

CARCINOGENS

SELECT CARCINOGENS:

In laboratories, carcinogens are classified as “select carcinogens” if the substance meets any of the following criteria (See **Section IV.A.2. Standard Operating Procedures Definitions**):

- Listed as a WISHA regulated carcinogen (See **Section II. N.1.b.** and **Section II.N.1.c.**);
- Listed as "known to be carcinogens" in the Annual Report on Carcinogens published by the National Toxicology Program (NTP) (latest edition);
- Listed under Group 1 (carcinogenic to humans) by the International Agency for Research on Cancer (IARC) Monographs (latest editions);
- Listed in either Groups 2A or 2B by IARC or under the category, "reasonably anticipated to be carcinogens" by the NTP, and causes statistically significant tumor incidence in experimental animals; or
- Listed as confirmed (A1) or suspected (A2) human carcinogens in the most current version of American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values.

If a substance is identified as a select carcinogen and used in the laboratory, the principal investigator / laboratory supervisor must:

- Follow the policies and procedures established in the Laboratory Safety Manual / Chemical Hygiene Plan. Develop and follow written standard operating procedures. Written standard operating procedures identify the Procedure / Process, Chemical Name(s) and Associated Physical and Health Hazards, Location of Health and Safety Information, Protective Equipment, Waste Disposal Procedures, Designated Area Information, Decontamination Procedures, and Special Storage and Handling Procedures. (See **Section IV. Standard Operating Procedures**)
- Follow additional regulatory requirements if the select carcinogen is classified by the State of Washington as Listed or Specific Carcinogens (See **Section II.N.1.b.** / **Section II.N.1.c.**)

LISTED CARCINOGENS:

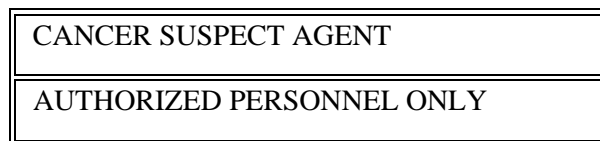
The State of Washington classifies the following substances as “listed carcinogens” which have additional regulatory requirements:

LISTED CARCINOGENS: (See **Section II.N.1.b Listed Carcinogens**)

1. 4-Nitrobiphenyl Benzidine
2. Alpha-Naphthylamine
3. 4-Aminodipheny
4. 4,4'-Methylene bis (2-chloroaniline)
5. Ethyleneimine
6. Methyl Chloromethyl Ether
7. Beta-Propiolactone
8. 3,3'-Dichlorobenzidine (and its salts)
9. Acetylaminofluorene
10. Bis-Chloromethyl ether
11. 4-Dimethylaminoazobenzene
12. Beta-Naphthylamine
13. N-Nitrosodimethylamine

If a laboratory is using, repackaging, releasing, handling or storing any of the carcinogens listed above (**Section II.N.1.b**), and the carcinogens (solid or liquid) are 0.1 percent or greater by weight or volume, the principal investigator / laboratory supervisor must:

- Follow the policies and procedures established in the Laboratory Safety Manual / Chemical Hygiene Plan (e.g., develop and follow written standard operating procedures, etc.)
- Establish a designated area (an area which may be used for work with carcinogens, reproductive toxins or substances which have a high degree of acute toxicity. The designated area can be a fixed piece of equipment such as a fume hood or a small room or enclosure);
- Establish a regulated area (an area where entry and exit is restricted and controlled);
- Post sign at entrance to regulated area stating:



- Signs and instructions must be posted at the entrance to, and exit from, regulated areas, informing employees of the procedures that must be followed in entering and leaving a regulated area. The signs and instructions can be separate or included in the laboratory signage program. (See **Section II.H.2. Signage / Placards**)
- Ensure mechanical pipetting aids are used for all pipetting procedures associated with the listed carcinogens;
- Confine all experiments and procedures to a laboratory-type hood or glove box;
- Protect surfaces on which these carcinogens will be used from contamination;
- Collect contaminated wastes in impervious containers which are closed and decontaminated prior to removal from the work area and dispose of waste according to the procedures listed in **Section II.K., Hazardous Waste Disposal**;
- Protect laboratory vacuum systems with high efficiency scrubbers or disposable absolute filters (if applicable);
- Perform a hazard assessment (See **Section IV.D. Personal Protective Equipment**). Provide and require employees to wear clean change of appropriate laboratory clothing (e.g., solid front gown, surgical scrub suit, fully buttoned lab coat, etc.);
- Require employees, prior to exiting from a regulated area, remove and leave protective clothing and equipment at the point of exit and at the last exit of the day. Place used clothing and equipment in impervious containers at the point of exit for purposes of decontamination or disposal. Containers must be labeled with the full chemical name, Chemical Abstracts Service Registry number and have the warning words “cancer-suspect agent” displayed. Containers with carcinogenic contents with corrosive or irritating properties must be labeled with statements warning of such hazards, and if appropriate, note particularly sensitive or affected portions of the body (For detailed decontamination procedures, see the laboratories Chemical Hygiene Plans written standard operating procedures / For standard operating procedure instructions, see Section IV. Standard Operating Procedures). **DO NOT REMOVE**

CONTAMINATED CLOTHING FROM THE REGULATED AREA AND LAUNDER AT HOME. For questions concerning decontamination procedures, contact EH&S at 335-3041;

- Require employees to wash hands, forearms, face and neck upon each exit from the regulated area close to the point of exit, and before engaging in other activities;
- Ensure air pressure in the laboratory areas is negative in relation to the pressure in the surrounding areas. Exhaust air should not be discharged to regulated areas, non-regulated areas or the external environment unless decontaminated. There should be no connection between the regulated area and any other area through the ventilation system;
- Maintain current inventories of the listed carcinogens; and
- Ensure fume hoods are tested semi-annually by Facilities Operations.

In addition to the requirements listed above, if employees work in a laboratory that uses, repackages, releases, handles or stores any of the listed carcinogens (.1 percent or greater by weight or volume) and engages in animal support activities, the principal investigator / laboratory supervisor must:

- Perform a hazard assessment that includes animal support activities (See **Section IV.D. Personal Protective Equipment**). Provide and require employees to wear clean protective clothing each day of use (i.e., coveralls or pants and shirt, foot covers, head covers, gloves, and appropriate respiratory protective equipment or devices (see **Section IV.D. Respiratory Protection**);
- Collect contaminated carcasses in impervious containers which are closed and decontaminated prior to removal from the work area and dispose of waste according to the procedures listed in **Section II.K., Appendix H. Disposal of Biohazard Waste**; and
- Require employees to shower after exiting for the day.

SPECIFIC CARCINOGENS:

The State of Washington classifies the following substances as “specific carcinogens” which have detailed regulatory requirements:

SPECIFIC CARCINOGENS: (See **Section II.N Carcinogens in Laboratories 1.c.** and **Appendix B – Carcinogens / Individual Health Standards that Applies**)

1. Vinyl Chloride
2. Ethylene Oxide
3. Acrylonitrile
4. Cadmium
5. 1,2-Dibromo-3 chloropropane
6. Butadiene
7. Inorganic arsenic
8. Methylene Chloride