



# IN CASE YOU HAVEN'T “HERD”



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## Sink Disposal Restrictions for Mercury

By Shaun Savage, Lab Support & Compliance Specialist

Over the years, the effects of mercury exposure on humans and the environment, primarily aquatic life, has been well documented. As a result, regulatory requirements from agencies such as the Environmental Protection Agency, Department of Environmental Protection, and Massachusetts Water Resource Authority have focused on eliminating mercury in our wastewater.

As a member of the Tufts community, and therefore applicable to the requirements surrounding mercury, the solution seems rather elementary; simply collect mercury containing products and ship off-site for disposal. Unfortunately, it is not that simple, as institutions throughout the commonwealth still struggle to maintain compliance. The reason for this is twofold. First, the limit for mercury in wastewater is currently 1 part per billion (ppb), which is extremely small. Second is that common products such as bleach may contain trace amounts of

mercury at levels below 1% which are usually not included on material safety data sheets (MSDS). As a result of these challenges, it is critical that everyone is cognizant of what goes down the drain.

In order to simplify the process, personnel should take the following precautions:

1. Review what is being poured down the drain. Remember, there are strict hazardous chemical waste regulations that require collection and off-site disposal of many chemicals; therefore, the number of items actually being considered for sink disposal should be minimal.
2. Review the material safety data sheet (MSDS) to determine if mercury is present. Remember, just because mercury is not listed on the MSDS, trace amounts could still be present.
3. Contact the vendor and request written documentation

that a product is mercury free. Vendor contact information should be located on the MSDS, original container label, or the vendor's homepage.

4. If you are still unable to document that an item is mercury free, review lists of common products that have undergone analysis. These lists are available through the EH&S Office.
5. Research suitable replacement products that have been documented as mercury free.
6. Last, if all else fails, collect the material as hazardous chemical waste. Pending volume, analysis may be conducted to determine the presence of mercury.

All questions can be directed to the Environmental Health and Safety Office (EH&S) at 617-636-3615.

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## What? More Training!

By Stephen Larson, EH&S Director

Laboratory workers at UCLA and Texas Tech have recently sustained critical injuries while performing routine procedures. Other workers have been infected with Vaccinia in the laboratory. Last year, a NIST laboratory was closed for 12 months following a spill of a small amount of radioactive material.

Principal Investigators at Tufts must comply with 24 different safety codes, regulations, guidelines, standards and policies. New laboratory workers at Tufts may be required to attend as many as 10 courses!

All new employees must take both New Employee Orientation

and Laboratory Safety. Many will need Basic Radiation Safety and Biosafety in the Research Laboratory if they handle sources of ionizing radiation, human blood or infectious agents. Laboratory staff must not ship hazardous materials without formal DOT/IATA training.

Annual re-training is mandatory for persons handling radioactive materials, bloodborne pathogens or chemical waste.

There is a training schedule on the Tufts EHS website under Training.

## Filters

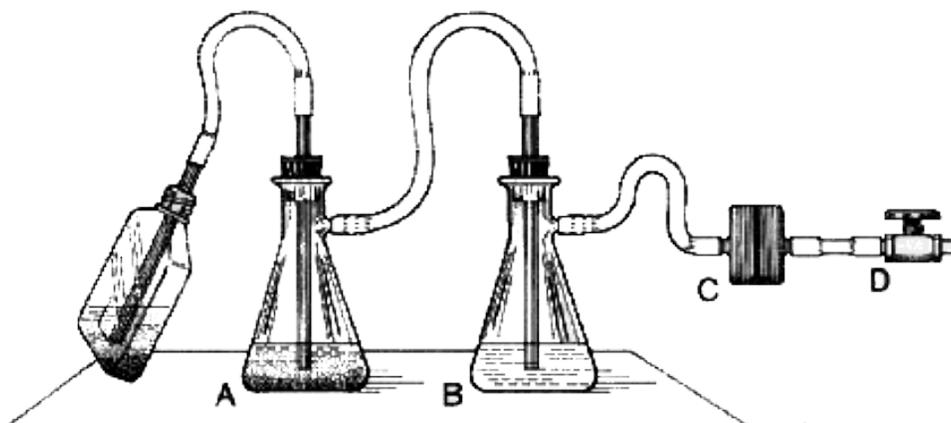
By Kathleen Joseph, Biosafety Officer

During visits to labs, the Biosafety Officers have noted a lack of hydrophobic filters for aspiration both on the lab bench and in the biosafety cabinet. We hope this information will help improve practices in the laboratory.

