Chemistry Department Standard Operating Procedure
Title: Reproductive Hazards
Updated: October 2010-Prabha Dwivedi

Reproductive hazards are substances that affect reproductive capabilities including chromosomal damage (mutagens) and effects on the fetus (teratogens). A list of reproductive hazardous materials is included in at the end of this document.

Decontamination procedures

Personnel: Wash hands and arms with soap and water immediately after handling reproductive hazards.
Area: Decontamination procedures vary depending on the material being handled. The toxicity of some materials can be neutralized with other reagents. All surfaces should be wiped with the appropriate cleaning agent following dispensing or handling. Waste materials generated should be treated as hazardous waste.
Equipment: Decontaminate vacuum pumps or other contaminated equipment (glassware) before removing them from the designated area.

Designated area

All locations within the laboratory where reproductive hazards are handled should be posted with caution signs. This includes all fume hoods and bench tops where the reproductive hazards are handled. Where feasible, reproductive hazards should be manipulated over plastic-backed disposable paper work surfaces. These disposable work surfaces minimize work area contamination and simplify clean up.

Emergency procedure

Emergency procedures that address response actions to fires, explosions, spills, injury to staff, or the development of signs and symptoms of overexposure must be developed. The procedures should address as a minimum the following:
Who to contact: (University police, and Office of Environmental Health and Safety, Principal investigator of the laboratory including evening phone number)
The location of all safety equipment (showers, eye wash, fire extinguishers, etc.)
The method used to alert personnel in nearby areas of potential hazards
The location and quantity of all reproductive hazards stored in the laboratory
Special first aid treatment required by the type of reproductive hazards handled in the laboratory

Eye protection

Eye protection in the form of safety glasses must be worn at all times when handling reproductive hazards. Ordinary (street) prescription glasses do not provide adequate protection. (Contrary to popular opinion these glasses cannot pass the rigorous test for industrial safety glasses.) Adequate safety glasses must meet the requirements of the American Standard Practice for Occupational and Educational Eye and Face Protection (ANSI Z.87. 1 1989) and must be equipped with side shields. Safety glasses with side shields do not provide adequate protection from splashes; therefore, when the potential for a splash hazard exists other eye protection and/or face protection must be worn.

Eyewash

Where the eyes or body of any person may be exposed to reproductive hazards, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use. Bottle type eyewash stations are not acceptable.

Fume hood

Manipulation of reproductive hazards should be carried out in a fume hood. If the use of a fume hood proves impractical refer to the section on special ventilation.
All areas where reproductive hazards are stored or manipulated must be labeled as a designated area.

Glove (dry) box

Certain reproductive hazards must be handled in a glove box rather than a fume hood. The Principal Investigator will determine if this is required.

Gloves

Gloves should be worn when handling reproductive hazards. Disposable latex or nitrile gloves provide adequate protection against accidental hand contact with small quantities of most laboratory chemicals. Lab workers should contact the department storeroom for advice on chemical resistant glove selection when direct or prolonged contact with hazardous chemicals is anticipated.

Hazard assessment

Hazard assessment should focus on proper handling techniques, education of laboratory workers concerning the health risks posed by reproductive hazards, and the designated areas.

Protective apparel

Lab coats, closed toed shoes, and long sleeved clothing should be worn when handling reproductive hazards. Additional protective clothing should be worn if the possibility of skin contact is likely.

Safety shielding

Safety shielding is required any time there is a risk of explosion, splash hazard or a highly exothermic reaction. All manipulations of reproductive hazards that pose this risk should be performed in a fume hood with the sash in the lowest feasible position. Portable shields, that provide protection to all laboratory occupants, are acceptable.

Safety shower

A safety or drench shower should be available in a nearby location where the reproductive hazards are used.
Containers: All containers of reproductive hazards must be clearly labeled with the correct chemical name. Handwritten labels are acceptable; chemical formulas and structural formulas are not acceptable.

Special storage

Reproductive hazards must be stored in a designated area.

Special ventilation

Manipulation of reproductive hazards outside of a fume hood may require special ventilation controls in order to minimize exposure to the material. Fume hoods provide the best protection against exposure to reproductive hazards in the laboratory and are the preferred ventilation control device. When possible, handle reproductive hazards in a fume hood. If the use of a fume hood proves impractical attempt to work in a glove box or on an isolated area of the bench top.
If available, consider using a Biological Safety Cabinet. The biological safety cabinet is designed to remove particulates (the reproductive hazard) before the air is discharged into the environment.

Reproductive hazards that are volatile must not be used in a biological safety cabinet unless the cabinet is vented to the outdoors.
If your research does not permit the handing of reproductive hazards in a fume hood, biological safety cabinet, or glove box, you must consult with the Principle Investigator about alternative protection.
All areas where reproductive hazards are stored or manipulated must be marked.

Spill response

Anticipate spills by having the appropriate clean up equipment on hand. The appropriate clean up supplies can be determined by consulting the material safety data sheet. This should occur prior to the use of any reproductive hazard.
In the event of a spill alert personnel in the area that a spill has occurred. Do not attempt to handle a spill of reproductive hazards. Vacate the laboratory immediately and call for assistance.

- Office of Environmental Health & Safety 335-3041 or 911
- University Police 911
- This is a 24-hour service.

Remain on the scene, but at a safe distance, to receive and direct safety personnel when they arrive.

Vacuum protection

Evacuated glassware can implode and eject flying glass, and splattered chemicals. Vacuum work involving reproductive hazards must be conducted in a fume hood, glove box or isolated in an acceptable manner.
Mechanical vacuum pumps must be protected using cold traps and, where appropriate, filtered to prevent particulate release. The exhaust for the pumps must be vented into an exhaust hood.

Waste disposal

All materials contaminated with reproductive hazards should be disposed of as a hazardous waste. Wherever possible, attempt to design research in a manner that reduces the quantity of waste generated. Contact the chemistry department storeroom to dispose of wastes. See the Waste Disposal SOP for collection, storing, submitting and labeling instructions. This office can also assist you in minimizing waste generation.

Review material safety data sheet.

Name	**CAS#**
2-Methoxyethanol	109-86-4
2-Methoxyethyl acetate	110-49-6
Halothane	151-67-7
Hexafluoroacetone	684-16-2
Hydrazine(s)	302-01-2
Karathane	131-72-6
Lead (inorganic compounds)	7439-92-1
Methyl chloride	74-87-3
N-Methyl-2-pyrrolidone	872-50-4
Propylene glycol monomethyl ether	107-98-2
Propylene glycol monomethyl ether acetate	108-65-6
Propylene oxide	75-56-9
RH-7592	
Systhane/RH-3866	88671-89-0

TOK (herbicide)	1836-75-5
Toluene	108-88-3
Trichloroethylene	79-01-6
Vinyl chloride	75-01-4
2-Ethoxy ethanol	110-80-5
2-Ethoxyethyl acetate	111-15-9v
2-Ethyhexanol	104-76-7
Acetaldehyde	75-07-0
Aflatoxins	
Aniline	62-53-3
Arsenic	7440-38-2
Benzene	71-43-2
Benzo(a)pyrene	50-32-8
Carbon disulfide	75-15-0
Chloroform	67-66-3
Chloroprene	126-99-8
Dimethyl formamide	68-12-2
Dinitrooctyl phenol	63149-81-5
Di-sec-octyl-phthalate	117-81-7
Dithane	111-54-6
Ethylene thiourea	96-45-7
Glycol ethers	