Emergency Procedures for Exposures to and Spills of Acutely Toxic Chemicals

SCOPE: This document applies to the Cornell University Ithaca Campus for the following chemicals, based on recommendations from medical professionals and NYS EMT’s. This document is meant for Cornell persons who procure and/or use these chemicals, in order to create a site-specific emergency plan.

- Arsine gas
- Cyanogen gas, Hydrogen cyanide, and inorganic cyanides
- Fluorine gas
- Hydrogen fluoride (anhydrous)
- Hydrogen sulfide gas (from cylinders)
- Nickel carbonyl liquid and gas
- Phosphine gas

Review the Safety Data Sheets (SDS) and this procedure prior to working with these materials in the lab to familiarize yourself with potential unexpected chemical reactions and emergency scenarios. Do not work with these materials without someone else available to provide assistance in case of an emergency.

Standard Operating Procedures (SOPs) should be updated to include the SDS, emergency plan and “Do Not Enter” posting for emergencies where the area needs to be secured.

EMERGENCY PROCEDURES:

- If you are experiencing symptoms, or you come across someone, who appears to be suffering the symptoms described on the SDS, call 911. Provide the emergency dispatcher with detailed information on type of Emergency (fire, medical event, chemical exposure or spill) and the name of the chemical involved. Expect help to arrive within 4 to 5 minutes. Have the SDS available for the Emergency Responders.

- To avoid contaminating yourself, wear appropriate Personal Protective Equipment while assisting the person who has been exposed to the toxic chemical. This includes a Lab Coat, Nitrile or Neoprene gloves and Eye Protection.

- In addition to above, follow the specific instructions below for INHALATION, INGESTION or SPLASH TO MUCUS MEMBRANES, SKIN CONTACT or EYE CONTACT. Do not try to provide specific medical treatments based on the chemical involved. (for example, emergency procedures no longer suggest users stock an antidote for Cyanide exposure) The goal of onsite assistance is to get the victim immediate care using emergency medical services. Do not transport the victim to Gannett or the hospital yourself.
TYPES OF CHEMICAL EXPOSURE:

- **INHALATION**
  - Remove the victim from the contaminated area to fresh air
  - Keep the victim quiet and warm
  - If the victim is not breathing, and you have been trained, perform CPR
  - Remove contaminated clothes from the victim and contain the clothes in a plastic bag for decontamination or disposal
  - Rather than pull clothing over the victim’s head, cut the clothing off their body

- **INGESTION or SPLASH TO MUCUS MEMBRANES**
  - Do not give the victim anything by mouth
  - Treat them as for inhalation described above
  - Keep the victim quiet and warm

- **EYE SPLASH**
  - Remove glasses and any contaminated clothing on victim and contain the clothes in a plastic bag for decontamination or disposal. Glasses can be decontaminated and returned
  - Flush eyes in eyewash for 15 minutes or until medical assistance arrives
  - If necessary, assist the victim by holding open their eyes

- **SKIN CONTACT – Remember that skin absorption can occur from liquids, solids or chemical vapor**
  - Immediately place the victim under a safety shower while removing any contaminated clothing, including shoes. Collect the clothing in a plastic bag for decontamination or disposal
  - Flush for the skin for at least 15 minutes or until medical assistance arrives

**CHEMICAL SPILL or RELEASE OF VAPOR:**

- Small spills (less than 1 liter) can be cleaned up by lab workers if the material is in a fume hood, the proper spill cleanup equipment is on hand, and they have been trained in the use of the equipment. If not, call 911 for assistance.
- For cleanup of large spills (more than 1 liter), any spills outside fume hood or release of vapors to room, call 911.
- Secure the area by evacuating the laboratory room and post “Do Not Enter” posting.
- Provide emergency dispatcher with the location and size of the spill and the material(s) involved.
- Provide the Emergency Responders with the SDS.
- Contact Lab Manager and Principle Investigator to inform them of the situation and provide an estimate of time until clean-up is finished.

**References and Resources**

4. Poison Control Center 1-800-222-1222