



Lab Safety

Spectrum

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UW - Madison Safety Department Chemical and Radiation Protection
30 N. Murray St. 262-8769 <http://www.fpm.wisc.edu/safety>
Radioactive Materials License No. 25-1323-01 Help Line 265-5518

Changes in Safety Department

Ron Bresell, the Radiation Safety Officer and Associate Director of Safety for Chemical and Radiation Protection, has retired. Until his replacement is recruited, Abdul Ben-Zikri, 262-9748 is the interim Radiation Safety Officer. The easiest way to contact Chemical / Radiation Safety is to eMail radpro@fpm.wisc.edu, which is monitored by several individuals. Alternatively, you may call the Chemical and Radiation Protection Helpline at 265-5518.

Chemicals for Redistribution

The Safety Department collects waste and surplus chemicals from researchers. Some of these surplus chemicals have never been opened and are still factory sealed. As part of the University's waste minimization program, surplus chemicals are redistributed. Chemicals offered for redistribution are listed at:

<http://www.fpm.wisc.edu/chemsafety>.

Follow the link to LabSCAN. Call Greg Zukowski, 5-5519 or email him at gzukowski@fpm.wisc.edu to place an order or get more information.

Irradiator Program

Recent changes in State rules have resulted in the UW enhancing security of irradiators. If you use one of these devices, you and your PI will be sent an eMail regarding these changes and forms which your PI will be required to complete and send to Safety to authorize your access to these systems. The new access system will be functional by 1 May; only personnel who have completed the application process will be given access. Please contact Abdul at 2-9748 if you have not been notified and you are an irradiator user.

Survey Meters

The UW was cited on a recent inspection because the inspectors found one survey meter in use that was out of calibration. Meters must be calibrated annually; the calibration date is listed on the meter. CORD sends notices to labs one month before the calibration date. Labs need to bring their meters to our Annex, Room 62, Biochemistry for calibration. Loaner meters are available. CORD will not order radioactive material for you if even one of your meters is past calibration. Broken and not-in-service meters can be held by Safety and taken out of the database. Call Jeff Orwin at 2-3278 and someone will pick up your meter for storage.



Gas Cylinders / Lecture Bottles

Gas cylinders and lecture bottles have the potential to be hazardous and expensive to dispose of. A single cylinder can cost more than \$1000 for disposal. Before you purchase a gas cylinder think about how you will dispose of it. Can you purchase a returnable cylinder through Materials Distribution Services? For specialty gases, will the vendor take the cylinder back if you arrange shipment? Will you be able to use all of the gas that you order? If you plan on keeping this cylinder for an extended period of time, are you managing it safely?

- Secure large cylinders with a strap or chain.
- Store small cylinders/lecture bottles where they are protected from fire and away from sources of corrosion.
- Maintain any information included with the cylinder. (Tare weight, tags, labels, MSDSs, serial numbers)

If you have been unsuccessful with standard methods of returning gas cylinders or need help making arrangements for shipping back to your vendor, please call Safety. John Wendt 5-5517 or John Straughn 5-3005

X-rays and Lasers

Do you have a new device in your lab capable of producing x-rays (e.g., electron microscope, x-ray diffraction, bone densitometer, cabinet x-ray machine)?

Chapter 10 in the Radiation Safety for Radiation Workers discusses x-ray sources. The State requires that all x-ray producing devices be registered with the Department of Health and Family Services. Contact Greg Dierks, 2-9735 or Arnold Jansen, 2-9608. They will do the

paperwork and will perform any radiation surveys you desire.

Lasers produce very narrow, intense monochromatic (i.e.,

one color) and coherent (i.e., in phase) beams of light. Lasers are commonly found in many work areas. Properly emplaced and operated, lasers are an effective tool.



Lasers are regulated by the Food & Drug Administration and OSHA. The FDA attempts to insure marketed lasers can be operated safely. However, even when operated properly, some lasers are capable of causing injury. Chapter 15 in the Radiation Safety for Radiation Workers manual addresses laser safety. We have a Health Physicist with special training in laser safety. If you have questions about the lasers in your lab, need special training in laser safety, etc., call Arne Jansen at 2-9608.

Moving

Labs often move from one building to another. Hazardous chemicals/radioactive material may not be transported in vehicles by professional moving companies. The Department of Transportation requires shipping papers for all "hazardous" materials. If you use radioactive materials, you will also need to do final surveys of the old labs and add the new labs to your listing on CORD. For assistance in moving your lab's hazardous material, call Jeff Orwin at 2-3278.

Radiation Surveys

Radiation and radioactive contamination are not detectable with your five senses.

You need to use a survey meter to check for contamination either on your person or in your work area immediately after use. Being meticulous is no guarantee.

