INTERIM GUIDANCE FOR HANDLING AND STORING CHEMICAL WASTES AT TTU

December 14, 2011

ALLOWABLE WASTE CONTAINERS:

- Use glass or polyethylene containers that will not corrode.

- Containers must be triple rinsed. (Each rinse must be 1/10 the volume of the container and the rinse also collected for disposal)

- The original container label must be completely defaced or removed.

- Metal cans must be used **only** for solvent waste that is non-corrosive. **If metal cans are used, they must be disposed of within 1 month of accumulation start date or when ¾ full, which ever happens first.**

LABEL ALL WASTE CONTAINERS:

- The contents of a container must be shown and displayed prominently with the label facing forward where it can be seen.

- Use labels such as "Xylene To Be Recycled" or "Xylene To Be Reclaimed" to identify chemicals that can be redistilled or put to other uses.

LABEL ALL WASTE CONTAINERS WITH THE WORDS "HAZARDOUS WASTE" AND THE CONTENTS:

- Use the orange "Hazardous Waste" labels provided by Texas Tech Environmental Health and Safety (TTU EH&S -- 742-3876).

Image: Example of filled out Hazardous Waste label.

- All containers of chemical waste must have an accurate EH&S label that lists
  - Accumulation start date
  - pH of contents
  - Each individual chemical waste (full name)
  - Building and room number
  - All hazards posed by the waste checked

- Fill in building, room number and accumulation start date before any waste is added. Update other information as waste is added.

WASTE CONTAINERS:

- **All waste containers must be securely capped or capped with an appropriate venting cap.**

- **Do not leave a funnel in the waste container**.

DO NOT ALLOW LABORATORY WASTE TO ACCUMULATE:

- **Store only <u>ONE</u> container of each kind of waste in the laboratory.**

- **When the waste container is ¾ full or it has been one month since accumulation start date**, log on to TTU EH&S website to schedule a chemical waste pickup (http://www.depts.ttu.edu/ehs/Web/).

STORAGE OF WASTE CONTAINERS:

- **Store waste only in a fume hood where <u>no</u> reactions are being carried out.** The waste must be segregated, and the sash must be fully closed.

- Store waste away from reactions in progress, equipment and sitting areas inside the laboratory.

- If there is no room in a fume hood to store flammable waste, store it in a flammables cabinet. Do not store flammable waste containers on a bench or floor. To obtain cabinets, contact EH&S (742-3876).

- Segregate waste away from other incompatible waste or chemicals.

- **Do not store waste containers near a sink or floor drain.**

SEPARATING THE WASTE: Incompatible wastes must be stored separately

- **Waste Analysis** - Each person in the laboratory conducting operations must complete a waste analysis. The waste analysis will need to include, but is not limited to what will be generated from the operation, the incompatibilities and how it will be stored. The waste analysis can be either entered in the laboratory notebook that is checked by the PI or in an SOP approved by the PI. If you have any questions about your waste analysis or if you need help contact EH&S at 742-3876.

- **Halogenated and Non-Halogenated waste** - These wastes need to be segregated from one another in separate containers.

- **Store acids and bases in separate cabinets** - Leaking containers or a spill could cause a violent reaction and emit toxic gases.

- **Store acids and organic waste in separate cabinets** - If these chemicals should mix, a fire or explosion can occur.

- **Do not mix incompatible solvents in the same waste container** - For example, nitric acid and ethanol can form an explosive mixture.

- **Practices used for storage of chemicals should also be used for storage of waste** - Store them by storage groups such as:

  - Compatible Organic Bases
  - Compatible Pyrophoric & Water-Reactive Materials
  - Compatible Inorganic Bases
  - Compatible Organic Acids
  - Compatible Oxidizers including Peroxides
  - Compatible Inorganic Acids not including Oxidizers or Combustible
  - Not Intrinsically Reactive or Flammable or Combustible
  - Poison Compressed Gases
  - Compatible Explosive or other highly Unstable Material
  - Non-Reactive Flammable and Combustible, including solvents
  - **Incompatible with ALL other storage groups**

Link to _Prudent Practices in the Laboratory_ over compatible storage groups
http://www.nap.edu/openbook.php?record_id=12654&page=96

ALWAYS STORE THE FOLLOWING TYPES OF WASTES SEPERATELY FROM EACH OTHER:

- Acids and bases.
- Alkali or alkali earth metals, Alkyllithiums and aqueous waste
- Cyanide, sulfide or arsenic compounds and acids
- Mercury or silver and ammonium containing compounds
- Organics and acids.
- Powdered or reactive metals and combustible materials

DO <u>NOT</u> MIX INCOMPATIBLE WASTES:

- **Before mixing wastes, know your chemicals and how they react**. Consult the MSDS for the chemical and a classic reference such as Bretherick, Hazards in the Chemical Laboratory, 7th. Edition, 2007 to identify proper procedures

- For examples of wastes that **must not be combined**, refer to the following links containing incompatibles charts

http://web.princeton.edu/sites/ehs/chemwaste/RCRAChemicalCompatibilityList.pdf and
http://web.princeton.edu/sites/ehs/chemwaste/compatability.htm