Many different compounds contain the cyanide ion (CN). The toxicity of these compounds varies for a number of reasons including their readiness to give up the cyanide ion. Those that can readily release the cyanide ion are highly toxic (such as ionic cyanide salts and related high-toxicity materials). Cyanides can enter the body through several means including inhalation, ingestion, and absorption. Obtaining medical help quickly is essential if an individual has been poisoned with cyanide, as a very small amount (50mg) can be lethal. Furthermore, it is important to keep cyanides secured as the compounds have been stolen and used in suicides.

The best way to avoid hazards involving cyanide compounds is to find a less hazardous substitute. If possible, working with cyanides should be avoided. Consult your PI, colleagues, reference sources, and/or SCS Safety Personnel for assistance.

**Remember, you are ultimately responsible for your own safety. It is your responsibility to put the following policy into practice.**

**Storage:**

- Cyanide compounds/solutions should be stored in a secured area under the control of a graduate student or other personnel trained in the handling and use of cyanides when the cyanide compounds are not in use. A lockable cabinet/container would suffice.

- Only trained personnel should maintain control of the key.

- A log should be maintained with the records of acquisition and use of cyanides.

**Handling:**

- When working with cyanides no one should ever work alone. Individuals must inform their PI and/or coworkers that they will be using cyanides.

- Proper Personal Protective Equipment should be worn at all times when working with cyanides. Proper PPE includes: gloves, goggles, lab coats, and proper laboratory attire (long pants, close toed shoes, etc.). Two pairs of gloves or thicker gloves should be used when dealing with cyanides that readily absorb through the skin, when cleaning up cyanide spills, and when handling cyanide liquids. Contact SCS Safety Personnel for PPE selection advice.

- Most toxic releases of cyanide gases are due to adding acidic or neutral compounds to cyanides. It is highly recommended that all solutions added to cyanide compounds be basic. If acidic solutions are used, extra precautions should be taken to avoid possible exposure to HCN gas.
General Use:

- Before working with cyanides the user should check to ensure that their laboratory fume hood is functioning properly (correct face velocity, well lit, etc.).

- Work with cyanides should be done in the smallest possible area in the laboratory. Use only one fume hood if possible.

- Signs, indicating that cyanides are in use, should be posted on the door to the laboratory and the fume hood containing the cyanide work when working with cyanides. Signs should state: Cyanide Compounds in Use

- Lab doors and windows must be kept closed while working with cyanides.

Waste Disposal:

- Cyanide contaminated debris (paper towels, gloves, etc.) should be placed in a closed container, labeled as “waste cyanide debris”, and stored in a fume hood until the waste is picked up by DRS. CWM-TRK-01 form should be filled out using the appropriate UI # for cyanide debris. Contact SCS Safety Personnel for assistance in filling out the appropriate waste pickup request form.

- All other waste (cyanides in solution, etc.) should not be treated with any other chemicals (bleach, etc). These wastes should be placed in a closed container, labeled with the word waste and the contents of the container (example: “waste potassium cyanide”), and stored in a fume hood until the waste is picked up by DRS. The appropriate CMW-TRK form should be filled out using the designated UI# (example: potassium cyanide UI# 636). Contact SCS Safety Personnel if no UI# is available or assistance is needed with filling out the appropriate waste pickup request form.

- All glassware that comes in contact with cyanides should be rinsed with an alkaline bleach solution (pH of 10 or higher) in a fume hood. This rinse should be collected and disposed of through the DRS chemical waste pick up program. After rinsing with alkaline bleach solution, the glassware should be rinsed with copious amounts of soap and water in the sink. The soap and water can go down the sink drain.

First Aid and Treatment:

- If cyanide poisoning is suspected call 9-911 IMMEDIATELY from campus phones or 911 from all other phones.
• Before assisting the affected individual, ensure that anyone willing to assist the affected individual is not in danger of cyanide poisoning themselves.

• Immediately begin administering medical grade oxygen to the affected individual via a mask attached to an oxygen tank. It is mandatory that all research groups working with cyanide compounds have an OXYTote of medical grade oxygen and a mask in the laboratory, preferably near the hood where cyanides are being used. The OXYTote should be set to 15 liters per minute (Lpm). Contact SCS Safety Personnel for assistance in obtaining/purchasing these items.

• Send someone to meet and direct emergency response personnel to the affected individual.

• Two Knox Boxes (one in South RAL on the ground floor across from the triple bank of elevators and one in CLSL-A on the first floor just inside the northeast entrance off of Goodwin Avenue) contain cyanide antidote kits for use by emergency response personnel. The boxes are locked at all times with only emergency responders having access to the boxes. These boxes contain the three antidote components as well as other applicable medical supplies. Only trained emergency responders may administer the cyanide antidote kit. Medical grade oxygen should ALWAYS be given as soon as cyanide poisoning is suspected. After arriving at the scene, emergency response personnel will access the Knox Box and obtain the kit contents. Only trained emergency responders should cease the administration of oxygen to the affected individual.

If cyanide poisoning is even suspected, call 9-911 from campus phones or 911 from all other phones. Be conservative in your cyanide poisoning evaluation. When in doubt, call 9-911 or 911.

If you have further questions concerning cyanides contact SCS Safety Personnel or Division of Research Safety.