

## Chemical Carcinogens in Laboratories

### OVERVIEW

Chemical carcinogens are substances that are either known to cause cancer in humans or animals or are suspected of being capable of causing cancer in humans. State and federal regulations require that departments that use chemical carcinogens establish specific controls and procedures to protect employees.

The controls and procedures may include:

- Establishment of designated areas
- Use of containment devices
- Personal protective equipment
- Exposure monitoring
- Medical surveillance
- Emergency procedures
- Removal of waste
- Decontamination

The specific controls, procedures, and regulatory requirements are dependent on the carcinogen and the location or type of use, e.g., laboratory or nonlaboratory.

- **Laboratory** — applies to facilities where the "laboratory use of hazardous chemicals" occurs. It is a workplace where relatively small quantities of hazardous chemicals are used on a nonproduction basis.
- **Nonlaboratory** — applies to a location where manufacturing, processing, repackaging, releasing, handling, or storing of carcinogens occurs (see *SPPM* 5.12).

Environmental Health and Safety (EH&S) helps departments identify carcinogens and interpret applicable regulatory requirements. Laboratories must contact EH&S for assistance with developing specific controls and procedures to meet regulatory requirements and protect human health; telephone 509-335-3041.

### RESPONSIBILITY

#### Department Chair

The department chair is to ensure that this policy is implemented.

## Chemical Carcinogens in Laboratories

### Principal Investigator/ Supervisor

If carcinogens are used in laboratories, each principal investigator or supervisor is responsible for:

- Controlling potential hazard exposures to as low as reasonably achievable levels through:

Process or equipment engineering design,  
Administrative procedures, and  
Personal protective equipment.

- Maintaining a current inventory of the carcinogens used in laboratories.
- Training employees on chemical hazards.
- Ensuring that employees are protected from chemical hazards.
- Complying with regulatory requirements (e.g., Chemical Hygiene Plan, state and federal regulations). See also *SPPM 4.12*.

### EH&S

Environmental Health and Safety is responsible for the following:

- Providing assistance with regulatory requirements (e.g., Chemical Hygiene Plan, state and federal regulations).
- Conducting exposure monitoring, if applicable.
- Recommending medical surveillance, if applicable.
- Providing assistance with hazard assessments (see also *SPPM 2.60*).
- Submitting reports to state and federal agencies, if applicable (e.g., exposure monitoring record).

### Employee

Employees working with chemicals are responsible for:

- Asking the supervisor if job duties require the use of carcinogens.
- Performing tasks as outlined in laboratory procedures and training, and in accordance with regulatory requirements (e.g., wearing and changing personal protective equipment, washing, showering), as applicable (see *SPPM 4.12*).

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### CHEMICAL IDENTIFICATION

Carcinogens are defined as substances that are either known to cause cancer in humans or animals or are suspected of being capable of causing cancer in humans. Substances are classified as carcinogens based upon state and federal regulations.

### Regulated Carcinogens

The state of Washington's Department of Occupational Safety and Health (DOSH) identifies the following carcinogens in the *Washington Administrative Code (WAC)*. The regulatory requirements do not apply to solid or liquid mixtures containing less than 0.1 percent by weight or volume of these carcinogens.

4-Nitrobiphenyl	Benzidine
Alpha-Naphthylamine	4-Aminodiphenyl
4,4'-Methylene bis (2-chloroaniline)	Ethyleneimine
Methyl chloromethyl ether	Beta-Propiolactone
3,3'-Dichlorobenzidine (and salts)	2-Acetylaminofluorene
Bis-Chloromethyl ether	Beta-Naphthylamine
4-Dimethylaminoazobenzene	N-Nitrosodimethylamine
Vinyl Chloride	Ethylene Oxide
Acrylonitrile	Cadmium
1,2-Dibromo-3 chloropropane	Butadiene
Inorganic Arsenic	Methylene Chloride

If employees are to perform tasks using any of the chemicals listed above, contact EH&S for information regarding the regulatory requirements for these carcinogens; telephone 509-335-3041.

Although a chemical may not be identified as a carcinogen by DOSH, additional standards may apply. There are several ways to determine whether or not a product is a carcinogen, such as:

- Review the chemical container label.
- Check the product's Safety Data Sheet (SDS) for hazard information (see *SPPM* 5.10).
- View a list of known carcinogens such as the International Agency for Research on Cancer's (IARC's) *Monographs* (latest editions) or the National Toxicology Program's (NTP's) *Annual Report on Carcinogens* (latest edition).

### Assistance

If there is evidence that a chemical may be a carcinogen, contact EH&S regarding what is required for regulatory compliance; telephone 509-335-3041.