



Case Department of Occupational and Environmental Safety

“SAFETY COMES FIRST”

Service Building, 1st Floor

Phone: (216) 368-2906/2907

FAX: (216) 368-2236

Website: <http://does.case.edu>

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Taking Inventory—Uranyl Acetate

Uranyl acetate is a naturally occurring radioactive material that emits alpha (α), beta (β) and gamma (γ) radiation. It is used as a stain for electron microscopy viewing enhancement. Although the radiation associated with the material is far less hazardous than its chemical toxicity, it should be treated as a radioactive hazard.

The external dose and skin dose that you would receive if you were working with uranyl acetate is minimal; therefore, the external radiological hazard is very low. Do not inhale or inject it, and always use it in a chemical hood. As always, follow the safety procedures as outlined in the Material Safety Data Sheet (MSDS) for uranyl acetate. More detail regarding skin and external doses can be found in the Radiation Safety Manual located on our website.

We are in the process of compiling an inventory of those individuals that use this class of compounds. If your lab has uranyl acetate, uranyl nitrate, thorium acetate, or thorium nitrate, please indicate the chemical and the amount and send it to Karen Janiga (kej2) the Assistant Radiation Safety Officer at Case. Disposal of any of the above listed compounds must be done through the Radiation Safety Office. You can dispose of any of your old stock by filling out a Radioactive Waste Disposal form and faxing it to the Radiation Safety Office at 216-368-2236. Any questions regarding uranyl acetate can be directed to Karen Janiga at 216-368-8872.

Laser Safety Program Reminder

Laser Safety Audits are in progress. Ensure initial/site Laser Safety Training, Standing Operating Procedures and laser inventory and user list are current. Call Henry Justice, 368-4600, to sign up for Laser Safety Training.

Ergonomic Series: Part 1—Tips to Consider While Working at Your Computer

Ergonomic tips to apply when using your computer

Screen Position Tips

- Place your monitor directly in front of you.
- Position the top of the screen at or slightly below eye level.
- Place the screen approximately an arm's length distance.
- To avoid glare and eyestrain:
 - Tilt screen slightly downward to avoid glare.
 - Reposition the monitor so the brightest sources of light are not directly in front or in back of you. Adjust the blinds if needed.

Keep the screen clean - dirt and smudges reduce legibility.

Keyboard Positioning Suggestions

- Place the keyboard directly in front of you.
- Lie the keyboard flat or slope it down away from you.
- To reduce any potential strain on your fingers, hands, and wrists, remember these tips:
 - Strike the keys softly.
 - Glide your hands over the keyboard.
 - Rest your palms on a palm rest in between keystrokes, but don't fix your wrists or palms on the palm rest while keying.
 - Keep your wrists straight and relaxed.

Eye Strain

- **Blink!** Staring at your screen may cause your eyes to get dry if you blink less than the normal rate of once every five seconds. Try to blink more often to keep your eyes lubricated.
- Look away from the screen and focus on distant objects periodically.
- Don't sit in one position at the computer for extended periods. Take stand and stretch breaks every once in awhile.

Be sure to check out next month's edition of Ergonomic Tips!

“Keep the screen clean—dirt and smudge reduce legibility”

Security of Radioactive Materials

Security of all hazardous materials is a primary concern of DOES and should be a primary concern for all individuals using hazardous materials. Radioactive materials are no exception to this rule. All radioactive material (this includes stock vials and stock solutions) shall be secured against unauthorized access or removal unless you or someone from the laboratory authorized to use the material is present (reference OAC 3701:1-38-17; ODH Broad Scope License).

Equipment containing radioactive materials (i.e., cabinets, refrigerators, freezers, etc.) that is located in hallways must be locked or contain a secure lock-box inside the storage unit. Moreover, a refrigerator containing a secure lock-box should also have a special label posting on the outside of the refrigerator.

If the radiation-labeled equipment does not contain radioactive material and is not being used for radioactive material, then the equipment should be decommissioned. For equipment that is used occasionally for radioactive material storage, the equipment shall be locked even if no radioactive material is currently present. An unsecured refrigerator or freezer labeled as radioactive but which contains no radioactive material is considered a security violation as per RSOF guidelines.

