hands before eating and do not eat, drink, or smoke in the laboratory.
8. Keep good housekeeping procedures. All disposable materials contaminated with sodium, azide must be disposed as hazardous waste.
9. Containers of this product may be hazardous when empty as they may contain product residues (vapors, liquids).

Storage

1. Sodium azide must be stored in a cool, dry, well-ventilated location.
2. Isolate this material from incompatible materials. Reacts with heat, sources of ignition, moisture, shock, friction. Incompatible with strong oxidizing agents, mineral acids, water, halogen acids and halogen compounds, barium carbonate, bromine, carbon disulphide, mercury, dimethyl sulphate, common metals especially brass, copper, lead, silver, strong acids
3. Due to the hazardous nature of the material only minimal quantities of material should be purchased and stored.

Disposal

1. All waste must be collected in a sealable compatible container and disposed as hazardous waste as per University Hazardous Waste Guidelines.
2. All residual materials and rinsate from empty containers of this material must be collected and disposed as hazardous waste.
3. The rinsate from decontamination of all non-disposable equipment must be collected and disposed as hazardous waste.
4. All disposable materials contaminated with this material must be disposed as hazardous waste.
5. A chemical pick-up request form must be completed and submitted when the hazardous waste needs to be removed.