

USC continually strives to lessen its environmental impact through general waste reduction, reuse, and recycling. It imparts this same strategy in reducing its hazardous waste liability (pursuant to California Senate Bill 14) by maximizing re-use/recycling of hazardous waste streams and return on investment where applicable.

What hazardous waste streams at USC are recyclable?

The Hazardous Waste Recycling Chart on the following page illustrates the hazardous waste streams at USC that are recyclable and non-recyclable.

Recyclable hazardous waste includes flammable and halogenated solvents that are fuel-blended along with waste oils to power cargo ships. Oily rags are processed as solids-to-energy for the activation of cement kilns. Additionally, silver from spent photographic reagents is recovered for reuse, alkaline batteries are recycled, and non-expired, surplus chemicals from research laboratories are re-distributed where needed.

Non-recyclable hazardous waste includes biomedical and radioactive waste from research facilities; pharmaceuticals and chemotherapeutics; and polychlorinated biphenyls (PCBs) to name a few.

EH&S/USC continually seeks out opportunities in which to better optimize its sustainability performance.

Are there specific waste containers used for recycling purposes?

Yes. EH&S distributes the following containers free-of-charge for recycling:

- Metal or polyethylene safety cans to recycle flammable and halogenated solvents.
- Polyethylene containers for batteries.
- Polyethylene containers for photo reagents.
- Fiber drums for large scale recycling/reprocessing of fluorescent light buildings during remodeling.

How can a research lab limit its hazardous waste liability?

- ✓ Substitute highly hazardous chemicals with less or non-hazardous ones.
- ✓ Reduce volume or toxicity of chemicals used in experiments.



What I can do...

- Use very small (micro) quantities to conduct an experiment.
 - Keep chemical inventories at a minimum. Only purchase quantities as needed.
 - Purge expired chemicals from inventory. Request hazardous waste pick-up on-line at <http://adminopsnet.usc.edu/node/322>.
 - Exchange surplus chemicals with other researchers.
 - Use less hazardous chemicals whenever possible.
- ✓ Obtain compressed gas cylinders only from vendors who take back emptied or partially-filled cylinders.
 - ✓ Manage and control chemical inventory to better track chemical purchase and use.
 - ✓ Promote good labeling practices to reduce proliferation of unknowns and subsequent costs to identify the unknowns before disposal.
 - ✓ Neutralize or deactivate a hazardous component as the final step in a chemical process. Record it as part of the Standard Operating Procedure (SOP) for that process.

References

SB14: Hazardous Waste Source Reduction
https://www.dtsc.ca.gov/PollutionPrevention/SB14/SB14_intro.cfm

US EPA Hazardous Waste Recycling
<https://www3.epa.gov/epawaste/hazard/recycling/index.htm>

CA Department of Toxic Substances Control
Hazardous Waste/Hazardous Waste Recycling
<http://www.dtsc.ca.gov/hazardouswaste/>

HAZARDOUS WASTE RECYCLING CHART

OFFICES • SHOPS • LABORATORIES • FACILITIES • TRANSPORTATION

RECYCLABLE WASTE		
FUEL/ENERGY	RECYCLE	REPROCESS
Paints	Ballasts	Silver salts
Solvents	Light bulbs	Batteries
• Flammable	• Fluorescent	• Lead
• Combustible	Toner cartridges	• Alkaline
• Halogenated	Mercury metal	• Ni-Cd
Waste oils	Construction	eWaste
Oily rags	• Wood	Oil/oil filters
	• Debris	Radiator fluid
	Clean chemicals	



- Waste oils + flammables/combustibles/halogenated solvents fuel blended to power cargo ships and cement kilns.
- Oily rags/fabrics = solids converted to energy.



- Clean chemicals re-distributed to research laboratories.
- Mercury re-distilled and re-sold.
- Construction debris recycled to other projects.
- Toner cartridges collected/returned to manufacturer.



- Silver metal reclaimed from photography reagents; reprocessed for photography as well as other applications.
- Rare metals reclaimed from CRTs/CPUs.
- Radiator fluid distilled for re-packaging.

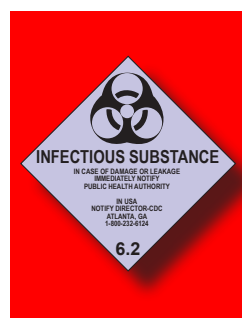
NON-RECYCLABLE WASTE		
CHEMICAL	RADIOACTIVE	BIOHAZARD
PCBs	Fixed sources	Pathologicals
Heavy metals	Scintillation vials	Sharps
Toxics	Radioisotopes	Red bags/solids
Corrosives	• Short half-life	Fluids
Reactives	• Long half-life	
Chemo	Sharps	
Pharma	Pathological	
Unknowns		



- Hazardous chemicals collected and incinerated at TDF facility.
- Unknowns analyzed by testing labs to determine hazard class.
- Regulated chemotherapeutic and pharmaceuticals incinerated at TDF facility.



- Short half-life: Stored for decay; shredded for disposal; incinerated.
- Long half-life: Compacted for disposal.



- Sharps; solids; and pathologicals (tissue, carcasses) microwaved; shredded; land-filled.
- Incineration for highly pathogenic material.



REDUCE REUSE RECYCLE