Consumer Products Containing Radioactive Materials

Everything we encounter in our daily lives contains some radioactive material including the consumer products we purchase and use such as the following:

**Smoke Detectors.** Most household smoke detectors contain an americium-241 source. Alpha particles emitted by the source ionize the air, making the air conductive. Any smoke particles that enter the unit reduce the current and set off the alarm.

**Watches and Clocks.** Modern luminous watches and clocks sometimes use a small quantity of hydrogen-3 (tritium) or promethium-147 as a source of light. Older watches and clocks used radium-226 as a source of light. If opened, caution should be exercised when handling these items.

**Ceramics.** Ceramic materials (tiles, pottery) often contain elevated levels of naturally occurring uranium, thorium or potassium. In many cases the radioactivity is in the glaze. Readings above background are unlikely. However, some older ceramics such as Fiesta ware can be quite radioactive.

**Glass.** Glassware, especially antique glassware with a yellow or greenish color, can contain easily detectable quantities of uranium.

**Fertilizer.** Commercial fertilizers are designed to provide varying levels of naturally occurring potassium, phosphorous and nitrogen and can be measurably radioactive.

**Food.** Food contains a variety of different types of naturally occurring radioactive materials. The relatively small quantities of food in the home contain too little radioactivity to be readily detectable. One exception would be low-sodium salt substitutes that often contain enough potassium-40 to double the background rate of a radiation detector.

**Gas Lantern Mantles.** While it is less common than it once was, some brands of mantles incorporate naturally occurring thorium-232. Such mantles are sufficiently radioactive that they are used as a check source for radiation detectors.

Source: Health Physics Society Web site  [http://www.hps.org/](http://www.hps.org/)  The site contains a wealth of information about radiation and radioactivity, including an “Ask the Experts” feature where specific questions will be answered.
Happy New Year! Whether you are in the midst of making resolutions, or find that the best resolution is to make no resolutions, January is a great time to think about what has worked and what hasn’t over the past year. This also applies to your work environment. Do you know what hazards exist in your department? Do you know and use the appropriate personal protective equipment (PPE) for your job? Are you up to date on your mandated OSHA training? Do you even know what training you should have??

The best way to answer these questions is by following these steps:

1. Review your department’s Hazard Communication Program
2. Review your department’s Workplace Hazard Assessment. This is a document, required by OSHA, which identifies the hazards in your workplace and the necessary PPE when dealing with these hazards. Every department and laboratory is required to have this document.

Review EH&S’s Occupational Safety Training Checklist

Green Cleaning and Health Project

The Department of Environmental Health and Safety is partnering with the Occupational and Environmental Health Center (OEHC) at the University of Connecticut Health Center in its NIEHS and NIOSH grant-funded community-based project entitled “Green Cleaning: Exposure Characterization and Adoption Process Among Custodians.”

The four-year project will focus on the use of green cleaners among janitors in facilities throughout the state of Connecticut. Along with EH&S, OEHHC is also partnering with the CT Employee’s Union Independent (CEUI) and the CT Council for Occupational Safety and Health to help assess exposures of green cleaners compared to traditional cleaners. Since the issuance of the Governor’s directive and subsequent Green Cleaning legislation in the fall of 2007, UConn has been committed to implementing the Connecticut mandate for the shift to green cleaning products.

As the introduction of “green” or “natural” substitutes for cleaning solvents may sometimes pose new or unintended health concerns for workers (see our January 2009 Newsletter), we at EH&S are very interested in participating in the project. It will provide an invaluable opportunity to learn more about workplace exposures in practice, current limitations of green cleaners, and effective training methods and resources that will come from the study—all of which will benefit University employees and the community at large.

We greatly appreciate the opportunity to participate in the project and the excellent resources that the Occupational and Environmental Health Center will bring to it. We look forward to a highly productive collaboration.

To learn more about the project, visit the OEHC website at www.oehc.uchc.edu or contact Nancy Simcox at (860) 679-4634 or simcox@uchc.edu.
Transporting Dangerous Material

Many samples and research materials are considered dangerous for transportation via air or roadways by the International Air Transportation Association (IATA).

Common examples may include biological samples in alcohol, equipment containing mercury, chemicals for research, or preservative solutions. These materials may be Flammable, Combustible, Corrosive, Reactive, Oxidizing, Toxic, Radioactive, Infectious, Asphyxiating, Temperature-Sensitive, or a Compressed Gas, including Aerosol Cans. Dry ice is also regulated. The flow chart below will assist you in making a proper shipping decision.

