

Principal Investigator: _____

Date Approved: _____





This document covers basic chemical safety information for cyanide salts. The use of any cyanide salt is subject to pre-approval by the Principal Investigator (PI) and/or Supervisor. PI and/or Supervisor may use the sheet attached to this SOP to document any lab specific training for Cyanide Salts. **DO NOT USE ANY CYANIDE SALT UNTIL YOU HAVE OBTAINED THE NECESSARY PRE-APPROVAL.**

Cyanide Salts

Cyanide salts such as sodium, potassium, or copper cyanide are solids which convert rapidly to flammable hydrogen cyanide (HCN) gas when exposed to acid or moisture. Inhalation of hydrogen cyanide gas can be fatal.

Exposure to cyanide salts through ingestion, skin absorption, and inhalation of dust is acutely toxic. The cyanide ion interferes with electron transfer in cellular respiration, resulting in decreased oxygen uptake. Symptoms of acute cyanide poisoning include difficulty breathing, headaches, and confusion leading to unconsciousness. Metal hydroxides are also formed upon contact with moisture, often presenting a corrosion hazard that could cause damage to exposed tissues



Personal Protective Equipment & Personnel Monitoring			
 Lab Coat	 Gloves	 Eye Protection	 Face Shield
Traditional white lab coat, with a chemical-resistant lab apron when working with large quantities.	Nitrile gloves.	ANSI Z87.1-compliant safety goggles or face shield if a splash hazard is present.	

Labeling & Storage

Cyanide salts should be stored upright & tightly closed in a cool, dry, and well-ventilated place away from other materials which are chemically incompatible. Cyanide salts are incompatible with acids and acid salts, strong oxidizers, and carbon dioxide. Contact with acid liberates toxic and flammable hydrogen cyanide gas. Containers must be stored below eye level. Primary containers should be labeled according to the UNC Charlotte Chemical Hygiene Plan. The secondary container's label must contain the chemical name and corresponding hazards. Containers of acute toxicants must be stored in leak-proof secondary containment within a Designated Area. Also, if not plainly visible (e.g. through a cabinet window), labelling must be applied to storage locations where these are stored to avoid an inadvertent encounter.

Engineering Controls, Equipment & Materials

Fume Hood/Biosafety Cabinet IIB2

Use fume a hood or hard-ducted Class II B2 biosafety cabinet (BSC). If your protocol does not permit the handling of such materials in a fume hood, contact EHS to determine whether additional respiratory protection is warranted.

Housekeeping

Spills

Notify others in the area of the spill, including your supervisor. Evacuate the location where the spill occurred. Call 911 from any campus phone (or 704-687-2200 from a cell phone). Report any exposure to EHS at 704-687-1111. Remain on-site (at a safe distance) to provide detailed information to first responders.

Decontamination

Wearing proper PPE, wipe up any residue with absorbent pads and clean the area with soap and water. Dispose of the contaminated disposables as hazardous waste following the UNC Charlotte EHS guidelines.

Waste

Refer to the UNC Charlotte Chemical Hygiene Plan for details. Always keep cyanide waste at pH > 9. Please note that cyanide salts are considered 'acutely hazardous' when disposed as waste.

First Aid & Emergencies

Antidotes

Amyl nitrite (which was given via inhalation) is no longer available in cyanide antidote kits in the U.S., and is no longer an acceptable initial therapeutic response. Currently, the available cyanide antidotes are hydroxocobalamin, sodium nitrite, and sodium thiosulfate. The three available antidotes are given via intravenous (IV) infusion and, therefore, can only be administered by qualified healthcare professionals.

Skin Contact

Remove contaminated clothing and accessories; flush affected area with water. If symptoms persist, get medical attention.

Eye Contact

Immediately flush eyes with water for at least 15 minutes. Get medical attention immediately.

Inhalation

Move person into fresh air. If not breathing, give artificial respiration. Get medical attention immediately.

Ingestion

Never give anything by mouth to an unconscious person. Rinse mouth with water. Get medical attention immediately.
