Highly Toxic Substances

Under the Poisons Act 1972 (and associated legislation) the supply of certain substances is restricted due to their highly toxic nature for example cyanide salts. In order to ensure that highly toxic substances are carefully controlled and remain secure we recommend the following precautions.

For reasons of both safety and security purchasing of regulated poisons should be tightly controlled and only authorised, senior individuals within a research group / school / department should be authorised to acquire them (these individuals may be part of the senior academic or technical staff). Purchasing of poisons should be subject to justification and this should include a requirement to purchase only the minimum amount required to prevent the need for disposal and storage of excess stock.

Poisons should be stored in a secure location within the laboratory to help prevent unauthorised access, in general this should be a lockable, fire-resistant cabinet or equivalent (e.g. a safe or wall-mounted strongbox may provide a suitable alternative). The cabinet should be marked with the appropriate hazard symbol(s) and an accurate inventory kept of the contents.

Cabinets or storage containers should remain locked at all times and only opened when there is a need to retrieve or replace a container. Keys **must not** be left in the lock and should be held by competent, responsible individuals who should strictly control access.

When there is a requirement for a poison to be used it should be signed out of the cabinet by the user under the supervision of the responsible person and signed in again as soon as possible. **Under no circumstances** should a poison be stored in an unsecure location overnight or left unattended at any time when in use.

Accurate records of each poison should be maintained and in the event of a discrepancy or confirmed loss of the material the responsible person and SEPS should be informed immediately.

**Note:** Waste poisons should be stored securely away from incompatible chemicals which could react with them releasing a toxic or explosive product. For example metal phosphide salts react with water to produce highly toxic hydrogen phosphine gas.

Prior to carrying out any process using poisons a suitable and sufficient CoSHH assessment should be undertaken with an emphasis placed on finding a less toxic alternative if possible. This assessment should be checked and countersigned by a competent person and in addition to the usual control measures should include details of secure storage of the substance, any additional safety precautions, first aid requirements or emergency procedures required along with any mechanisms used to destroy or dispose of excess material.

When a substance listed in Part I of the Poisons List is no longer required then arrangements should be made to dispose of it as soon as possible. Generally this can be arranged via the University’s appointed hazardous chemical waste contractor (Veolia) following the normal procedure. Care should be taken to ensure poisons remain securely stored under lock and key in a safe area until they are transferred to the waste disposal contractor and that an accurate record of disposal is kept.

**Further Guidance and Support**

With careful consideration and robust risk assessments and operating procedures it is possible to work safely with highly toxic compounds. For further advice and assistance please contact the Safety and Environmental Protection Service.

**General Office:** 0141 3305532
**Chemical Safety Adviser:** 0141 3302799
Appendix 1: The Poisons List (Part I)

- Aluminium phosphide
- Arsenic and its compounds
- Barium salts
- Bromomethane
- Chloropicrin
- Fluoracetic acid and its salts
- Fluoroacetamide
- Hydrogen cyanide
- Metal cyanides other than ferrocyanides and ferricyanides
- Lead acetates
- Lead compounds with acids from fixed oils
- Magnesium phosphide
- Mercury compounds
- Oxalic acid (10% w/w)
- Phenols
- Phosphorus (white / yellow)
- Strychnine, its salts and quaternary compounds
- Thallium salts

1. Other metal phosphide salts for example zinc phosphide are equally toxic and it is good practice to take similar precautions
2. Not including calcium arsenites, copper acetoarsenite, copper arsenates, copper arsenites, lead arsenates
3. Not including barium sulphate, barium carbonate, barium silicofluoride
4. Mercury nitrates, mercury oxides, mercuric cyanide oxides, mercuric thiocyanate, ammonium mercuric chlorides, potassium mercuric iodides, organic compounds of mercury containing a methyl (CH₃) group directly linked to the mercury atom
5. Phenol, phenolic isomers of the following—cresols, xylenols, monoethylphenols) and compounds of phenols with a metal. Does not include substances containing no more than 60%, weight in weight, of phenols; compounds of phenols with a metal in substances containing no more than the equivalent of 60%, weight in weight, of phenols