

B. CRITERIA TO DETERMINE AND IMPLEMENT CONTROL MEASURES

1. Determination

Whenever possible, MSDSs or HSFSs for chemicals used in the laboratory will be reviewed prior to the use of a chemical. These data, along with information on the conditions under which the chemical is to be used, will generally be used to determine the degree of protection required. In certain circumstances, REHS will conduct exposure monitoring to determine adequacy of controls and to determine if additional control measures are necessary. The following criteria will be used to determine and implement control measures:

- a. **Occupational exposure limits** [usually an OSHA Action Level (AL) or Permissible Exposure Limit (PEL)), an ACGIH Threshold Limit Value (TLV), or other equivalent standard -- Generally, substances with lower exposure limits require higher levels of protection.
- b. **Vapor pressure** -- Generally, substances with higher vapor pressures require higher levels of protection.
- c. **Exposure potential** -- This will be determined by reviewing experimental procedures. Exposure potential is generally increased with increased temperature or pressure, when working with open rather than closed systems, during transfer of materials, during the use of hazardous substances with live animals, etc. Exposure can occur via inhalation, skin contact (with liquid, solid or vapor) or through accidental ingestion. Generally, greater exposure potential requires higher levels of protection.
- d. **Exposure monitoring results** -- REHS can use results of personal or area exposure monitoring to make judgments on appropriate control strategies.

2. Implementation

Once the required the degree of control is determined, control measures will be selected from one of the following categories:

a. **Engineering Controls**

Engineering controls reduce an exposure at its source. Engineering controls are the method of choice for reducing exposures and will be used whenever possible/practicable. Examples of some engineering controls include:

- 1) Substitution of hazardous materials or operations with those which are less hazardous
- 2) Use of Laboratory fume hoods
- 3) Use of glove boxes or other enclosures
- 4) Use of local exhaust ventilation (e.g. "elephant trunks", slotted exhaust hoods, and canopy hoods).

b. Administrative Controls

Administrative controls are work practices that are designed to control exposures. Administrative controls will be used in conjunction with engineering controls or when engineering controls are impractical or infeasible. Examples of administrative controls include:

- 1) Limiting time of exposure to maintain levels below acceptable exposure limits
- 2) Utilizing good housekeeping procedures to reduce exposures.

c. Personal Protective Equipment

Personal protective equipment does not reduce the source of exposure, but rather protects the individual. Personal protective equipment will be used in addition to engineering controls, while engineering controls are being installed or when engineering controls are impractical or infeasible. Some examples of personal protective equipment include:

- 1) Respirators -- This includes dust masks, as well as other types of respiratory protective equipment). Because all respirator users must participate in Rutgers respiratory protection program, you must call REHS if you think you have a need for respiratory protection.
- 2) Gloves, aprons, boots, and other skin protection.
- 3) Goggles, face shields.