

SAFETY UPDATE NEWSLETTER

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO
OFFICE OF ENVIRONMENTAL HEALTH AND SAFETY

SPECIAL WASTE ISSUE

UCSF RESEARCH NEWS

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Over the past few months, there have been a number of inquiries regarding the "Hazardous Waste Management" problems at some peer institutions. This special issue of the Safety Update Newsletter is intended to provide a summary of the UCSF Hazardous Waste Management Programs, as well as some of the common problems and solutions encountered at various campuses, including UCSF.

COMMON HAZARDOUS WASTE MANAGEMENT VIOLATIONS

The following is a listing of some of the most common hazardous waste management violations cited by the Environmental Protection Agency:

Improper Labeling

Waste containers must have:

- The words "Hazardous Waste" on them.
- A complete description of the waste (e.g. composition and physical state).
- Hazardous properties (e.g. flammable, reactive, etc.)
- An accumulation start date.
- Your name, address, department.

Note: Labels with the proper wording are available at no charge from the Chemical Waste Program by calling 476-0544.

Incompatible wastes / chemicals stored together

- Separate waste containers and reagent chemicals according to their compatibility.
- Use containers and lids or caps that are compatible with the waste stored in them.

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HAZARDOUS WASTE MANAGEMENT

How do I store hazardous waste?

Store all hazardous waste in accordance with the provisions of the UCSF Chemical Safety Manual (www.ehs.ucsf.edu).

Specifically:

- Store wastes in accordance with their compatibility, as you would do with hazardous chemicals.
- Use containers and lids or caps that are compatible with the waste stored.
- One of the requirements of RCRA is to minimize the possibility of release of hazardous constituents to air, soil or water. To achieve this:
 - Protect containers from breakage, store waste in unbreakable containers (if possible) and in areas of least traffic.
 - Use secondary containers (e.g. plastic tub) for liquids to collect accidental spillage.
 - Keep all hazardous waste containers (solid or liquid) closed at all times, except when adding or removing wastes.

How long can I store hazardous waste in my lab?

UCSF policy mandates that all waste is removed from laboratories within 60 days from the start of the accumulation date.

How do I label my hazardous waste?

You must affix a UCSF waste label to all containers of waste (solid or liquid). Complete the date, location and other pertinent information on the label.

What is the accumulation start date?

The accumulation start date is the date when waste is first placed in a container.

How do I list the contents of a container?

You may attach a UCSF waste pickup form to the container and enter the relevant information each time that you add waste to the container.

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UCSF Chemical Waste Self-Inspection Checklist (Laboratories)

Office of Environmental Health and Safety #717
50 Medical Center Way
San Francisco, California 94143

(Waste, continued)

Note: See UCSF Chemical Safety Manual / Chemical Safety Update #CSU8 "Chemical Waste Disposal".

Waste not contained properly

- Containers of liquid waste need secondary containment (e.g. plastic tub).
- Bottles of waste should be kept in chemical storage cabinets or in chemically resistant trays, with the lids securely on.

Chemicals disposed of improperly

- Do not dispose of chemicals in the sink / sewer.
- Do not evaporate residual solvents in fume hoods.
- Do not place hazardous waste in the trash.

Containers not closed

- Keep containers (both liquid and solid waste) closed except when adding or removing waste.

Hazardous waste storage areas not inspected on weekly basis

- If labs store hazardous waste in a central chemical storeroom, they must perform weekly inspections of the area and document the inspections.
- There are two criteria that trigger the weekly inspection requirement:
 1. Waste not stored near the point of generation
 2. Greater than 1 kilogram of an acutely hazardous waste (see UCSF Chemical Safety Manual for specifics)

- Inspection forms must be kept for a minimum of three years and be available upon request of OEH&S, and city, county, state or federal regulatory inspectors.
- Please consult your Department Safety Advisor to confirm the need for inspections.

Personnel not properly trained

- All laboratory workers must be trained in proper procedures for handling hazardous materials prior to starting work with such materials.
- Follow procedures in the Chemical Safety Manual for chemical spill response and emergency calls.
- Call 9-911 for 24-hour assistance.

HAZARDOUS WASTE DESCRIPTIONS

What is RCRA?

The Resource Conservation and Recovery Act (RCRA-pronounced "rick-rah"), gave the Environmental Protection Agency (EPA) the authority to control hazardous waste from "cradle-to-grave" and was enacted to protect human health and the environment resulting from improper management of hazardous waste.

Which Agencies Oversee RCRA?

- Federally, RCRA is administered by the US Environmental Protection Agency (EPA).
- In California it is administered by the Department of Toxic Substances Control (DTSC), California Environmental Protection Agency (Cal-EPA).
- In San Francisco, it is the City and County of San Francisco Hazardous Materials Unified Program Agency (HMUPA).

When is a hazardous material considered hazardous waste?

A material becomes hazardous waste when it is:

- No longer usable for its original intent, or
- Off-specification, or
- No longer needed.

