



This form is to be used in conjunction with the Environment Health and Safety Manual Procedure 3.2 Hazard Identification, Assessment and Control - Application.

## Information of Activity

Activity: Use of Schedule 2 carcinogens Location: Chemistry

Identified by: G. Papadopoulos Date: 6/7/05

Identified Hazard / Aspect: High risk of premature death

## Risk Analysis matrix – level of risk

Identified Hazards	Risk Assessment			Risk Score	Risk Level
	Exposure (E)	Likelihood (L)	Consequence (C)	E x L x C	
Exposure can cause tumour growth to target organs	2	0.3	10	6	M

Definitions						
Exposure	E	Likelihood	L	Consequence	C	Risk Score
Continuously	10	Almost Certain	1.0	Catastrophic	20	<b>E</b> >20 <b>H</b> >10 <b>M</b> 3-10
Frequently	6	Likely	0.6	Major	10	
Occasionally	3	Possible	0.3	Moderate	5	
Infrequently	2	Unlikely	0.1	Minor	2	<b>L</b> < 3
Rarely	1	Rare	0.05	Insignificant	1	

Hierarchy of Risk Controls  
**Elimination** is a permanent solution and should be attempted in the first instance.  
**Substitution** involves replacing the hazard or environmental aspect by one of lower risk.  
**Engineering** controls involve physical barriers or structural changes to the environment or process.  
**Administrative** controls reduce hazard by altering procedures and providing instructions.  
**Personal protective equipment** last resort or temporary control.

### LEGEND

E: extreme/significant risk; immediate action required; must be managed by senior management with a detailed plan, notify RMO immediately.

H: high risk, senior management attention needed, detailed research and management planning at senior levels

M: moderate risk, management responsibility must be specified; manage by specific monitoring or response procedures

L: low risk, manage by routine procedures; unlikely to need specific allocation of resources

## Details of Risk Controls to be Taken

**Note: A generic risk assessment is not suitable or sufficient for working with scheduled carcinogens. It is intended to be used as a guide only. A detailed risk assessment must be completed for the particular substance in written form, including a justification for the use of that substance and then a copy of the risk assessment lodged with the Departmental Safety Officer.**

See <http://safety.chemistry.unimelb.edu.au/carcinogens.php> for the list of scheduled carcinogens.

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.

- **Supervision:** 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. 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.



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- 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"
- 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.
- The appropriate protective clothing must be worn including gloves of material that provide real protection against accidental skin contact. (See Ansell glove chart)
- 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,
  - Spill etc. within the fume-hood must be cleared up carefully and any materials used disposed of as carcinogenic chemical waste,
  - 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.

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 Category 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.

Person assessing the risk:  G. Papadopoulos  Date:  6/7/05

Authorised by:  G. Papadopoulos  Planned completion date: \_\_\_\_\_

**Risk Control Measures Completed**

Actions by:  G. Papadopoulos  Completed (Initials & date):  6/7/05