CDC and NIH have some guidance information in a document entitled *Primary Containment for Biohazards*

<http://www.cdc.gov/od/ohs/biosfty/bsc/bsc.htm>

The left suction flask (A) is used to collect the contaminated fluids into a suitable decontamination solution; the right flask serves as a fluid overflow collection vessel. A glass sparger in flask B minimizes splatter. An in-line HEPA filter (C) is used to protect the vacuum system (D) from aerosolized microorganisms.



Instead of using just a plain HEPA filter, the Biosafety Office recommends a hydrophobic filter that incorporates the HEPA. Keeping both the moisture and the agent out of the vacuum system or pump helps prolong their life, user safety and the safety of those who maintain the systems/pumps. One example of a hydrophobic filter is the Whatman Vacu-Guard. In the Lab Safety Supply catalog, there are 2 sets of 10 packs that will work; items 53274 or 99978. There are other filters that also do the same job including Vacushield® which is item Z268518 for Sigma-Aldrich and 55095-006 for VWR. The filters are said to have a 3 month life span. Most people find it's closer to 2. They really don't work once they become wet. The sparger must come down past the arm of the flask to prevent moisture and contamination in both the arm and the filter.



One real life example

# Mold - Indoor Air Quality

By Peter Nowak, Industrial Hygiene Technician

**M**old is found everywhere in nature and plays a large role breaking down organic matter. It reproduces by spreading very small spores. Invisible to the human eye these spores can travel great distances in the air. Mold needs moisture to grow. We are exposed to molds frequently in outdoor environments. It begins to grow indoors when the spores land on a surface that is at the very least damp. Thousands of different types of mold exist, but none of them can survive without a source of moisture to help them grow and thrive.

Under normal circumstances mold growth is usually not a problem in indoor locations. In cooler climates, such as New England, the dry heat used to warm your home or office during the fall and winter is usually sufficient to prevent the growth of mold. During summer months with the air conditioning and fresh air movement in our homes and offices, mold growth is often unlikely. The locations that can support mold growth are damp basements, areas that may have had previous water leaks, such as plumbing problems or roof leaks.

A recent example of extreme mold growth occurred after Hurricane Katrina. Many of the areas of New Orleans that had been under water for days or even weeks were covered

with molds. The conditions for uncontrolled growth were perfect in this damp warm environment. Often with the buildings not occupied and closed up to the outside air movement the growth became overwhelming and most of the building materials such as insulation and sheetrock became food for the mold spores. Many, if not most of the buildings had to be condemned.

Although several attempts have been made by Federal and State agencies to develop standards for mold as of now none have been established. The primary reasons for this are as follows:

**A.** There are thousands of types of mold existing in the world, some less harmful than others. The sheer volume makes it hard to categorize which molds are of concern.

**B.** Mold types have different effects on individuals. Some people may be very sensitive while others have little or no sensitivity.

**C.** Testing for mold can often identify the type and/or the total number of colony forming units (cfu). However, information is difficult to correlate with possible health concerns.

**D.** Corrective actions are always the same. This entails removing the source of moisture, disinfecting or removing the material, and, if necessary, re-

painting and refinishing.

If mold is visible it is not necessary to test. As mentioned above in this article the treatment is always consistent.

- 1)** Remove the source of moisture. No Moisture-No Growth.
- 2)** Remove all growth either by disinfection (see below) or remove building materials that have growth on them.
- 3)** Disinfect the area. A 10% solution of bleach is often the best way to kill most mold growth. This may be dependent on where the mold is growing. A carpet may need a deep cleaning and then a complete drying to ensure no further growth. Note: Severe damage from mold should be handled by trained professionals.
- 4)** Refinish or repaint areas that have been damaged by growth. Mold resistant building materials are available, including treated lumber, treated sheetrock and mold resistant paints.

We are all exposed to mold on a regular basis. It is in the air much of the time, although in the winter it is not nearly as significant in New England. In the summer months we could actually get



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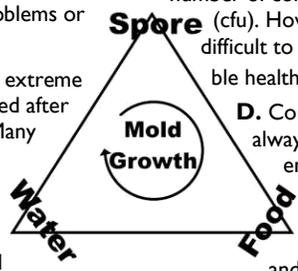
mold spores on our shoes or clothing and track them indoors; they will not grow without a moisture source. Mold can become a health issue if the growth increases and we develop sensitivity to that mold.

Mold generally has a very characteristic appearance fuzzy, spotted and often a musty odor. Black soot from air supply ducts and crystals from concrete, bricks or masonry, can be confused with mold.

Allergic reactions to mold vary, and can often be confused with other more common sensitivities such as dust and pollen.