Radioactive waste does not need to be secured in the same manner as other radioactive material. *However*, waste is to be kept in the waste area of the laboratory and its activity sensibly minimized.

For clarity, remember: *if you or someone from your lab authorized to use radioactive material is not present, all radioactive material must be secured.* Call DOES at ext. 2906 with any questions regarding security procedures for radioactive materials.

“If you or someone from your lab authorized to use radioactive material is not present, all radioactive material must be secured.”

*Spring break is March 12–
March 16;
The day of the Spring
Semester is April 30*

Reminders for Safe Handling of Flammable Chemicals

As you may be aware, the vast majority of flammable chemicals used by laboratories are flammable liquids and organic solvents whose vapors can form ignitable mixtures with air. Flammable liquids are classified by their flash points. A flash point is defined as the lowest temperature at which a fuel-air mixture present above the surface of a liquid will ignite if an ignition source is introduced. The dangers of ignition of these solvents can be particularly insidious because they generate vapors with densities greater than air. The vapors tend to be immiscible with air and they flow along surfaces and still remain within their flammable limits in air. Ignition of vapors at a remote source can trigger a flashback along the vapor trail to the liquid source. It is important to remember that the ignition source DOES NOT have to be in the form of a spark or flame,; room temperature alone can supply the energy. Flammable liquids are chemicals that have a flash point below 100°F (38.7° C) and a vapor pressure that does not exceed 40 psi at 100°F.

Eye protection- Eye protection in the form of safety glasses must be worn at all times when handling flammable liquids. Ordinary (street) prescription glasses do not provide adequate protection. (Contrary to popular opinion these glasses cannot pass the rigorous test for industrial safety glasses.) Adequate safety glasses must meet the requirements of the Practice for Occupational and Educational Eye and Face Protection (ANSI Z.87. 1 1989) and must be equipped with side shields. Safety glasses with side shields do not provide adequate protection from splashes; therefore, when the potential for a splash hazard exists; other eye protection and/or face protection must be worn.

Gloves- Gloves should be worn when handling flammable liquids. Disposable latex or nitrile gloves provide adequate protection against accidental hand contact with small quantities of most laboratory chemicals. Lab workers should contact OEHS for advice on chemical resistant glove selection when direct or prolonged contact with hazardous chemicals is anticipated.

Protective apparel- Lab coats, closed toed shoes, and long sleeved clothing should be worn when handling flammable liquids. Additional protective clothing should be worn if the possibility of skin contact is likely.

Safety shielding- Safety shielding is required any time there is a risk of explosion, splash hazard, or a highly exothermic reaction. All manipulations of flammable liquids which pose this risk should occur in a fume hood with the sash in the lowest feasible position. Safety shielding is required any time there is a risk of explosion, splash hazard, or a highly exothermic reaction. Portable shields, which provide protection to all laboratory occupants, are acceptable.

In addition to the handling procedures mentioned above, here are a few more reminders:

- Keep away from heat, sparks, and sources of ignition.
- Keep containers closed, except when in use.
- Ground all metal drums and transfer vessels.
- Maintain adequate ventilation.
- Use appropriate labeled and safety cans and cabinets.
- Maintain and use vapor suppressing solvent spill control media.
- Minimize quantity of flammable chemicals in work area.

NOTE: A LAB MAY NOT HAVE MORE THAN TWO GALLONS OF CLASS 1-A FLAMMABLE LIQUID EXPOSED AT ONE TIME UNLESS IT IS IN USE.

