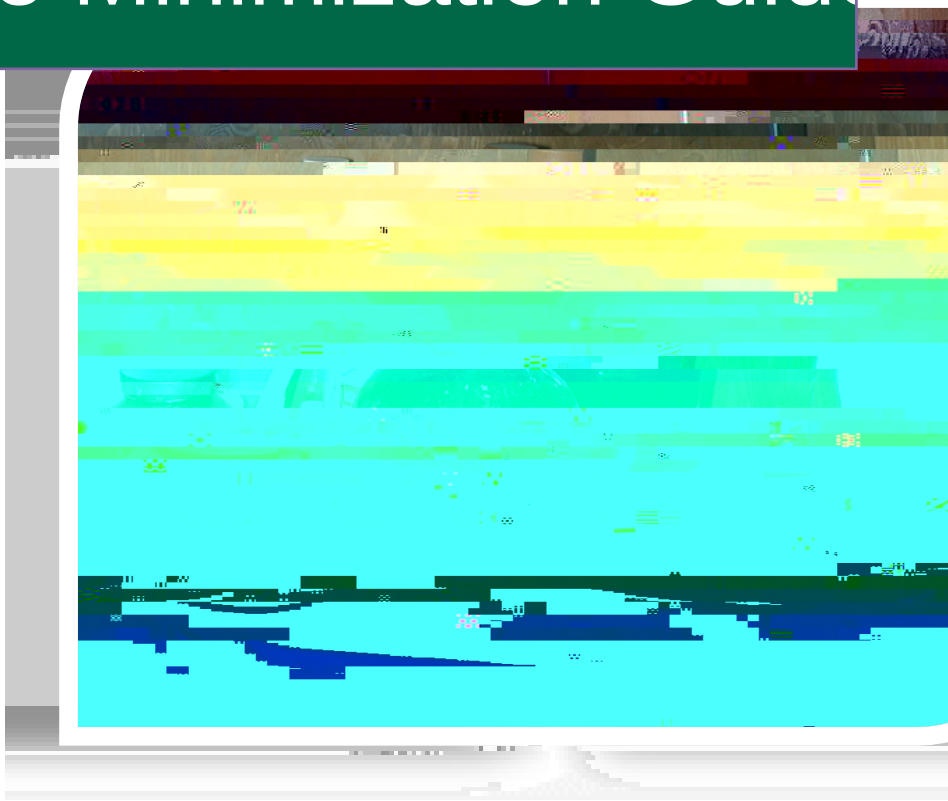
Waste Minimization Guide



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Reduce chemical purchases

Note: If a small amount of a chemical is needed, EH&S can coordinate with other labs that may have the chemical available in their inventory, who would be willing to provide you with a small amount.

Environmentally Sound Recycling (ESR)

ESR, in the context of RCRA, includes materials that are used, reused, or reclaimed. A material is reclaimed if it is processed to recover a usable product, or if it is regenerated.
USF currently has bulk recycling stations within USF Facility Maintenance. USF St. Petersburg Facilities Services, USF Sarasota-Manatee Facilities Planning and Management that recycles fluorescent bulbs, fixture ballasts, used oil, and non-alkaline batteries.

Additional ESR processes that can be used within your area include:

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generated at USF. In some situations these suggestions may be difficult or impractical to

If possible, keep separate from wastes that contain heavy metals, pesticides, cyanides, or acutely toxic "P listed" wastes. Refer to USF Hazardous Waste Management Procedure.

These wastes tend to increase the costs of disposal due to the need for more complex waste treatment.

Recycle or redistill solvents (EH&S approval and monitoring required).

Solvent Contaminated Towels and Rags

Solvent-contaminated towels and rags can be sent to an approved laundering service for cleaning and reuse, rather than disposing of them as waste. The service will reuse the towels until their useful life is reached or until they are contaminated beyond the vendor's ability to clean them, in which case they are typically incinerated. By using a shop towel service, the number of contaminated towels that need to be shipped as waste can be greatly reduced.

