

Recycling of Empty Containers and Other Materials in Laboratories

POLICY STATEMENT (OVERVIEW)

To ensure the safety of the university community and outside vendors, all laboratory containers and materials approved for recycling must be triple rinsed, labels defaced or removed, and uncapped before it is placed into one of the single stream recycling containers.

DEFINITIONS and LISTS

1. "P" Listed Wastes - list of acutely hazardous chemicals determined by the EPA

(<http://www.epa.gov/epawaste/hazard/wastetypes/listed.htm>)

2. CDC Select Agent Toxins - List of biological toxins that are regulated by the Department of Health and Human Services (HHS) Centers for Disease Control and Prevention (CDC) AND United States Department of Agriculture (USDA).

(<http://www.selectagents.gov/Select%20Agents%20and%20Toxins%20List.html>)

3. DEA Controlled Substances - List of drugs and chemical precursors that fall under the jurisdiction of the Missouri Bureau of Narcotics and Dangerous Drugs (BNDD) and the US Department of Justice (DOJ) Drug Enforcement Administration (DEA).

(<http://www.deadiversion.usdoj.gov/schedules/index.html>)

4. LD₅₀ - Lethal dose which would kill 50 percent of the test animal population by various routes of administration (ingestion, injection, etc.) LD₅₀s are regulated by the Department of Health and Human Services (HHS) Centers for Disease Control and Prevention (CDC) AND United States Department of Agriculture (USDA).

5. Highly Toxic Chemicals - as defined by 29 CFR 1910.1200:

(a) A chemical that has a median lethal dose $LD_{50} \leq 50$ milligrams per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each.

(b) A chemical that has a median lethal dose $LD_{50} \leq 200$ milligrams per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between two and three kilograms each.

(c) A chemical that has a median lethal concentration LD_{50} in air ≤ 200 ppm by volume of gas or vapor, or 2 milligrams per liter or less of mist, fume, or dust, when administered by continuous inhalation for one hour (or less if death occurs within one hour) to albino rats weighing between 200 and 300 grams each.

6. Pyrophoric Materials - OSHA 1910.1200 and NFPA 45 both define a pyrophoric material as a liquid, solid, or gas that will ignite spontaneously in air at a temperature of ≤ 130 degrees F (54.4 degrees C).

7. Triple Rinse – means rinsing a container three times minimum with a volume of water that is $\geq 50\%$ of the original container volume in order to remove all of the hazardous material and residue.

8. Defaced – means clearly communicating that the hazards affiliated with the original manufacturer's label no longer apply to the container. At a minimum, the label must be crossed out from corner to corner (covering the entire label) using a large tip permanent marker, such as a Sharpie®.

SINGLE STREAM RECYCLING IN LABORATORIES

Single stream recycling containers in the laboratories are intended for recycling of clean, defaced, uncapped chemical containers and other non-hazardous materials that are utilized in research laboratories. Due to numerous regulatory compliance requirements, recycling containers in laboratories must not be used for recycling food related materials, such as cans, bottles, plates, utensils, etc. All recyclable food related materials must be placed in a recycling container that is located outside the laboratory proper. Failure to comply may result in an automatic failure of the annual Environmental Health and Safety (EH&S) laboratory inspection.

Recyclable laboratory materials must NOT be contaminated with the following:

- Radioactive material
- Chemical material
- Infectious material

Examples of materials suitable for single stream recycling:

- Triple rinsed, defaced and empty chemical containers (plastic, glass, or metal)
- Empty media/buffer containers
- Empty containers from cleaning materials (bleach, detergents, etc.)
- Pipette tip boxes
- Paper and cardboard boxes
- Empty, non-hazardous large tubes/vials $\geq 25\text{mL}$ (glass or plastic)
- Standard office materials (folders, notebooks, soft cover catalogs, etc.)
- Unused Whatmann filter paper
- Clean plastic filter sterilization units

Examples of materials NOT suitable for single stream recycling:

- Problematic containers:
 - P-listed materials
 - Extremely odiferous materials (e.g. Beta-mercaptoethanol, DTT, phenol, etc.)
 - DEA controlled substance
 - Select agent toxins
 - Highly toxic materials
 - Pyrophoric materials
 - Radioactive materials
 - Small gas cylinders (e.g. butane canisters) or aerosol cans
- Transfer pipettes (glass & plastic), pipette tips, serological pipettes, syringes, and sharps

- Multiwell plates, flasks, petridishes that have been used for cell culture, viral work, bacterial work, p-listed chemicals, or extremely odiferous materials. These materials should be appropriately disposed of as either biological or chemical waste.
- Small tubes/vials < 25mL (glass or plastic)
- Gloves, paper towels, Kimwipes, etc.
- 5 gallon steel drums
- Chemical resistant plastics without a recycling number
- Heat resistant glass (e.g. pyrex, kimax, borosilicate, etc.)
- Styrofoam packing material
- Batteries (alkaline, lithium, lithium ion, NiCd, etc.)*
- Electronics and electronic parts*
- White goods containing Freon and/or oil*

* indicates material that is recycled through a different stream. (See EH&S website for more information)

NOTE: EH&S, 362-6816, must be contacted for approval to recycle any other laboratory materials!

REASON FOR POLICY

This policy was adopted to ensure standardized and appropriate recycling methods throughout the University and University laboratories.

RESPONSIBILITIES

Every individual placing material into any of the single stream containers must adhere to the recycling policy/guidelines.

SANCTIONS

Placement of “contaminated” materials into a recycling container will result in an automatic failure of the EH&S laboratory inspection for the laboratory or area. Improper recycling of materials may also result in regulatory fines or penalties from outside regulatory agencies. All penalties or fines are the responsibility of the University department in which the infraction occurred. Grant funding may not be used to pay regulatory fines or penalties. Civil and criminal penalties may result from the improper disposal of hazardous materials.