Carbon Monoxide (CO)–Staying Safe at Work and Your Home

Many people using gasoline-powered tools such as high-pressure washers, concrete cutting saws (walk-behind/hand-held), power trowels, floor buffers, welders, pumps, compressors, and generators in buildings or semi-enclosed spaces have been poisoned by carbon monoxide (CO). CO can rapidly accumulate (even in areas that appear to be well ventilated) and build up to dangerous or fatal concentrations within minutes. Examples of such poisonings include the following:

- A farm owner died of CO poisoning while using an 11-horsepower, gasoline-powered pressure washer to clean his barn. He had worked about 30 minutes before being overcome.
- A municipal employee at an indoor water treatment plant lost consciousness while trying to exit from a 59,000-cubic-foot room where he had been working with an 8-horsepower, gasoline-powered pump. Doors adjacent to the work area were open while he worked. His hospital diagnosis was CO poisoning.
- Five workers were treated for CO poisoning after using two 8 horsepower, gasoline-powered, pressure washers in a poorly ventilated underground parking garage.
- A plumber used a gasoline-powered concrete saw in a basement with open doors and windows and a cooling fan. He experienced a severe headache and dizziness and began to act in a paranoid manner. His symptoms were related to CO poisoning.

These examples show a range of effects caused by CO poisoning in a variety of work settings with exposures that occurred over different time periods and with different types of ventilation. Workers in areas with closed doors and windows were incapacitated within minutes. Opening doors and windows or operating fans does NOT guarantee safety. CO is a dangerous poison. Operating gasoline-powered engines and tools indoors is RISKY BUSINESS.

It is not widely known that small gasoline-powered engines and tools present a serious health hazard. They produce high concentrations of CO--a poisonous gas that can cause illness, permanent neurological damage, and death. Because it is colorless, odorless, and nonirritating, CO can overcome exposed persons without warning. Often there is little time before they experience symptoms that inhibit their ability to seek safety. Prior use of equipment without incident has sometimes given users a false sense of safety; such users have been poisoned on subsequent occasions. Recommendations for preventing CO poisoning are provided below for employers, equipment users, tool rental agencies, and tool manufacturers.

All Employers and Equipment Users Should:

- NOT allow the use of or operate gasoline-powered engines or tools inside buildings or in partially enclosed areas unless gasoline engines can be located outside away from air intakes. Use of

(Continued on page 6)

Carbon Monoxide (CO)—Staying Safe at Work and Your Home (continued from page 5)

“Learn to recognize the symptoms and signs of CO overexposure: headache, nausea, weakness, dizziness, visual disturbances, changes in personality, and loss of consciousness.”

—gasoline-powered tools indoors where CO from the engine can accumulate can be fatal. An exception to this rule might be an emergency rescue situation in which other options are not available--and then only when equipment operators, assisting personnel, and the victim are provided with supplied-air respirators.

- Learn to recognize the symptoms and signs of CO overexposure: headache, nausea, weakness, dizziness, visual disturbances, changes in personality, and loss of consciousness. Any of these symptoms and signs can occur within minutes of usage.
- Always place the pump and power unit of high-pressure washers outdoors and away from air intakes so that engine exhaust is not drawn indoors where the work is being done. Run only the high-pressure wash line inside.
- Consider the use of tools powered by electricity or compressed air if they are available and can be used safely. For example, electric-powered tools present an electrocution hazard and require specific precautions for safety.
- If compressed air is used, place the gasoline-powered compressor outdoors and away from air intakes so that engine exhaust is not drawn indoors where the work is being done.
- Use personal CO monitors where potential sources of CO exist. These monitors should be equipped with audible alarms to warn workers when CO concentrations are too high.

Employers Should Also:

- Conduct a workplace survey to identify all potential sources of CO exposure.
- Educate workers about the sources and conditions that may result in CO poisoning as well as the symptoms and control of CO exposure.
- Always substitute less hazardous equipment if possible. Use equipment that allows for the placement of gasoline-powered engines outdoors at a safe distance from air entering the building.
- Monitor employee CO exposure to determine the extent of the hazard.

Source: The National Institute for Occupational Safety and Health
<<http://www.cdc.gov/niosh>>

Upcoming Training Sessions*

*As always, consult our website (<http://does.case.edu>) for a full schedule of training sessions

New Radiation Safety Training

Retraining is required annually.