When shipped these materials require specific paperwork and must be packaged, labeled, marked and shipped by individuals trained in Dangerous Goods shipping. The UConn Central Stores shipping and receiving group has several trained individuals and offer a service to properly ship these materials for campus researchers. If you need a Dangerous Good shipped or if you’re not sure if the material you have is classified as a Dangerous Good, call Central Stores at (860) 486-6297.

Central Stores will ask you to fill out their Dangerous Goods Approval Form. This form will give Central Stores the information they need to fill out the paperwork and determine if there will be any special packaging needs. Central Stores charges a $20.00 fee per package plus the cost of any packaging required.

The University was subject to an inquiry by the Federal Aviation Agency (FAA) a few years back. The Agency had found that the University had used an invalid contact telephone number on the shipping paper. Be aware that someone actually DOES look at these forms, and reviews them - even down to a small detail like a telephone number.
The intent of the following information is to update University researchers about the streamlined oversight process now in place for all research and teaching activities utilizing recombinant DNA (rDNA), potentially hazardous biological materials and/or biological toxins. The Institutional Biosafety Committee (IBC) at the University has been active for more than three decades in helping researchers comply with federal biosafety guidelines, achieve safe lab practices, and protect the environment. Common types of experiments that require IBC review and approval include expression of recombinant proteins in bacterial cultures, the use of viral vectors to transform animal cell cultures, the production of transgenic plants and insects, and nanotechnology involving biological materials.

The faculty and community representatives on the IBC have worked to make this federally-mandated oversight process as easy and efficient as possible. The following list outlines some of the changes that are already helping researchers comply with all relevant University policies and federal biosafety guidelines:

- A new Memorandum of Understanding and Agreement application form (called the MUA) has been implemented. Only one MUA form is needed for research projects that occur under multiple grant titles or receive funding from more than one agency.

- The new MUA has check boxes and tables so that researchers can rapidly enter names of cell lines, laboratory personal protective equipment, and other information.

- After submission of the MUA, there is an internal pre-review process with feedback to the applicant. This allows investigators to modify their application before it goes to the quarterly IBC meeting. This has proven to be very effective in speeding up the approval process.

- MUAs are approved for a period of three years. After the MUA expires, researchers are automatically contacted by staff to help them update and renew their applications.

- Researchers with active MUAs can ask for amendments or modifications of their MUA at any time. This can be done through an email or a phone call to Leslie Delpin (EH&S). These administrative modifications allow the MUAs to remain current and accurate without requiring a new MUA application.

- A brief ‘IBC Policies and Procedures’ statement has been placed on the IBC web site to help everyone understand their roles and responsibilities. The new MUA form and deadlines for MUA applications are also on the web site.

Need more information? Please contact:
Leslie Delpin (Institutional Biological Safety Officer, EH&S) 486-2436, lm.delpin@uconn.edu
Cindy Hall (Coordinator, Office of Research Compliance) 486-5813, cindy.hall@uconn.edu
Carol Auer (IBC Chairperson) 486-1878, carol.auer@uconn.edu
Nancy Wallach (Director, Office of Research of Compliance) 486-4164, nancy.wallach@uconn.edu
**Role/Responsibility:** The Institutional Biosafety Committee (IBC) is responsible for reviewing research and teaching activities that involve recombinant DNA (rDNA), biological agents or toxins. The purpose of the IBC review process is to ensure that University activities comply with government regulations (NIH, CDC, and USDA) and provide appropriate safeguards for human health and the environment. The committee meets quarterly to review faculty research proposals and biosafety issues at the University. The IBC consists of University faculty and community representatives according to NIH guidelines.

**Regulatory Authority:** The University of Connecticut, as an institution receiving funds from the National Institutes of Health (NIH), is responsible for maintaining an IBC and ensuring that all research involving recombinant DNA, potentially hazardous biological materials and/or biological toxins is conducted in compliance with the “NIH Guidelines for Research Involving Recombinant DNA Molecules” [NIH Guidelines](http://oba.od.nih.gov/oba/rac/guidelines_02/NHG Guidlines_Apr 02.htm). Additional guidelines are provided by the Center for Disease Control (CDC) in their “Biosafety in Microbiological and Biomedical Laboratories” handbook [BMBl5/BMBL 5th Edition.pdf](http://www.cdc.gov/od/ohs/biosfty/bmbl5/BMBL 5th Edition.pdf). The University also complies with other applicable state and federal regulations.

