

SOP 15 - Personal Protective Equipment

- A. Most laboratory operations require some form of personal protective equipment.
- B. Criteria for selection of personal protective equipment:
 - 1. Strength.
 - 2. Resistance to the exposure (i.e., chemical, thermal, biological, physical, or radiological energy).
 - 3. Flexibility.
 - 4. Ease of cleaning.
- C. Eye/Face Protection
 - 1. Safety glasses, goggles, face shields.
 - 2. Full-face shields should be worn where explosive energies are expected.
 - 3. Specially tinted lenses should be worn to screen ultraviolet and infrared radiation.
- D. Hearing Protection
 - 1. Ear plugs, ear muffs.
 - 2. Hearing protection shall be worn where the eight hour, time weighted exposure to noise exceeds 90 decibels.
 - 3. Disposable earplugs should be discarded after use to prevent ear contamination.
- E. Respiratory Protection
 - 1. Dust, fume, mist respirators:
 - a. Useful for the contaminant specified by the manufacturer.
 - b. Life of the filter is dependent upon the concentration of the contaminant.
 - c. These respirators offer no protection against gases, vapors, or oxygen deficiency.
 - 2. Chemical cartridge respirators:

- a. Cartridges are useful for the contaminant specified by the manufacturer.
- b. Life of the cartridge is dependent upon the concentration of the contaminant and the time interval of exposure. Cartridges should remain sealed in original packaging until required for use. Once opened, cartridges should be marked with the date they are placed in operation and given a unique identification. Cartridges attached to face masks and not sealed in an airtight bag are to be considered 'in operation' whether or not they have been actively worn/used. If used intermittently (for example, for dispensing of organic solvents), then cartridges should be removed from facemasks after use and placed in resealable airtight bags between uses and properly stored. A log sheet for each set of cartridges must be maintained indicating the user, length of time in use, and purpose (substances defended against) for each incidence of use.
- c. These respirators offer no protection against oxygen deficiency.
- d. Difficulty in breathing or detection of odors indicate respirator deficiencies.
- e. The respirator must seal the face to be effective; eyeglasses and facial hair can compromise the seal and are prohibited.
- f. Documented training is required of chemical cartridge respirator wearers.

F. Supplied air respirators:

- 1. Oxygen supply to respirator allows wearers to operate in oxygen deficient atmospheres.
- 2. Supplied air respirators effective against a wide variety of contaminants.
- 3. Documented training is required of chemical cartridge respirator wearers.

G. Self contained breathing apparatus:

- 1. Consists of full face mask connected to a cylinder of compressed air.
- 2. Protective against contaminants and oxygen deficient atmospheres.
- 3. Used for rescue work.
- 4. Air supply is limited to the capacity of the cylinder.

5. Documented training is required of self contained breathing apparatus wearers.
6. All respiratory protective devices shall be inspected at least annually.

H. Skin Protection

1. Gloves, gauntlets, shoes, aprons, coveralls:
 - a. Should be impervious to the expected contaminants in an operation.
 - b. Should be cleaned or discarded after use.
 - c. Barrier creams can also be effective against certain contaminants.

I. Foot Protection

1. Examples: Shoes, shoe covers, impervious boots or overboots, steel toed footwear, metatarsal protection.
2. Solid footwear can protect feet against chemical splashes.

J. Radiation Protection

1. Gloves are required for all operations involving radionuclides.
2. The level of radioactivity of Location radioisotopes is such that, at present, protection is achieved by keeping the isotopes in proper containers, limiting time of exposure to the isotopes, keeping distance from the isotopes, and wearing gloves and lab coats.

K. Limitations of Personal Protective Equipment

1. Personal protective equipment does nothing to reduce or eliminate the hazards of a laboratory operation - personal protective equipment only protects the employee against the consequences of those hazards.
2. Personal protective equipment may become ineffective without the knowledge of the wearer (e.g., the cartridge in a cartridge type respirator may no longer filter the target contaminant).
3. Non-disposable personal protective equipment must be inspected and maintained at appropriate intervals to preserve its protective features.

L. Provision of Personal Protective Equipment

1. If identified as necessary by a risk analysis, the Location will provide at no cost to the employee any personal protective equipment required to assure personal safety.
2. Employees should communicate any needs in this area to their supervisor or directly to the Collateral Duty Safety Officer.