DOES conference room - Service Building 1st Floor

PREREGISTRATION IS *REQUIRED* ! - Please call 368-2906

X-Ray Safety Training

DOES conference room - Service Building 1st Floor

PREREGISTRATION IS *REQUIRED* ! - Please call 368-4601 or email jxb153@case.edu

Laser Safety Training

DOES conference room - Service Building 1st Floor

PREREGISTRATION IS *REQUIRED* ! - Please call 368-4600 or email hwj@case.edu

The Laser Safety training schedule is now available online at the DOES website <does.case.edu> under Laser Training.

New Bloodborne Pathogen Training

Please call 368-2907 to preregister for this class.

ALL NEW WORKERS MUST TAKE THIS IN-CLASS SESSION.

Class Objective: To go over the Bloodborne Pathogen Standard

Class Frequency and Time: The class is offered every Tuesday from 3:00 to 4:30 pm. Location: The class is held in the DOES conference room in the Service Building First Floor unless otherwise specified in the calendar.

Bloodborne Pathogen Re-Training

Please call 368-2907 to preregister for this class.

There is an online version of this class.

Class Objective: Retrain workers annually for the Bloodborne Pathogen Standard

Class Frequency and Time: The class is typically offered twice a month. It is approximately 1 hour in duration.

Location: The class is held in the DOES conference room in the Service Building First Floor unless otherwise specified in the calendar.

Formaldehyde, Benzene, Methylene Chloride, and Vinyl Chloride Retraining

Please call 368-2907 to preregister for this class. There are online versions of Formaldehyde and Benzene retraining. If you take the online versions of Benzene or Formaldehyde you do not have to take the class.

Chemical Safety (OSHA Lab Standard Training)

Please call 368-2907 to preregister for this class.

ALL NEW WORKERS MUST TAKE THIS IN-CLASS SESSION.

Class Objective: To train all university personnel using hazardous chemicals in a laboratory setting in basic chemical safety principles and the requirements of the OSHA Laboratory Standard 1910.1450.

Class Frequency and Time: The class is offered every Tuesday from 1:00 to 3:00 pm. Also additional classes are available.

Location: The class is held in the DOES conference room in the Service Building First Floor unless otherwise specified in the calendar.

Hazard Communication Training (Right-to-Know)

See website <does.case.edu> for schedule.

Radiation Safety Retraining

Please retrain on the Internet @: <http://does.case.edu>

Annual Respirator Training

DOES conference room—Service Building 1st Floor.

PREREGISTRATION IS REQUIRED ! - Please call 368-2907

Note: *There is an online version of this class.* If you take the online version you do not have to take the class. But you still need to come in for a fit test.

(Again, for a complete listing, please consult the DOES website at <<http://does.case.edu/>>)

DOES STAFF

W. David Sedwick, Ph.D., (wds),
Director and RSO
Felice Thornton-Porter (fst2), Q.A.
Specialist II
Shirley Mele (smm5), Dept.
Administrator II
Gwendolyn Cox-Johnson (gxc13), Dept.
Assistant II
Virginia LaGuardia (vfl), Dept. Assistant
II
Ronald Tulley (rxt33), Technical Writer

Chemical Safety

Marc Rubin (mdr6), Assistant Director,
EH&S
Robert Latsch (rnl2), Specialist I
Arif Peshimam (azp1), Specialist II
Bill DePetro (wjd11), Specialist II
Tom Merk (tlm8), Specialist I
Paul Holter (pah9), Specialist I
Mary Ellen Scott (mas35), Specialist I
Jon Birkes (jab45), Specialist I

Radiation Safety

Karen Janiga (kej2), Assistant RSO
Yelena Neyman (yxt13), Specialist I
Joanna Bielawski (jxb153), Specialist I
Henry Wayne Justice (hwj), Specialist I
Charles Greathouse, (cxg118)Analyst
Programmer I

Department of Occupational and Environmental Safety

Case Western Reserve University

(216) 368-2906/2907 FAX: (216) 368-2236

(E-mail) does@po.case.edu (www) <http://does.case.edu>