**Application Process:** Principal Investigators are required to submit a ’Memorandum of Understanding and Agreement’ (MUA) form to the Institutional Biosafety Officer. This document contains detailed information about the experiments and is signed by the Principal Investigator and the Department Head. The Principal Investigator is required to describe the research protocol with emphasis on containment practices for hazardous biological materials and genetically-engineered organisms. Required information includes the source and nature of the DNA constructs, host/vector systems, and the organisms/cell cultures used in the research. Forms can be accessed at [http://www.ibc.uconn.edu/forms.html](http://www.ibc.uconn.edu/forms.html).

**Contact Information:**
IBC Chair: Carol Auer, Ph.D., carol.auer@uconn.edu; (860) 486-1878
Institutional Biosafety Officer: Leslie Delpin, lm.delpin@uconn.edu; (860) 486-2436
Director of Research Compliance: Nancy Wallach, nancy.wallach@uconn.edu, (860) 486-4164
IBC Assistant: Cindy Hall, cindy.hall@uconn.edu; (860) 486-5813

**Deadlines for Protocol Submission:**
- Thursday, February 4, 2010
- Thursday, April 22, 2010
- Thursday, September 2, 2010
- Thursday, October 28, 2010

**IBC Meeting Dates:**
- Thursday, February 18, 2010
- Thursday, May 6, 2010
- Thursday, September 16, 2010
- Thursday, November 11, 2010
Food Safety Quiz

1. You can't get food poisoning if you thoroughly cook your food and eat it promptly.
   A. True
   B. False
2. The first symptoms of food poisoning can occur:
   A. Immediately
   B. Within two to 48 hours after eating
   C. From two days to a week after eating
   D. Any of the above
3. It's safe to re-freeze food even meat and poultry as long as it has been thawed in the refrigerator.
   A. True
   B. False
4. Once the date stamped on a milk carton has been reached, the milk:
   A. Shouldn't be sold
   B. Shouldn't be used
   C. Has lost most of its nutritional value
   D. All of the above
5. What's the best way to refrigerate the quart of chili that's left over from dinner?
   A. In several shallow containers
   B. In one deep container
   C. In the pot in which it was cooked
   D. The container doesn't matter

Answers

1. B. False. Some bacteria can produce dangerous toxins that aren't destroyed even by thorough cooking. Cooked food can also become contaminated if it comes in contact with an unwashed utensil, dish, countertop, or hand.

2. D. Any of the above. Depending on the bacteria or virus causing the illness, food poisoning is most likely to strike from two hours to three days after eating. But some toxins in fish work within minutes, while botulism could take up to a week.

3. A. True. Forget what your mother told you. It's okay to re-freeze meat and poultry that was thawed in the refrigerator. Just don't let the food stay in the fridge for more than a day or two before you re-freeze it. Re-frozen food won't have the same taste or texture as food that was never frozen.

4. A. Shouldn't be sold. Milk that has reached its expiration is still safe and nutritious, and probably will be good for another week or so.

5. A. In several shallow containers. The idea is to get leftovers cooled down below the "Danger Zone" (40°F - 140°F) as quickly as possible. Shallow containers do that best.

Contact Us:

EH&S main page [www.ehs.uconn.edu](http://www.ehs.uconn.edu)

Training Schedules for all EH&S sections [http://ehs.uconn.edu/training/](http://ehs.uconn.edu/training/). Please, register on-line to help us keep accurate training records. Your [NET ID](https://netid.uconn.edu) consists of 3 letters and 5 numbers (example: abc12345). To find your [NET ID](https://netid.uconn.edu) go to [https://netid.uconn.edu](https://netid.uconn.edu). To ensure your attendance is recorded, please sign the attendance sheet provided at your training event.

Checklists for mandatory training [http://www.ehs.uconn.edu/forms/labtrainingchecklist.php](http://www.ehs.uconn.edu/forms/labtrainingchecklist.php)

Temporary Food Service Event Application Form [http://www.ehs.uconn.edu/food/request.php](http://www.ehs.uconn.edu/food/request.php)
Waste Pickup and Delivery Request Forms [www.ehs.uconn.edu/serv.html](http://www.ehs.uconn.edu/serv.html)
Waste Streams Guide

Forms page [http://www.ehs.uconn.edu/forms/](http://www.ehs.uconn.edu/forms/)
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