Fact Sheet

UCLA ENVIRONMENT, HEALTH & SAFETY

EH&S Facts

Particularly Hazardous Substances

What is a Particularly Hazardous Substance?

Cal/OSHA has defined a group of chemicals as Particularly Hazardous Substances (PHS) because of the unique health hazards they present. Careful handling and stringent controls of these chemicals are essential to protect workers and the environment from contamination. The *Cal/OSHA Laboratory Standard* requires, as part of the *Chemical Hygiene Plan*, that provisions for additional employee protection be included for work involving PHS.

Particularly Hazardous Substance Categories

Category	Risks	Examples
Carcinogens 	Pose various cancer risks. Includes two subgroups: • *Select Carcinogens* - chemicals likely to cause cancer in humans • *Regulated Carcinogens* - short list of chemicals likely to cause cancer in humans with extensive additional requirements (includes formaldehyde, asbestos, benzene, vinyl chloride, and methylene chloride)	*Select Carcinogens*: Acrylamide, isoprene, tamoxifen, styrene, urethane, and chromic acid *Regulated Carcinogens:* formaldehyde, asbestos, benzene, vinyl chloride, and methylene chloride
Reproductive Toxins 	Pose reproductive health risks, including adverse effects on fetal development, fertility, lactation, and sterility	Cadmium, lead, mercury, carbon disulfide, ethylene glycol, ethyl ethers, toluene, xylene, vinyl chloride, and ethidium bromide
Acute Toxins 	Pose high level and immediate health risks. Symptoms and effects vary	Sodium azide, arsenic, nitroglycerin, hydrogen cyanide, sodium cyanide, and phosphine

How can I identify a PHS?

There is no comprehensive list of PHS, but there are different ways to determine if a chemical is a PHS:

- See the EH&S website for *a list* of many chemicals that classify as PHS
- Review a chemical's acute and chronic health effects (*MSDS*). Compare the chemical's median lethal dose (LD50) and median lethal concentration (LC50) to those given for acute toxins
- Determine if a chemical is a reproductive toxin by reviewing the *Proposition 65 list*
- For carcinogens, see if the chemical is regulated by Cal/OSH A as a carcinogen or if it is listed as a carcinogen by the *National Toxicology Program* or the *International Agency for Research on Cancer*

What are the requirements for using PHS?

The *Cal/OSHA Laboratory Standard* and *UCLA Policy 907: Safe Handling of Particularly Hazardous Substances*, require specific actions be taken when working with PHS:

1. Conduct and document lab-specific *training* on the following topics:
   - Review the *UCLA PHS Policy* and other relevant policies, *SOPs* and *MSDS*
   - The hazards/toxicological effects associated with the PHS
   - Emergency response procedures (spill and immediate first aid)
   - Methods to reduce exposure (engineering controls and specific PPE)
   - Signs and symptoms associated with exposure or release of the PHS
   - Decontamination and disposal procedures
2. Only use and store PHS in designated areas
3. Use engineering controls (e.g., glove boxes, fume hoods) whenever feasible
4. Follow all *hazardous waste* disposal procedures, including increased PHS labeling requirements
5. Decontaminate laboratory surfaces and equipment after each procedure, and at the end of the day
6. Wear personal protective equipment (PPE) appropriate to the PHS (see the *PPE Selection Guide*)

How can I prevent exposure?

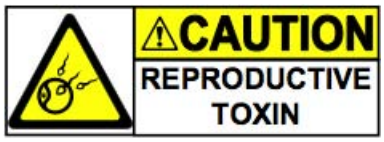
Preventing exposure to PHS is important for protecting yourself. Follow these steps:

1. Review and follow the special requirements for working with PHS. You must receive appropriate training before working with any PHS. See the *UCLA PHS Policy*
2. Review the chemical's *Material Safety Data Sheet (MSDS)* to learn about specific risks and required PPE. The *UCLA PPE Policy* requires that long pants, closed-toe shoes, safety glasses and lab coat be worn when working with any hazardous chemical. (See the *PPE Selection Guide* and the *UCLA PPE Policy*). More stringent PPE requirements apply depending on the chemical's hazards
3. Leave lab coats and gloves in the lab. Do not cross-contaminate other areas
4. Always wash hands thoroughly after handling PHS, even though gloves are used
5. Only purchase the minimum amount needed for your research purposes
6. Ensure there is immediate and unobstructed access to an eyewash/shower unit in your work area

How should I establish a designated area to use PHS?

Areas in the laboratory where PHS are used must be identified as a **"Designated Area"** for use. PHS may only be used and stored in designated areas. Additionally, be sure to:

- **Label this area using appropriate signage** – e.g., CAUTION, CANCER HAZARD – REGULATED CARCINOGEN. (Obtain labels *online* from the Chemistry and Biochemisty safety website)
- **Label waste containers** containing PHS with warning labels. (See the *Online Tag Program*)
- **Label storage space** with warning labels. (Obtain labels *online* from the Chemistry and Biochemisty safety website)
  - Store non-flammable PHS within secondary containment
  - Store flammable PHS within flammable storage cabinet and designate a bottom shelf or secondary container



How do I dispose of PHS waste?

- Label waste using the *Online Tag Program*
- Some PHS are categorized as an extremely hazardous waste. You may not accumulate more than a quart of extremely hazardous waste. Please see the list of *extremely hazardous waste* to determine if the substances you are working with are categorized in this manner
- If it is not an extremely hazardous waste, handle & dispose of as hazardous waste through the *EH&S hazardous waste pick-up*
- Always use secondary containment for hazardous waste

What do I do if there's a spill or emergency?

For small spills (<1L) follow the clean up procedure for the specific PHS, but only if you are trained and have the appropriate equipment	Notify supervisor
For large spills (>1L), call the EH&S Hotline and emergency services	310-825-9797 911
For dermal & eye exposure, wash the area immediately in eyewash or safety shower for at least 10 minutes	Notify supervisor
For medical treatment, go to the *Occupational Health Facility,* Mon - Fri, 7 a.m. to 4 p.m., CHS 67-120	310-825-6771
Medical emergency or after hours/on weekends, go to the *Ronald Reagan UCLA Medical Center*, enter on Gayley Avenue	310-267-8400

How can I obtain additional information?

See *UCLA Policy 907: Particularly Hazardous Substances*, the *UCLA Chemical Hygiene Plan*, and the *Cal/OSHA Laboratory Standard*.

Contact Information:
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