

Chemical Safety

Facts

Department of Environmental Safety • Meharry Medical College

Screening Procedure by Laboratories for Unlabeled Chemicals

Unlabeled chemicals present potential hazards and are expensive to dispose. The following are classified as “Unlabeled Chemicals”: bottles without a label, containers labeled with only codes, generic process labels that do not specifically list chemicals contained, and obviously mislabeled chemicals. Note: Tradenames are not considered unlabeled chemicals, but an MSDS should be obtained from the company. Since the Department of Research Safety does not accept unlabeled chemicals for disposal, the following steps should be taken to eliminate them from your storage:

A. You should attempt to locate the person responsible for the unlabeled container, who should be able to provide some clues to its contents. (Departments should not allow students/staff to vacate a laboratory without first identifying all containers.)

B. If the actual person is no longer available on campus, information about the type of research done is usually helpful. Contact former coworkers; ask what chemicals were commonly used in the laboratory, what was created in research, etc. Often this information will provide some important clues to a chemical's identity. (Step C should still be performed at this point, instead of making an “intelligent guess.”)

C. If the bottle(s) are not identified by their creator in step A, the following screening procedure should be used. This simple four-step procedure will enable us to remove practically any container from your laboratory.

Important Pre-screening Notices

Peroxidizable compounds such as ethers, dioxanes, tetrahydrofuran, etc., absorb and react with oxygen to form potentially explosive compounds with time. Exposure to air and light accelerates these formations. Therefore, if your unlabeled LIQUID has partially or fully evaporated and crystals are present (or the liquid has become unclear), label the container as “POSSIBLE PEROXIDE”. DO NOT follow the screening procedure for this bottle. Request assistance from the RSOF by calling ext 6642.

On occasion, unlabeled chemicals contain radioactive materials. If you have access to a Geiger counter, check the container to determine if the material is radioactive. *If radioactivity is found, DO NOT follow these procedures for this bottle. Request assistance from the Radiation Safety Office by calling ext 6642.*

On occasion, unlabeled chemicals could contain biological materials. If you have any reason to suspect a biohazard, DO NOT follow the screening procedures for this bottle. Request assistance from the RSOF by calling ext 6642.

Safety Considerations

For your safety, you should prepare for the worst by utilizing chemical resistant gloves, goggles, a face shield and/or a poly work shield. In addition to personal protective equipment, all screening work should be performed in a hood. Since the procedure tests items for flammability, it is recommended that a functioning fire extinguisher be available in case of unexpectedly violent reactions. You should also be aware of the nearest fire alarm pull station, in case of an emergency.

If you are uncomfortable performing these procedures, ask your supervisor to find a qualified individual in your department.

Screening procedures for unlabeled containers

Each unlabeled material is screened for the following: air reactivity, water reactivity, flammability, and corrosivity. Because of the small quantities involved for each unlabeled container, a rigorous sampling method is not required. One container (aluminum dish, watch glass) can sometimes be used for all four steps of the procedure. Residues from this procedure can be disposed down the sanitary sewer. *When labeling containers, do not cover the original label or any markings with the new label.*

1. Air reactivity

Pour a small amount (a few drops or crystals) of the material into your container in the hood. If the material is air reactive, a reaction will be apparent within 30 seconds and should be labeled

“UI#7078—Characterized Waste—Air Reactive.” If not air reactive, proceed to step two.

2. Water reactivity

Pour a small amount (a few drops or crystals) of the material into your container in the hood. Using a wash bottle filled with water, add a few drops of water to the compound. If the material is water reactive, a reaction will be apparent within a few seconds. If reactive, label the container **“UI#7079—**

Characterized Waste—Water Reactive”; if not, proceed to step three.

Note: Steps 3 and 4 should both be performed if classification is not determined in steps 1 or 2.

3. Corrosivity

Obtain the pH of the sample using pH paper or a pH meter. Record the pH to the nearest whole number on the container label.

4. Flammability (Perform only on liquids)

Pour a few drops of the material into your container in the hood. Hold the dish over a Bunsen burner for a few seconds. If the material has not started burning, hold the flame from the burner in direct contact with the material. If the material has not started burning after 10 seconds of direct contact with the flame, it is considered to be not flammable.

Labeling containers

- A. If steps 1 or 2 are positive, label container as instructed above.
- B. If steps 1 and 2 are negative, label the container according to the following:
 - If flammable and pH = 3-11: "UI#7080—Characterized Waste—Flammable"
 - If flammable and pH = 2 or less: "UI#7083—Characterized Waste—Flammable, Acid"
 - If flammable and pH = 12 or more: "UI#7084—Characterized Waste—Flammable, Base"
 - If not flammable (or solid) and pH = 2 or less: "UI#7081—Characterized Waste—Acid"
 - If not flammable (or solid) and pH = 12 or more: "UI#7082—Characterized Waste—Base"
 - If not flammable (or solid) and pH = 3-11: "UI#7085—Characterized Waste—Other"
- C. Any other information about the contents of the container should also be shown on the container.

Pickup of Screened Containers

After containers have been labeled with the preceding guidelines, you may request that they be collected using the form CWM-TRK-01: Request for Pickup of Chemical Waste. The UI# needed on the form is listed with each of the above descriptive names. Labels will be returned to be placed on the containers. *Again, please do not cover the original label or any markings with this new label.*

Contact the Chemical Safety Section staff at 6642 with questions or for additional assistance.