



Department of Occupational and Environmental Safety

NEWSLETTER

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CASE WESTERN RESERVE UNIVERSITY

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Laboratory Ergonomics: Handling Test Tubes

This edition of the newsletter’s special section on controlling laboratory ergonomic risk factors focuses on handling test tubes. “Ergonomics” is the idea that a work environment needs to be adapted to a person’s capacities and needs—in other words, fitting the task to the person, rather than the other way around.

To that end, the ergonomic philosophy seeks to minimize the stress placed on the body while performing certain tasks; for instance, reducing the need for repetition and excessive force and reducing the amount of contact stress and vibration. Below are some tips for implementing these changes when handling test tubes.

To Control Awkward Postures:

- If seated, make sure that your chair provides proper support for your lower back and thighs and that your feet are supported.
- If standing, make sure that your work surface is at the proper height to reduce the need to reach upward or bend forward. Upside down containers can be used to create higher work surfaces.
- Arrange test tube racks to minimize reaching and twisting.
- Work with elbows as close to sides as possible.
- Maintain straight wrist positions. This may require inclining test tube racks.

To Control High Repetition:

- Automate processes when possible.

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Safety Checks: Eyewash Stations and Safety Showers

Eyewashes and shower stations, though they are emergency devices, are often overlooked because they are not often needed. To keep these vital safety features working properly when they are needed, a few pointers may be in order.

Eyewash Stations

Rust and bacteria can build up in pipes that are seldom used. This is true for eyewashes that, though used infrequently, must be clean and in perfect working condition. Therefore, it is a good practice to flush the eyewash frequently to ensure that if needed it will provide clean water. The eyewash should provide a soft stream of aerated water for 15 minutes.

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Safety Checks: Eyewash Stations and Safety Showers

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Also, remember that in an emergency the eyewash must be readily accessible, so do not clutter up the sink with miscellaneous items or allow the swing arm to get entangled. **It should remain perfectly free of debris at all times—do not surround it with trash!** Never pour foreign liquids down the eyewash—things like coffee or soda coagulate in drains that are seldom used and prevent them from working properly.

Though eyewashes are tested yearly by Plant Services, we **strongly recommend** that individual eyewashes be checked by lab personnel on a regular basis—regular maintenance of the eyewash station must be each lab's responsibility if they are to be kept working perfectly.

Safety Showers

Whereas a self-check of the eyewash is desirable every few months, **NEVER** check the safety shower yourself. Safety showers work by dousing the victim with 20 nonstop gallons of water. This means that even if one lets go of the pull-chain, the water will keep pouring out until all 20 gallons have been released.

The location of the eyewash station and safety shower in each lab should be clearly marked and all lab personnel should be familiar with their location and function. Do not place items like chairs or equipment in positions that may block the path to or hinder the ability to use these safety devices.

DOES checks eyewash stations and safety showers during laboratory inspections to make sure that they display up-to-date inspection tags, but if you notice that yours is out of date, or if you notice any problem, notify Plant Services at x2580.



What WASTE!

Mercury

Thermometer Safety Tips

There has been a rash of broken thermometers lately, and therefore a lot of mercury clean-up in labs around campus. In light of this, we thought we'd offer a few tips:

1) Don't use mercury thermometers—there are a number of substitutes that are safer.

2) If you must use a mercury thermometer, do not overheat it—if the temperature of a liquid or surface exceeds the maximum temperature reading on the thermometer, it will break. Make sure that you do not place it on hot plates, ovens, or water baths unattended.

3) If a thermometer does break, call the Chemical Safety Office (x2907) right away. Mercury vapor is hazardous depending on the airborne concentration.

- Place broken thermometer in a sealed container to prevent exposure to mercury vapors.
- Tape off the area where mercury may have spilled to prevent further contamination.

Upcoming Training Sessions

Radiation (x2906)

- **New Training:** July 1(1-4), 14(9-12), 27(1-4)
- **Retraining:** June 29 (2-3); July 6(10-11), 16(2-3), 28(10-11)
- **X-ray Training:** call office to set up training session

Chemical (x2907)

- **OSHA Lab Standard:** Mondays 1-3 (Service Building Conference Room)

Bloodborne Pathogen (x2907)

- **New Training:** Mondays 3-4 (Service Building Conference Room)
- **Retraining:** (Service Building Conference Room) June 22 (2-3); July 9(23), 22(10-11)

See articles on page 4 for more information about training.

Laboratory Ergonomics: Handling Test Tubes

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- Share workload between right and left sides.
- Take adequate breaks away from handling activity—even short several second “micro-breaks” help.
- Rotate handling among several employees.
- Evaluate work processes to reduce steps requiring manual handling.
- Add personnel for peak periods.