Mold has become one of the more significant concerns in dealing with Indoor Air Quality.

If you believe you have mold growth in your office or work area contact the Facilities Department work-order center on your campus. They will often contact EH&S and request a consult.



The Mold Growth Triangle

## Shipping Radioactive Material

**A**fter completing the necessary regulatory requirements, radioactive material may be shipped from Tufts. There are very specific regulations about the transport of RAM on public streets. Radioactive material may NOT be taken on Tufts shuttles, buses, trains or in personal vehicles. Arrangements for the shipment of radioactive material in

certified shipping containers and by approved carriers may be made by contacting the Health Physics Group in Boston at 617-636-6168 or the Tufts EH&S Radiation Safety Section at 617-636-3615. Because special DOT training is required for all shippers of radioactive material, trained personnel will assist you in completing the necessary shipping papers for transport of

radioactive material outside of Tufts University or between campuses. The individual researcher is responsible for all shipping charges.





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### Highlights in Future Issues (We welcome your input)

- Laser Eye Injuries
- What? More Inspections!
- Pollution Prevention in a University Setting

<http://publicsafety.tufts.edu/ehs/>

## Environmental Health & Safety Office Directory

### Environmental Health & Safety Director

**Stephen Larson** 617-636-2193

### Radiation Safety Officer

**TBA** 617-636-3450

### Biosafety Officer (Grafton)

**Julien Farland** 508-887-4483

### Biosafety Officer (Boston)

**Kathleen Joseph** 617-636-0964

### Laboratory Safety Coordinator

**Thomas Kelley** 617-636-0477

### Industrial Hygiene Technician

**Peter Nowak** 617-627-3246

### Biosafety Manager

**Kimberly Parker** 617-636-2919

### Health Physicist/ EH&S Specialist II

**Christopher Rock** 508-887-4556

### Laboratory Support & Compliance Specialist

**Shaun Savage** 617-636-0397

### Administrative Assistant

**Natalie Viernes** 617-636-3615

## Announcements and Upcoming Trainings

The **Annual Lab Safety Training** will now be provided online. Each member of the Tufts community - faculty, administrators and staff are expected to work safely, protect the environment and comply with complex regulations every day. Through our website, publications, and the Learn Center, the staff of the EH&S Office shares their expertise in all areas of safety, environmental protection and public health. Let us know how we can help you.

This program, which can be accessed by Faculty and Staff (ONLY) via the link below, allows for the delivery of Tufts specific trainings via audio and visual means of communication:  
<http://learncenter.uit.tufts.edu/login>. Please note that you do need to be registered in the Learn Center to access to website.

The booklet for new employees, **New Employee Orientation: Introduction to the Safety Program**, is now available online. This booklet will serve as a source of information on general safety on all Tufts' campuses.

You can find the booklet in the EH&S webpage or by following this link:

<http://publicsafety.tufts.edu/ehs/downloads/EH&SNewEmployeeOrientationManual.pdf>

We hope it will be seen as useful reference. We plan to update this booklet annually to ensure the information is kept accurate and complete.

### Boston Trainings

**03-11-10:** Biosafety in Research Laboratories (BRL) Training; 1-3pm

**03-16-10:** BRL Training; 10-12pm

**03-17-10:** IATA/DOT Shipping Training for Dangerous Goods; 10-12pm

**04-08-10:** BRL Training; 1-3pm

**04-13-10:** BRL Training; 10-12pm

**05-05-10:** BRL Training; 10-12pm

**05-19-10:** IATA/DOT Shipping Training for Dangerous Goods; 10-12pm

**05-20-10:** BRL Training; 1-3pm

**06-08-10:** BRL Training; 1-3pm

**07-06-10:** BRL Training; 10-12pm

**07-21-10:** IATA/DOT Shipping Training for Dangerous Goods; 10-12pm

### Grafton Trainings

**04-15-10:** BRL Training; 1-3pm

**05-11-10:** IATA/DOT Shipping Training for Dangerous Goods; 10-12pm

**06-15-10:** BRL Training; 10-12pm

### Medford Trainings

**03-03-10:** IATA/DOT Shipping Training for Dangerous Goods; 10-12pm

**04-20-10:** BRL Training; 1-3pm

**06-02-10:** IATA/DOT Shipping Training for Dangerous Goods; 10-12pm

**07-20-10:** BRL Training; 10-12pm

*Class size is limited; Registration is required. Please contact the Environmental Health & Safety Office ([ehs-training@tufts.edu](mailto:ehs-training@tufts.edu)), to reserve your spot.*

