

WORKING WITH SCHEDULED CARCINOGENS.

Below is a list of scheduled substances. Schedule 1 Carcinogens are prohibited from use. Schedule 2 Carcinogens are only permitted for use in the laboratory if WorkSafe is notified first. The School of Chemistry has informed WorkSafe that we hold o-Toluidine, Diethyl sulphate and Dimethyl sulphate. If you are using or intend to use these or any of the other Schedule 2 chemicals please inform the Safety Officer ASAP. If you have been exposed to any of these chemicals, you must also inform the Safety Officer ASAP. You may need to undergo a health check.

Schedule 1 - Prohibited Carcinogenic Substances

2-Acetylaminofluorene, Aflatoxins, 4-Aminodiphenyl, Amosite, Benzidine, Bis(Chloromethyl) ether, Chloromethyl methyl ether, Crocidolite, 4-Dimethylaminoabenzene, 2-Naphthylamine (and salts), 4-Nitrodiphenyl

Schedule 2 - Notifiable Carcinogenic Substances

Acrylonitrile, Benzene, Chrysotile, Cyclophosphamide, 3,3-Dichlorobenzidine, Diethyl sulfate, Dimethyl sulfate, Ethylene dibromide, 4,4-Methylene bis(2-chloroaniline), 2-Propiolactone, o-Toluidine, o-Toluidine hydrochloride, Vinyl chloride monomer

Schedule 3 - Hazardous Substances requiring Health Surveillance

Asbestos, Crystalline silica, 4,4 Methylene bis(2-chloroaniline) MOCA, Vinyl chloride, Isocyanates, Organophosphate pesticides, Acrylonitrile, Benzene, Cadmium, Inorganic Chromium, Creosote, Inorganic Mercury, Pentachlorophenol (PCP), Polycyclic aromatic hydrocarbons (PAH), Thallium

Carcinogenic Substances:

Benzidine and its salts, p-Biphenylamine, Chloromethyl methyl ether, 3,3'-dichlorobenzidine and its salts, sym-Dichloromethyl ether, N-2-fluoroenylacetamide, 1-Naphthylamine 2-Naphthylamine, N-Nitrosodimethylamine, beta-Propiolactone, Acrylonitrile, Camphechlor, 1,2-Dibromo-3-Chloropropane, p-Dimethylaminoazobenzene, 4,4'-Methylenebis (2-Chloroaniline)

* Preparations containing 1% or more of any of the substances referred to above are included.

NB: Health surveillance is only required where there is actual exposure of staff or students to a hazardous substance.

PROCEDURE: Eliminate the use of these chemicals wherever possible, or search for a safer alternative. If this is not possible then adequate control measures must be ensured.

- Work must never be started without the Supervisor's advice and specific approval. Not to be used in undergraduate labs. All users of carcinogens must be fully aware of the hazards associated with using the substance and of the route(s) by which the particular carcinogenic substance(s) can enter the body, be it by inhalation, ingestion or by penetration of the skin, mucosal surfaces or eyes. This will require a thorough reading of the MSDS and other sources of information. A Risk Assessment must be completed. The preferred method of controlling exposure is by total containment of the substance or process. This is unlikely to be possible in a research environment but must be employed if reasonably practicable. IF THE EXPOSURE TO A MEMBER OF THE UNIVERSITY IS SUCH THAT AN ADVERSE EFFECT ON THEIR HEALTH IS REASONABLY LIKELY TO OCCUR, THEN THE PROCESS OR PROCEDURE MUST BE TERMINATED.
- The number of people likely to be exposed to a carcinogenic substance and the duration of their exposure must be kept to a minimum. Warning signs must be posted at lab entrances stating "**Carcinogenic Substance in Use**". Signs are available from the Safety Officer.
- Only the minimum amount of carcinogenic substance necessary may be used. This applies also to stored material which should be kept to a minimum.
- Carcinogenic materials must be stored in closed containers that are clearly labelled and marked with visible hazard and warning signs. Preferably, all carcinogenic substance

containers should be stored in locked, ventilated cupboards fitted with trays to contain spillage and clearly marked with warning and hazard signs.

- Carcinogenic materials that are normally stored in glass containers may be transported only within robust, secondary containers large enough and capable of containing any spills arising from breakage.
- Carcinogenic material may be used only within an efficient fume-hood. No hazardous operations are permitted in fume hoods that fail the six-monthly tests. When fans cease to work, operations are to be shut down and the fume hood cleared and cleaned so that maintenance can be carried out.
- The appropriate protective clothing must be worn including gloves of material that provide real protection against accidental skin contact. (See Ansell glove chart). Gloves should be checked before each use to ensure integrity.
- Great care must be taken to avoid spreading contamination from the site of use. This will involve the following precautions:
 - Material may be weighed only within an adequate fume-hood or other well ventilated enclosure,
 - Care must be taken to avoid contaminating the exterior of containers. Any such contamination must be cleaned off within the fume-hood before returning to store and the cleaning material disposed of as carcinogenic waste,
 - Care must be taken to avoid the formation of airborne dust or processes that may give rise to aerosols,
 - Apparatus must be cleaned within the fume-hood and any washings, including solvent, carefully stored as waste. Alternatively, any carcinogenic residues may be chemically destroyed- if so, the procedure for destruction must be written down as part of your Risk Assessment,
 - Spills etc. within the fume-hood must be cleared up carefully and any materials used disposed of as carcinogenic chemical waste. If a significant spill occurs, the area should be evacuated immediately. Trained personnel only should be called in to clean up the spill,
 - Gloves must be disposed of as carcinogenic chemical waste. Users must never touch door handles, light switches or telephones with (assumed contaminated) gloves or wear such gloves outside of the laboratory. Gloves should be removed using the proper "surgical" procedure to avoid skin contamination,
 - Users must practice careful hygiene and wash and dry hands thoroughly before leaving the laboratory.
 - Carcinogenic waste must be disposed of through University Contractors, and must be stored prior to disposal in a segregated area to reduce the risk of exposure to staff. Waste liquids must be packaged and sealed to prevent leakage or spillage. Appropriate labels denoting the Carcinogenic status of the waste must also be affixed to the packages.

The Hazardous Substance Regulations require health surveillance of individuals who use carcinogens and this may range from regular medical examinations for those who handle carcinogens in bulk to simple record keeping of use. Thus all use of Schedule 2 carcinogens must be recorded for individuals and the records kept even after they leave the University. Against each individual, the data recorded must include the identity of the carcinogen, the amount used and form (powder, pellets, dilute solution etc.), the duration of potential exposure and the protective measures (fume-hood etc.) employed. A pro forma to record this information is available on the Chemistry Safety web site. Copies of such records of use must be lodged with the Departmental Safety Officer quarterly, at the time workplace inspections are due. It is the responsibility of the work area supervisor to ensure this record is passed on to the Safety Officer. This form is then forwarded to the Health Service, who are responsible for providing health monitoring for staff/students who are exposed to scheduled carcinogenic substances and for keeping records of this monitoring for 30 years. A letter detailing records of health monitoring would be forwarded to staff who have been exposed to scheduled carcinogenic substances on termination of employment.