To Control Excessive Force:

- Automate test tube opening when possible.
- Use a pinch grip (thumb working with index finger) for precision activities that require minimal force.
- Use a full hand grip only for activities that require greater force.
- Utilize equipment that allows you to employ a pinch grip instead of a full hand grip.
- Request that samples be received in test tubes that allow improved ergonomics.

To Control Contact Stresses:

- Use two hands to open test tube samples.
- Do not rest forearms on a sharp edge of the work surface; pad edge or forearm or create a forearm rest pad.

To Control Vibration:

- Use a vortex mixer rack instead of holding tubes by hand on the vortex mixer.

If you have any questions about laboratory ergonomics or would like a safety technician to analyze your specific work station and offer advice, contact Safety Services at x2739.

Next month: Ergonomic Tips for Microscopes



HOT TIPS



Lead Pigs

“Lead pigs” are lead containers used to transport radioactive materials that produce either primary or secondary photon radiation emissions.

When these containers are no longer needed they must be “disposed of” properly. Since it is illegal to throw away lead in the trash, the Radiation Safety Office collects lead pigs for recycling during routine radioactive waste pickups.

Before contacting the Radiation Safety Office for a waste pickup, please make sure that you have:

1. surveyed the lead pigs to verify that they are not contaminated
2. defaced all radioactive symbols and labels;
3. removed the lead from their plastic holders when applicable.

If the lead pigs have not been decontaminated and the plastic holders removed, the lead pigs will not be picked up.

Annual Fire Drills

The annual practice fire drills for administrative and academic buildings begin in June this year and will run through November. DOES asks that all occupants of buildings cooperate during this time.

Department coordinators for each building, who will help with preplanning within their departments, are contacted by DOES prior to the drill. It is important that the coordinators inform employees in their departments of basic procedures to follow (the Evacuation Plan) during a drill and /or emergency. The university's Evacuation Plan is provided on page 5.

Individuals who may have difficulty evacuating an area during an emergency, or who may have difficulty hearing or seeing an emergency alarm, need to have an approved evacuation plan for emergency drills and for actual emergencies. Each individual with a disability (whether temporary or permanent) that could affect communication or mobility must also take the time to become familiar with the existing alarm sys-

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Training News! Training News!

Chemical Safety:

OSHA Laboratory Standard Training

All Case Western Reserve employees who work in a laboratory or a room with chemicals present must attend Chemical Safety Training. Among other things, this training session covers OSHA's Laboratory Standard, EPA's hazardous waste requirements, and an introduction to DOT shipping requirements.

All chemical-use PIs and their personnel are required to attend the Chemical Safety Training; if your laboratory works with human body fluids, tissues, organs, or any etiological agents, then all workers who are potentially exposed to these items must also attend OSHA'S Bloodborne Pathogens Training.

Radiation Safety:

Radiation Retraining Class on the Web

Recently the Radiation Safety Office placed a "refresher" course on our website as an annual retraining. If you have not yet visited the site, check it out at: <http://does.cwru.edu>. At the "Name" and "Password" screen, type in your e-mail name and password.

We have begun offering annual retraining over the internet in an attempt to efficiently provide training to researchers. Researchers can take this class at their own pace and at a time convenient to them when their retraining dates come up.

The refresher training site covers a lot of information: issues currently of concern in the CWRU radiation community, such as security of radioactive materials and the method of ordering replacement isotopes; reminders about radioactive waste disposal; a description of an "accident" with radioactive materials and the way our office responded to it.

The site also contains a survey which must be filled out in order to receive credit for having taken the refresher course. Be sure to fill out the information at the bottom completely, so we can properly assign credit.

PLEASE NOTE: internet retraining can only be done every other year; researchers must attend a classroom presentation of the retraining once every two years in order to satisfy NRC requirements. You will notice on the monthly inventory report a new line in the training section titled "internet." It says "yes"

next to your name if the internet class was the latest method you used to complete the requirement for annual retraining. This way we can assure that everyone attends a classroom session every other year.

We would like as much feedback as possible on this new retraining course—if you have any comments about ways we can improve the site or if you have questions about the material, please contact the Radiation Safety Office at x2906.

The following nine dates have been scheduled:

Date	Chemical Safety	Bloodborne Pathogens
June 7	1:00	3:00
June 14	1:00	3:00
June 21	1:00	3:00
June 28	1:00	3:00
July 5	1:00	3:00
July 12	1:00	3:00
July 19	1:00	3:00
July 26	1:00	3:00

All training sessions take place in the Service Bldg., 1st Floor Conference Room. It is not required that you sign up before you attend a training; however, please contact Paige Wietelmann at 368-2739 if you have any questions.

