

Energy Conservation

Inactive Equipment

- Shut off all equipment that can be shut off that does not need to be running. This may include:
 - Environmental rooms (warm & cold rooms)
 - Fume hoods
 - Ovens
 - Chilled centrifuges
 - Biosafety cabinet
 - Bubbler
 - Stirring Plates
 - Heater water bath on ROTOVAP
 - Heating block
- Check for and use energy-saver modes on all equipment
- Turn off screen savers on computers and opt for a power-save mode instead
- Use and maintain outlet timers and smart power strips to limit standby power usage
- Have a clearly stated equipment start-up and shut-down procedures available in a specified location at all times to ensure proper equipment use
- Report unused equipment on the UTransfer website so that it may be used by another lab
- Turn off lights when daylight is adequate, no one is using the room, or when a task lamp will do

Fume Hoods & Ventilation

- Help keep thermostats working efficiently by removing space heaters and ensuring thermostats are free and unblocked
- Never store chemicals in fume hoods

Cold Storage

- Practice good cold storage organization
 - Create a database or inventory of frozen samples
 - Eliminate old or unnecessary samples
- Practice good cold storage management
 - Nominate a cold storage coordinator for the lab
 - Eliminate excess ice from freezers
 - Share freezers with colleagues
 - Increase the temperature in your freezers to the minimum required for lab safety or research integrity
 - Use appropriately sized equipment to avoid excess energy consumption

Waste Management

Water Consumption

- Faucets have low-flow aerators to reduce water consumption
- Replace vacuum aspirators with membrane / diaphragm / oil-free pumps
- Use ice-makers efficiently and only as necessary
- Establish efficient lab-ware washing practices
 - Use appropriately sized equipment to avoid excess energy consumption
- Use appropriate water quality for each task
 - Avoid using distilled or deionized water when not necessary
 - If adequate quality water can be obtained by DI (distillation) or RO (reverse osmosis), do not use water stills
- Report leaks to facilities

Lab Waste

- Only order from suppliers that do not use Styrofoam packaging
- Recycle ink/toner cartridges
- Purchase paper that is 90% recycled content (or higher)
- Identify the biggest waste streams in your operation and discuss alternative solutions with the Office
- Do not mix hazardous waste and non-hazardous waste
- Collect and recycle electronic waste
- Equipment and materials that are out of date but still usable should be donated to kids science camps / programs on campus

Chemical Handling

Green Chemistry

Are you implementing the 12 principles of Green Chemistry?

- Prevention
- Atom Economy
- Less Hazardous Chemical Syntheses
- Designing Safer Chemicals
- Safer Solvents and Auxiliaries
- Design for Energy Efficiency
- Use of Renewable Feedstocks
- Reduce Derivatives
- Catalysis
- Design for Degradation
- Real-time Analysis for Pollution Prevention
- Inherently Safer Chemistry for Accident Prevention

Non-Toxic Alternatives

Use non-toxic chemicals whenever possible?

- Exchange or purchase spirit thermometers to replace mercury thermometers
- Continuously purchase products without PVC, BPA, PBTs, or phthalates
- Avoid the use of halogenated reagents
- Digital processes instead of wet photographic processes
- Use heptane(s) instead of toxic hexane(s)
- Use eco-friendly cleaning products

Equipment Maintenance

Are you ensuring equipment is properly maintained by the appropriate groups?

Chemical Management and Handling

- Seek ways to minimize chemical use
- Make use of the chemical inventory on campus and seek opportunities for safe chemical exchange
- Synthesize your own starting materials whenever possible

Best Management Practices

Staff Management

- Commit to holding semi-regular staff social events to encourage community building
 - Lunch hour potluck
 - Yoga or physical activities
 - Board games
 - If adequate quality water can be obtained by DI (distillation) or RO (reverse osmosis), do not use water stills
- Encourage lab users to familiarize themselves with health and wellbeing services offered by the University
- Discuss the discrimination and harassment policy on campus with all lab users, and create a safe space to talk for those who need it

Field Work

- Put in place a field work protocol to ensure the lab is conscious of environment when doing field work
- Reduce idling when on field work
- Be mindful of your transportation options and choose the most sustainable options when traveling to do fieldwork

Purchasing

- When updating equipment, replace old CRT monitors with LCD monitors
- Purchase sustainable models of equipment whenever possible
- Select the ideal size of equipment whenever possible
 - If your freezer is too large, you can either order a smaller freezer, or a larger freezer to share with another lab