Note: At UCSF, the term "Chemical Waste" is interchangeable with "Hazardous Waste".

WHEN YOU HAVE FINISHED READING THIS NEWSLETTER, PLEASE PASS IT ALONG TO OTHERS IN YOUR LABORATORY OR OFFICE.

The OEHS Safety Update Newsletter is distributed by the UCSF Office of Environmental Health and Safety. Please send comments to OEHS Safety Update Newsletter: Box # 0942 476-1300 editor@ehs.ucsf.edu

Who determines what is hazardous waste?

At UCSF the Office of Environmental Health and Safety will pick up the waste and make a hazardous waste determination.

What are the characteristics of hazardous waste?

On the basis of criteria set forth by the Environmental Protection Agency (EPA) chemical waste is considered hazardous if it exhibits any of the following characteristics:

1) Ignitability



- Liquids, other than aqueous solutions containing less than 24% alcohol by volume that have a flash point below 60° C (140° F).
- Examples: Acetone, xylene, toluene

1a) Ignitable compressed gases
Examples: Propane, methane

1b) Oxidizers such as chlorates, permanganates, inorganic peroxide, or nitrate that yield oxygen readily to stimulate the combustion of organic matter.

2) Corrosivity

- Aqueous solutions that have a pH equal to or less than 2, or equal to or greater than 12.5
- However, wastes with pH ranges 2-6 and 11-12.5 are also managed as hazardous waste because of sewer discharge regulations.
- Examples: Acids, sodium hydroxide



3) Reactivity

3a) Substances that react with water violently or produce toxic gases or explosive mixtures.

- Example: Alkali metals (lithium, sodium, potassium)

3b) Substances that are unstable.

3c) Substances that contain cyanide or sulfide that generate toxic gases when exposed to a pH in the range between 2 and 12.5

- Example: Sodium cyanide, hydrogen sulfide

4) Toxicity

Materials having a concentration equal to or greater than the regulatory values specified in the regulations.



- Examples: Lead, arsenic, mercury

How to test for toxicity?

The Toxicity Characteristic Leaching Procedure (TCLP) is a standardized test which mimics rainwater leaching through solid waste and compares the amount of toxic constituents released by the leaching action to federally established standards. If the standard is exceeded, the waste is hazardous. Liquids are analyzed directly without adding the leachate material.

- Examples: Compounds of Lead, silver, chromium and nickel

Listed Hazardous Waste

EPA and California regulations also list other off-specification chemicals,

(Continued on page 3, see Descriptions)

UCSF CHEMICAL WASTE SELF-INSPECTION CHECKLIST (LABORATORIES)

| ITEM | DESCRIPTION | STATUS |
|-----------------------|--|--------|
| Disposal | <ul style="list-style-type: none"> • All chemical waste disposed within 60 days of accumulation start date indicated on label • No disposal of waste or contaminated items in ordinary waste • No evaporation of chemical wastes • No sewer disposal of chemical wastes | |
| Labeling | <ul style="list-style-type: none"> • Each chemical waste container (solid or liquid) has a UCSF "Chemical Waste Tag" attached to it • Start date entered on the first day chemical waste accumulation started • Previous bottle label defaced (if using old chemical bottle) | |
| Staff / Safety | <ul style="list-style-type: none"> • Appropriate protective equipment (goggles, gloves, aprons) used when adding/removing chemical waste • Personnel have undergone OEHS orientation training (call you DSA for training) | |
| Storage | <ul style="list-style-type: none"> • All information on label complete • Chemical waste containers (liquid and solid) are always kept capped except when adding or removing Chemical waste • Chemical waste disposed of through the chemical waste program only • Chemical Waste Removal Form must be filled-out for container with a tag • Chemical waste stored and collected in accordance with chemical compatibility • Containers away from heat sources • Containers stored in a safe location • Containers, lids and caps are compatible with chemical waste material • Secondary containment used for liquids to contain spillage | |

(Descriptions, Continued)

waste streams, or their spill residues, which must be handled as hazardous wastes due to their acute or chronic toxicity.

For more details:

- Contact your Department Safety Advisor (DSA), or
- Refer to University of California, San Francisco Chemical Safety Manual, posted on the Office of Environmental Health and Safety web site at www.ehs.ucsf.edu.

PLEASE HAVE ALL PERSONNEL IN YOUR LAB INITIAL HERE AS EVIDENCE OF CONTINUING EDUCATION & KEEP THIS NEWSLETTER IN YOUR LOGBOOK.

(HWM, Continued)

How do I dispose of hazardous waste?

- Contact the OEHS Hazardous Materials Management Program (HMM) at 476-0544.

What training does my laboratory staff need?

- At a minimum, your laboratory staff should have attended basic orientation training for laboratory workers provided by OEHS.
- Contact your DSA for assistance in providing additional training as required.
- Call 9-911 for assistance in emergencies (24 hours a day).