See the "Training Updates" box on page two of every newsletter for dates and times of chemical, bloodborne, and radiation training.

Basic Evacuation Plan

Below is a generic evacuation plan for the university. Departments may wish to revise the plan to suit their specific needs or difficulties presented by the building in which they are housed.

Before a Fire or Other Emergency:

1. Know where the fire alarm pull stations are in your area and how to use them.
2. Know how to get help. Call Protective Services at x3333.
3. Know where the exits from your area are and where the stairway entrances are located.
4. Know the locations of fire extinguishers in your area.
5. If you will need any special assistance during an evacuation, notify and discuss it with your Evacuation Coordinator and supervisor. Also, contact Protective Services and advise them of the situation.
6. Teaching faculty should advise their students how to respond to alarms and where evacuation routes are from the classroom. They should also participate in planning for providing assistance to any student who may have difficulty during an evacuation. This should be done within the first two weeks of class.

When a Fire is discovered:

1. Warn/remove any person in immediate danger.
2. Activate fire alarm system. Pull stations are usually located near exits.
3. Summon assistance by contacting Protective Services. Give a complete description of the fire and the location. This also serves as a back-up to the alarm system.
4. Close all doors and windows in the vicinity of a fire.
5. If you are trained and qualified and if the fire is small, use a proper type of fire extinguisher to control the fire. Do this only after the alarm has been activated, evacuation has started and Protective Services has been notified.
6. Go to the nearest exit and leave the building. Use the stairways; DO NOT USE THE ELEVATORS.

When the Fire Alarm Activates with No Evidence of Fire or Other Emergency Condition in Your Area:

1. Close windows and doors as necessary.
2. Proceed to the nearest exit stairway and leave the building. Use stairways; DO NOT USE ELEVATORS.
3. Do NOT re-enter the building until the Emergency Response Person (Fire Department/Protective Services Official) in charge clears the emergency.

Evacuation Exiting General Procedures

1. Use stairways; DO NOT USE ELEVATORS.
2. Leave the building using the nearest exit. Do not re-enter the building until the emergency is cleared.
3. If smoke, heat or fire blocks an exit, go to another exit. If all exits are blocked, return to your room/area and call Protective Services at once to report your location.

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Annual Fire Drills

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tems and exits in the buildings s/he frequent. The department's coordinator will assist those who may have difficulty with an evacuation by helping that individual make necessary special arrangements.

Please participate and cooperate when there is a drill or actual event in your building. If you need more information contact your department coordinator or Richard Harley at x5865.

Basic Evacuation Plan

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4. Before opening a door, feel the knob/hardware. If hot, do not open it. If it is not hot, open it slightly. If heavy smoke or heat is present, close the door and seek an alternative route.
5. Keep low to the floor if smoke and/or heat is encountered.
6. If for any reason you cannot evacuate, move as far as possible from the fire area. Seek a room with a door. Close door and seal any cracks along the door with towels or other materials. Notify Emergency Response Personnel of your location; contact Protective Services; signal from a window.

If you have any concerns and/or questions regarding Emergency Evacuations, discuss them with your Evacuation Coordinator, Supervisor or Department Management. You may also contact DOES at x2907 and Protective Services at x1952 for additional information.

Department of Occupational and Environmental Safety Staff

Dr. W. David Sedwick(wds), Director and RSO
 Richard Dell (rxd7), Asst. Dir., Safety Services
 Dr. Bill Stephany (wps3), Asst. Dir., Radiation Safety
 Richard Harley, (rxh2), Loss Prevention Specialist
 Todd Crawley (tac9), Facilities Manager
 Shirley Mele (smm5), Dept. Administrator
 Gwendolyn Cox-Johnson(gxc13), Dept. Assistant
 Erick Adam Sanders (eas16), Dept. Assistant
 Carla Kungl (ctk), Technical Writer

Safety Technicians

Robert Latsch (rnl2)
 Marc Rubin, Eng. II (mdr6)
 Paige Wietelmann (pew2)

Radiation Safety Technicians

Karen Janiga (kej2)
 Felice Thornton-Porter (fst2)
 Yelena Tigay (yxt13)
 Edward Traverso (ejt)

Department of Occupational and Environmental Safety Case Western Reserve University
 216-368-2906/2907 FAX: 216-368-2236
 (E-mail) xx266@po.cwru.edu (WWW) <http://does.cwru.edu>