

WASTE HANDLING IN THE ORGANIC CHEMISTRY LAB

The following procedures must be observed by all students. Failure to comply adds to the workload of personnel involved in the organic lab operations and may actually result in injury to others. Your cooperation and your feedback are greatly appreciated.

1. CHEMICAL WASTE

Most of the chemical waste generated in the organic lab falls into four categories:

- a) Organic solids and liquids
- b) Aqueous solutions
- c) Inorganic solids
- d) Substances that require special handling

Accordingly, there will always be at least three labeled beakers in the waste hood, one for each of the first three categories. Students must place all **organic solvents and solids** in the beaker labeled "organic waste." Organic substances are those containing carbon in their structure. Examples of organic waste are solvents such as methylene chloride, ether, or alcohols. Organic solids include sulfanylamide and caffeine.

Many experiments result in formation of an **aqueous layer** that is not used and must be discarded. Accordingly, this and any other solutions involving water as the solvent must be placed in the beaker labeled "aqueous waste."

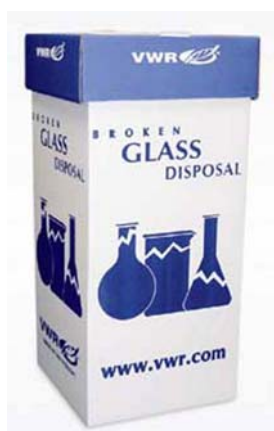
Finally, some substances fall into the category of **inorganic solids**. Inorganic substances are those that do not contain carbon in their structure. Examples of inorganic solids commonly handled in the lab are sodium chloride, sodium sulfate, calcium chloride, alumina, and silica gel. These substances must go into the beaker labeled "inorganic solids."

The last group is comprised of substances that require special handling. Instructions for the safe handling of this waste should be given as part of the experiment in which they are used, and a waste container should be provided for those experiments. Examples are insoluble organics such as Nylon, concentrated inorganic acids, and TLC plates. If you have waste that does not fit into any of the first three categories and/or are not clear as to how to handle it, please ask your instructor.

MISPLACED WASTE CREATES BIG PROBLEMS FOR THE PEOPLE WHO MUST HANDLE IT AFTER THE STUDENTS LEAVE THE LAB. IF IN DOUBT, PLEASE CONSULT YOUR INSTRUCTOR RATHER THAN CARELESSLY DUMPING WASTE INTO THE WRONG CONTAINERS.

2. BROKEN GLASS AND SHARP OBJECTS

These two types of waste require separate containers. Receptacles for broken glass are placed at strategic points in the organic labs (see picture below). Unfortunately, some students confuse these containers with trash cans. **BROKEN GLASS RECEPTACLES ARE NOT TRASH CANS.** Please do not place anything in these boxes other than glass. The only exceptions to this rule are Pasteur pipettes that may contain silica gel, alumina, or cotton inside. You can place these pipettes into the broken glass box without having to empty them first. However, the **rubber bulbs that are commonly used with such pipettes are not disposable.** Please do not dump them into the trash can or the broken glass boxes.



A BROKEN GLASS RECEPTACLE IS NOT A TRASH CAN

Sharp objects also require a special container. This container is typically a red plastic box located in the waste hood. The container is designed so that objects can go in easily, but cannot be taken out. Examples of sharp objects commonly used in the organic lab are disposable syringe needles. Please place such items in the sharp objects box.



A TYPICAL SHARPS CONTAINER

3. REGULAR TRASH

There are regular trash cans placed at specific locations in the organic lab. Unfortunately, certain regulations limit the amount of trash cans that can be placed in each lab. As a result there might not be one handy when you need it. This in turn makes it tempting to place trash in broken glass boxes. Please take the time to locate a regular trash can and place items such as paper, gloves, and other harmless waste in them, even if you have to walk a little longer.



EXAMPLES OF TYPICAL TRASH CANS

PLEASE DO NOT PLACE SHARP OBJECTS OR BROKEN GLASS IN TRASH CANS. THE TRASH BAGS EASILY PUNCTURE, WHICH POSES A HAZARD TO THE JANITORIAL PERSONNEL WHO HANDLES THEM

4. DISPOSABLE VERSUS NONDISPOSABLE ITEMS

Most of the items of routine use in the organic lab can easily be identified as either disposable or not disposable. However there are certain items which for some reason seem to fall into a limbo zone. Examples of these are **rubber bulbs**. These items (shown below) are not disposable.



ALTHOUGH CHEAP LOOKING, THESE ITEMS ARE **NOT DISPOSABLE**

Test tubes, on the other hand, are disposable. However, before placing those into the broken glass container make sure to remove any chemicals from the tube. IT WOULD BE A GRAVE OFFENSE TO PLACE TEST TUBES WITH CHEMICALS IN THE BROKEN GLASS BOX.



BELIEVE IT OR NOT, TEST TUBES ACTUALLY LOOK LIKE THIS AND THEY ARE DISPOSABLE

Centrifuge tubes, on the other hand, are **not disposable**. But of course, you already knew this because it would cost you money to throw them away. Hmm, maybe that would be a good way to deal with rubber bulbs as well...

To recap, here is a list of a few behaviors which, if observed in the lab, may actually carry a curse with them:

- a) Putting chemical waste into the wrong containers
- b) Throwing away rubber bulbs
- c) Placing anything in the broken glass box other than glass
- d) Placing glass or chemicals in the regular trash cans
- e) Leaving trash anywhere in the lab where it does not belong, including bench tops, the weighing balance area, or the hoods where you work.

THANK YOU VERY MUCH FOR YOUR CONTRIBUTION TO MAKING THE ORGANIC LAB THE MOST PLEASURABLE PLACE TO BE ON THE UTD CAMPUS !