

Guidelines for the use of Inorganic Cyanides and Organic Materials that may Release Cyanide.

Cyanide is employed as a ligand in inorganic chemistry and is an important reagent in organic synthesis. Cyanide may also be generated as a by-product from other organic reagents, such as trimethylsilyl cyanide and Mander's reagent. These guidelines do **not** apply to organic cyanides such as acetonitrile and benzonitrile that do not release cyanide on hydrolysis.

Hazards

Cyanides are highly toxic. As little as 50 mg can cause death if ingested. Poisoning can also occur by inhalation of cyanide vapour. Acidification of cyanide salts releases the highly toxic gas, hydrogen cyanide. Symptoms of non-lethal poisoning include dizziness, shortness of breath, nausea and vomiting.

Precautions

A specific risk assessment must be completed and approved for any work with cyanides after consultation of the relevant SDS.

Use of cyanides must only be by trained personnel. A second person (a "buddy") must be immediately present to assist in the event of an emergency. Having the second person elsewhere in the lab or in the writing up area is not sufficient. The persons working with cyanide should ensure that a First Aider is nearby and is aware that cyanide work is being carried out.

All operations, including weighing, must be carried out in a well ventilated fume cupboard. A clear notice must be placed at the front of the fume cupboard saying "Caution. Cyanide in Use". Apparatus or anything else contaminated with cyanide must **not** be removed from the fume cupboard.

A container of aqueous ferrous sulfate (iron(II) sulfate) should be on hand for immersion of all equipment that has been in contact with cyanide. The solution may also be used to neutralize small spills. Alternatively, contaminated equipment may be soaked overnight in bleach to destroy cyanides.

Storage

Cyanide salts must be stored under lock and key, and never on open shelves. They must never be stored with acids. When cyanide is being taken to or from the store, effective secondary containment must be used.

In case of exposure

Skin or Eye contact: wash with copious quantities of water
Ingestion or Inhalation: seek immediate medical attention

PPE

Standard laboratory PPE must be worn: safety glasses, lab coat, long trousers, latex gloves and covered shoes

Prepared by,



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