Working with only a small quantity does not protect the University from fines in the event of a spread of contamination from your lab. **Each PI is responsible for doing monthly surveys and documenting**

results in all of the labs in which they are authorized to use radioactive material. There are a few exceptions to this requirement, however the PI must request the exception. Examples of exceptions are found in Section 5.4.a and 5.5 of the Radiation Safety for Radiation Workers manual and include contamination limits for chronically contaminated equipment and semiannual surveys for counting rooms and storage of nuclides. (Continued on Page 3)



**(Continued)**

A survey consists of a meter and wipe survey. The meter survey is a cursory check to determine radiation levels and possible contamination. With a meter, the action level is 650 cpm. Counts above this value require decontamination/mitigation (e.g., disposal, shielding). Turn the meter on, check batteries, verify the calibration date is within 1 year, note the background count rate, survey with the detector 1 cm from the surface moving at about 2" per second.

The wipe survey attempts to remove contamination by wiping areas with a small piece of filter paper or cotton swab. Not all contamination is easily removed; some may have leached into the surface. Use a wet wipe and swipe an area about 300 - 400 cm² (the approximate surface area that would be brushed by a person walking through the lab). The best method of doing a wipe survey is to wipe an area in an S-shaped pattern over a distance of about 12 - 14 inches (for small surfaces, try to wipe the entire surface). Count in an LSC. Depending upon isotope, the action level is either 770 cpm (³H, ¹⁴C, or ³⁵S) or 230 cpm (³²P, ³³P, ⁴⁵Ca, ⁵¹Cr, ¹²⁵I) per 100 cm². Removable contamination above these limits must be cleaned up, another wipe survey performed and posted with the monthly survey results.

Chemical Safety

People who may be exposed to hazardous substances in the workplace are covered by a Hazard Communication or Right-to-Know program. This Occupational Safety and Health Administration (OSHA) rule says that every worker has a right to know the hazards they may be exposed to and how to work safely with those materials.

Regardless of your job, if hazardous materials (e.g., paint, pesticides, cleaning compounds, laboratory chemicals, radioactivity, biological materials, etc.) are present, there is a program in place to insure you are protected.

While the various substances are covered by different paragraphs of the rule, the Right-to-Know rule has several main components:

1. Workers must be trained and, for some types of work, retrained annually, to understand the hazards and be aware of proper protective equipment (e.g., clothing, gloves, eyewear, etc.) and other safety devices (e.g., safety showers, fire extinguishers, etc.).
2. Supervisors inventory the hazardous materials in their work site and must maintain a file of Material Safety Data Sheets (MSDS) for the hazardous materials in use.
3. All containers must be properly labeled to insure other workers are aware of the hazard.
4. Suspected exposures must be investigated and workers allowed access to medical care to follow up possible exposures.
5. Develop a safety plan (e.g., Chemical Hygiene Plan) which details the safety program for the work site and designates individuals with safety-related responsibilities so workers will be aware of who they can contact for additional information or emergencies.
5. Some types of work using particularly hazardous substances (e.g., carcinogens, radioactivity, etc.) may require additional provisions such as special work sites, signage, special equipment, etc.

While all work sites follow the same general components, research labs are covered by the OSHA Laboratory Standard, 29 CFR 1910.1450.

When a hazardous substance has been used and/or is no longer useful, it becomes a waste. Wastes are regulated by the Environmental Protection Agency (EPA) to insure they are disposed of safely and do not pose a hazard to the public or the environment. The Safety Department will collect hazardous waste and surplus chemicals from your lab and properly manage them. To request a pick-up in your lab, go to our web site:

<http://www2.fpm.wisc.edu/chemsafety/oshmm.htm>

and complete the form. You will also need to complete a surplus chemical form.



Radiation and Chemical Safety training classes are offered weekly at Union South; each class satisfies either OSHA or NRC training requirements. There is also a **Transportation Training** class if you ship or receive (directly from the carrier -- e.g., FedEx) hazardous materials. The schedule for each of these classes is in the table below. On dates when the Chemical training is in the morning, Chemical and Radiation training will begin at 9:30 AM and 12:30 PM, respectively. On dates when the Radiation training is in the morning (**), Radiation and chemical training will begin at 9 AM and 1:30 PM, respectively. Transportation training is either 1 hour, basic, or 3 hour, shipping-specific training (visit our web site for more information).



Thursday	Mar 9**	Thursday	April 20**	Friday	June 9
Wednesday	Mar 15	Friday	April 28	Thursday	June 15
Tuesday	Mar 21**	Thursday	Mar 9**	Wednesday	June 21**
Monday	Mar 27	Thursday	May 4**	Tuesday	June 27
Tuesday	April 4**	Wednesday	May 10		
Wednesday	April 12	Monday	May 22		

**** Chemical training on these dates begins at 1:30 PM; Radiation at 9 AM**

Transportation Training -- Shipping Hazardous Material (monthly)

11 AM - 3 PM Friday March 24 || 11 AM - 3 PM Thursday May 25
9 AM - 1 PM Monday April 17 || 9 AM - 1 PM Wednesday June 28

UW-Safety Dept.
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(608) 262-8769

Help Line: (608) 265-5518