

Radioactive Waste Handling

- 1) Segregate radioactive waste by isotopes.
 - Isotopes with half-lives of less than 120 days (P32, P33, I125, and S35) are held for at least 10 half-lives before disposal.
 - Isotopes with half-lives of greater than 120 days are held in storage for off-site disposal.
- 2) Separate solid radioactive waste from liquid radioactive waste.
 - Solid Waste: dry contaminate laboratory materials, contaminated gloves, glassware, empty vials, empty cuvettes, empty reagent vials, paper, glass, plastic, lead shielded container
 - Liquid waste: Scintillation fluids, rinse water from contaminated glassware and laboratory equipment, and other contaminated chemicals/solvents.
 - Animals contaminated with radioisotopes.
- 3) Store contaminated sharps in puncture proof sharps containers. Sharps are pipettes, capillary pipettes, Pasteur pipettes, broken glass of any type, slides, needles, blades, any sharp object that may puncture the skin.
 - **DO NOT PUT SHARPS IN PLASTIC BAGS!**
 - Label puncture proof container with:
 1. Radioactive symbol
 2. Isotope
 3. Laboratory building and number
 4. Date
 5. Responsible Person
- 4) Solid waste disposal
 - Store in heavy plastic bags, clear is preferred.
 - Remove, deface, and cover up all radioactive signs, markings, labels, etc before putting empty containers in bags.
 - Put in second heavy plastic bag for disposal.
 - Label disposal bag with:
 1. Radioactive symbol
 2. Date
 3. Isotope
 4. Activity in mCi
 5. Laboratory building and number
 6. Responsible Person
 - Lead shielded containers (Pigs)
 1. Remove, cover up, and deface all radioactive signs.
 2. Put in hazardous chemical waste storage for disposal.
 3. If contaminated, the container must be placed in separate plastic bag for storage with radioactive waste.

5) Animals

- Animals contaminate with radioisotopes are to be put in plastic bags and held frozen for disposal.
- Label bag with:
 1. Radioactive symbol
 2. Date placed in freezer
 3. Isotope
 4. Activity in mCi
 5. Laboratory building and number
 6. Responsible Person

6) Liquid waste disposal

- The EPA prohibits all liquid waste from being disposed of in normal trash.
- Only use non-hazardous biodegradable, environmentally safe, or aqueous scintillation fluids. If have questions about hazardous nature of any fluid call RSO at 2-4996.
- Hazardous radioactive chemicals or cocktails (toluene, xylene, pseudo-cumene based) can not be disposed of in the sewer and must be kept separate from non-hazardous fluids.
- Non-hazardous radioactive fluids maybe disposed of in the sewer according to following limits per laboratory:

C-14	0.1 mCi/month
H-3	0.1 mCi/month
I-125	0.1 mCi/month
P-32	0.25 mCi/month
P-33	0.25 mCi/month
S-35	0.125 mCi/month

 1. Put down laboratory sink labeled for radioactive waste disposal.
 2. Empty vials into sink with water running, leave running for at least 5 minutes.
 3. Handle empty vials as radioactive solid waste per 6 above.
- Pour scintillation fluid from vials or other non-hazardous liquids not put down the drain into half-gallon or gallon polyethylene jugs.
 1. Empty vials are to be treated as solid radioactive waste per 6 above.
- Put hazardous radioactive liquids in separate glass containers.
- Fill containers only $\frac{3}{4}$ full, leave head space for expansion.
- Label container with:
 1. Radioactive symbol
 2. Chemical (ie, scintillation fluid type, solvent name, mixture ingredients)
 3. Isotope
 4. Activity in mCi
 5. Laboratory building and number
 6. Responsible Person
 7. Date when container is full

7) Record monthly disposal activity on **Radioactive Materials Inventory and Wipe Test** form.

8) Call or email RSO for pickup of radioactive waste with building, room, and isotope to be picked up.

- 2-4996
- tbialke@kent.edu