USF departments where large quantities of solvent-contaminated towels and rags are used are now managing their rags and towels as excluded solvent-contaminated rags. As of January 31, 2014, the U.S. Environmental Protection Agency (EPA) modified the hazardous waste management regulations under the Resource Conservation and Recovery Act (RCRA) to conditionally exclude solvent-contaminated wipes from hazardous waste regulations provided that businesses clean or dispose of them properly. In order to be excluded from hazardous waste regulation, solvent-contaminated rags in these areas must be managed according to specific management standards:

Solvent-contaminated wipes must be managed in closed containers that are labeled "Excluded Solvent-Contaminated Wipes".

Generators may accumulate solvent-contaminated wipes for no longer than 180 days.

Solvent-contaminated wipes must not contain free liquids at the point of being sent for cleaning or disposal.

Generators must maintain the following documentation on site so that states and EPA can ensure the generators are maintaining compliance with the conditions of the exclusion.

- Name and address of laundry, dry cleaner, landfill, or combustor.
- Documentation that the 180 day time limit is being met.
- Description of the process the generator is using to meet the "no free liquids" condition.

- Be in a clear, 6-mil or thicker sealed plastic bag.
- Be labeled with the words “Excluded Solvent Contaminated Wipes.”
- Not contain any free liquids.

In Pinellas county solvent contaminated disposable wipes can be disposed at

Some suggestions for waste minimization include:

- Survey your facility for potential sources of mercury.
- Use water or calibrated oils instead of mercury for differential manometers.
- Replace mercury thermometers with non-mercury alternatives, such as alcohol or digital. If you must use mercury thermometers, purchase those with a Teflon coating.
- Use metal-oven thermometers instead of mercury thermometers in ovens.
- Use mercury-free compound alternatives in laboratories.
- Use mercury-free catalysts or simply let the reaction run longer.
- Do not use mercury thermometers as stirring rods.
- Use secondary containment under mercury containing devices.
- Keep mercury wastes separate from all other waste streams.

Reactive Chemicals

Examples: tributyllithium, trichloromethleyne.

Reactive chemicals are more expensive to dispose of since many times these chemicals have special storage requirements or become too dangerous to handle. On some occasions an outside contractor may be called to remove the chemical. Reactive chemical waste can be minimized through thorough planning of chemicals needed and proper estimation of chemical consumption rate. It is also important to check with EH&S before purchasing reactives or any extremely dangerous chemicals to see if they are capable of responding to an incident or storing the chemical waste for pickup.

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Some suggestions for waste minimization include:

1. Chemicals are submitted to EH&S through the lab chemical cleanout form (Lab Cleanout Form) for disposal.
2. EH&S will schedule an appointment for the cleanout after a request is submitted. Please allow 2-3 weeks for EH&S to effectively prepare for and complete the laboratory cleanout. Time for completion may vary depending on the size of the cleanout or the nature of the chemicals.
3. Chemicals selected for redistribution are carefully examined to determine whether they meet the following criteria:
    - The material is in the original container and displays the original manufacturer's label;
    - The container is at least half full;
    - The material does not exhibit any visible signs of contamination or deterioration;
    - The container doesn't have an offensive odor;
    - The chemical doesn't require special handling (i.e., stored under gas, refrigeration, light sensitive, etc.);
    - The chemical is free of radioactive or biological contamination;

      NOTE: The Chemical Redistribution Program makes no claim as to the purity of the materials available for re-use.
4. Chemicals that are unsafe to redistribute (poor condition of containers, unknowns, controlled substances, expired time sensitive items) would be removed from availability.
5. A list of available chemicals, and a date and location of the redistribution will be emailed to University laboratories. Individuals interested may submit requests for the available chemicals by following the provided link to the online signup sheet. The individual will receive an e-mail with a confirmation of the chemicals selected. Requests for chemicals are filled on first come, first served basis.
6. The chemicals will be grouped per requestor by EH&S using stickers or bins.
7. A lab representative must pick up the chemicals from the redistribution location within the advertised time window. EH&S guidelines for moving chemicals must be followed (see Moving Guidelines). Unclaimed chemicals will also be available for distribution on first come, first serve basis. EH&S will record the transfer of the chemicals on site and will make changes within the HITS system to reflect the new owners of the chemicals redistributed. A reminder email will be sent to people who have requested chemicals to make sure they come to collect them. The number of chemicals collected during the redistribution event will be recorded by EH&S for reporting purposes.
8. After the redistribution, the Hazardous Waste Team or the hazardous waste disposal vendor will remove any remaining chemicals.