

CHEMICAL WASTE DISPOSAL

pub# CSU8

What is chemical waste?

A waste is chemical waste if:

- ◆ It exhibits the characteristics of ignitability, corrosivity, reactivity and toxicity.
- ◆ It is otherwise capable of causing environmental or health damage if improperly disposed of.
- ◆ It is, or contains, a mixture of a waste listed in the regulations as hazardous.

Definitions

Ignitable liquids or solids catch fire easily and burn rapidly.

Corrosive liquids or solids are capable of damaging the skin.

Reactivity is the ability of a substance to undergo a chemical reaction such as combining with another substance.

Toxicity is the extent to which a substance will cause harmful effects.

Accumulation Start Date is the date when any amount of the chemical waste is placed in a container.

Generator or Producer refers to any person, by site, whose act or process produces chemical waste.

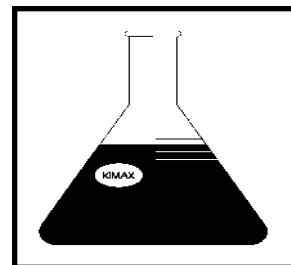
Restricted Materials or Wastes are those materials and/or wastes that because of their physical and chemical characteristics, are handled for disposal on a case-by-case basis. These materials include, but are not limited to, explosives, poison gas, pyrophoric materials, and organic peroxides.

Unknown Waste Characterization Procedure is a qualitative analysis test conducted on an unknown sample, whether in liquid form or in solid state, for ignitability, corrosivity, water reactivity and oxidizing properties.

Bulking is the process of consolidating various quantities of the same type of waste by placing them into a single, larger container.

Chemical waste packaging, labeling, segregation and disposal

Chemical waste must be removed from the campus within 90 days of collection by the Office of Environmental Health and Safety (EH&S).



- ◆ Attach a Hazardous Waste Tag. These tags are available from EH&S, call 476-0544. Store waste in appropriate containers as you start waste accumulation.
 1. Screw cap bottles for liquid waste. No stoppered or corked flasks and bottles.
 2. Plastic bottles for all aqueous solutions, except concentrated acids and bases.
 3. Transparent plastic bag for contaminated dry waste. Colored plastic and brown paper bags are not acceptable.
 4. Hard sided containers for broken contaminated glass, needles (non-biological) and pasteur pipettes (non-biological).
 5. Wide mouth plastic jar and/or bottle for semi-solid materials such as gels, paraffin wax, etc.
 6. Larger screw top bottle or plastic bucket with snap-on lid for leaking chemical containers.

- ◆ Label all waste containers for disposal:
 1. Ensure that the Hazardous Waste Tag is attached and completed.
 2. Identify the waste by chemical name. General labels such as "Inorganic Waste" and "Organic solvent" are not acceptable.
 3. Identify all constituents in mixtures (solids and liquids) and specify their concentrations in %, ppm, M, and N.
 4. Deface existing labels if new labels are attached.

- ◆ Segregate waste properly:
 1. Segregate solids, liquids, gases and chemical sharps.
 2. Segregate chemicals into the following categories:
 - A. Acids of pH2 or less in glass bottles.
 - B. Alkaline solutions of pH 12.5 or greater in glass bottles.
 - C. Alkali metals and other water reactive chemicals.
 - D. Heavy metals and salt.
 - E. Halogenated organics.
 - F. Non-halogenated organics.
 - G. Potential explosives and peroxide-forming chemicals.
 - H. Strong oxidizers.
 - I. Chemical carcinogens.
 - J. Cyanides.
 - K. Vacuum pump oil.
 - L. Other toxic materials.

- ◆ Follow proper waste disposal procedures:
 1. Complete the Hazardous Chemical Waste Removal Form and mail to EH&S. EH&S will schedule your pick-up upon receipt of the completed form. If you have

a last minute problem, you can fax the form to 476-0581 or call 476-0544 to arrange a waste pick-up.

2. Waste is picked-up daily in accordance with the schedule printed on page five of this document. Check the schedule to see when chemical waste will be picked-up in your building.
3. EH&S cannot accept improperly labeled and/or improperly sealed containers offered as waste.
4. Packaging of waste in appropriate containers is the waste generator's responsibility. (Waste containers are not returned).
5. Feel free to call 476-0964 to discuss potential waste minimization and disposal procedures appropriate for your laboratory.

Other hazardous waste

- ◆ Lecture bottle/disposable/non-recyclable compressed gas cylinders must be returned to the original manufacturers and/or distributors.
- ◆ Aerosol cans containing hazardous waste must be disposed through EH&S. Include on waste removal form.
- ◆ Unknown chemicals must be identified for flammability, corrosivity, and reactivity before collection by EH&S. Basic procedures are available from EH&S.
- ◆ Potential explosives such as shock sensitive, explosive, and highly reactive chemicals must be removed by a qualified chemical vendor for disposal. Call 476-0964 for assistance.
- ◆ Empty glass containers of 1-gallon or less, excluding aerosol cans, must be placed in a hard-sided container before disposal in the trash. The container must not have any liquid or residue when tilted at any orientation, labels must be defaced and the cap left off.
- ◆ Controlled substances are removed according to the policies and procedures approved by the Drug Enforcement Agency. Call EH&S for assistance.
- ◆ Photographic fixer should be collected for disposal. Call EH&S for information on collection and disposal.
- ◆ Consumer batteries such as nickel-cadmium, alkaline, carbon-zinc, mercuric oxide, silver oxide and lithium batteries must be disposed through EH&S. Include on waste removal form.
- ◆ Do not place metallic mercury-containing materials from broken thermometers inside sharps containers. Please place inside a separate jar or bottle for collection by EH&S.
- ◆ Tissues or organs immersed in formalin must be separated before collection. After the separation, the tissues and organs must be red bagged for biological waste disposal. EH&S will collect the formalin liquid waste.
- ◆ Trace chemotherapy waste must be separated from concentrated chemotherapy waste. Trace

chemotherapy waste is considered medical waste and must be disposed of as such. Concentrated chemotherapy waste is disposed of as chemical waste.

- ◆ Black-powder toners containing styrene/acrylate polymer, acrylic resin, carbon black and polyolefin may be placed in the trash for disposal. In general, laser cartridges should not be placed in the trash for disposal. Laser cartridges and color toners containing heavy metals must be disposed of through EH&S.

Waste minimization

Waste minimization is required by federal and state regulation, often saves money as well as resources, and is a good practice for all UCSF employees.

In this regard, UCSF has taken a number of specific and significant steps listed below to accomplish waste minimization.

- ◆ Substitution of xylene chemical with less hazardous chemical, histoclear, at the Histopathology laboratory.
- ◆ Use of non-chlorinated solvents at the Power Plant during the cleaning of high voltage electrical lines. The Power Plant currently uses a new cleanser which consists of aliphatic hydrocarbons and limonene. Limonene is a major component in orange oil.
- ◆ Reuse of 55-gallon empty drums generated at the Materiel Management Hazardous Materials storehouse. EH&S reuses these drums for bulking purposes.
- ◆ Elimination of PVA fixative containing mercuric chloride and replacement by a less easy-to-dispose of SAF fixative at the Clinical Laboratory.
- ◆ Use of a combustible rather than flammable liquid scintillation cocktail by the research laboratories.
- ◆ Recovery of freon from refrigerators and freezers prior to disposal.
- ◆ Use of 92% carbon dioxide and 8% ethylene oxide in the new ethylene oxide sterilizer in the Sterile Processing department instead of using 88% freon and 12% ethylene oxide.
- ◆ Return of spent laser printer cartridges to the distributor for exchange of reuse cartridges.
- ◆ Redistribution of unopened/opened chemicals to laboratories.
- ◆ Sharing of chemicals among small users through the existing chemical inventory program.

UCSF is committed to waste minimization and is continually looking for methods and practices that will reduce overall waste production.

DO YOUR PART!

Do not dispose of chemicals in sinks or trash cans. Do not use fume hoods to intentionally evaporate chemicals.

CHEMICAL WASTE PICK-UP SCHEDULE

Monday

Health Sciences East & Health Sciences West Buildings (2nd to 16th floors)

Tuesday

Medical Science Building (3rd to 14th floors) &
Clinical Science Building (4th, 5th & 6th floors)
Clinical Laboratory at Medical Center on Parnassus

Wednesday

Clinical Laboratory at Medical Center on Parnassus
Mt. Zion (every 14 days)
Laurel Heights (every 45 days)
San Francisco General Hospital (every 45 days)
Mission Center Building (every 45 Days)
296 Lawrence Avenue
Other facilities, e. g. Buchanan/Tissue Bank/San Jose/Psoriasis (every 45 days or will call basis)

Thursday

Moffitt Hospital/Long Hospital/Langley Porter Psychiatric Institute
Surge/Medical Research Building II/Animal Care Facility on Parnassus
Ambulatory Care Center/530 Parnassus Library/Millberry Union/Aldea/Medical Center

Friday

Clinical Sciences Building (basement, 1st, 2nd, 3rd floors)
University Clinics Building (basement to 5th floors)
Laboratory of Radiobiology/Koret/Medical Research Building IV/Dentistry/
Proctor Foundation on Kirkham