

IN THIS ISSUE

Safety Spotlight: Shut the Sash

Packaging Biohazardous Waste for Disposal

Warning: Read the Signs

Using Broken Glass and Sharps Containers

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SAFETY SPOTLIGHT

Shut the Sash

By Jesse Millen-Johnson

It's highly important to know if and how well fume hoods are functioning. Too often, researchers disable alarms that warn of malfunctioning fume hoods or fail to ensure they are turned on in the first place. Every time a hood is used, it should be checked for proper function.

An unfortunate incident in Nova Scotia highlighted this issue in 2008. Roland Daigle, a 46 year-old chemist for Sepracor Canada, died from respiratory failure one day after exposure to trimethylsilyldiazomethane (TMSD) in a laboratory. An investigation determined the fume hoods were not working at the time due to roof work at the facility. Sepracor Canada was fined US \$47,000 for failing to provide proper workplace ventilation.

Fume hoods at the University of New England are tested and certified annually by a contractor and Environmental Health and Safety also checks them quarterly. However, it is the individual's responsibility to make sure they are working with a properly functioning hood **every time they use it**.

In addition, the sash height must be correct for a fume hood to work properly. This is usually a maximum of 18 inches high. There are marks or physical stoppers on either side of the sash at the maximum safe height. If this height is exceeded, the hood may be unable to effectively remove vapors and they might escape into the laboratory space.

If a fume hood is malfunctioning or an alarm sounds, stop all use and report it to the PI right away. An alarm is not something to be ignored or (worse) unplugged/silenced while continuing to work.

Continued on page 2

By closing fume hood sashes, a remarkable amount of energy can also be saved. Just one variable air volume fume hood with an open sash can use more energy than 3-4 residential homes in a single day. This is because waste air needs to be replaced with fresh air and this fresh air must be heated or cooled to the proper temperature.

In the coming months, EHS will add stickers to applicable fume hoods indicating how energy use corresponds to sash height. Faculty and staff are encouraged to inform their students and researchers to do their part for safety AND sustainability: Shut the Sash.

Packaging Biohazardous Waste for Disposal

By Peter Nagle

With the beginning of a new academic year I'd like to review our biohazardous waste packaging protocols in order to ensure that each box can be moved from the point of generation to final disposal without incident.

Each lab that generates biohazardous waste is responsible for preparing, packaging and properly sealing it for pick-up/transportation. Keep in mind that others such as facility personnel, truck drivers and workers at the ultimate destination will be handling your waste. For everyone's safety, it's essential that all steps are taken with care.

Below are general biohazardous waste guidelines from identification to packaging protocols.

What is Biohazardous Waste?

1. Discarded human blood, blood products, and body fluids.
2. Wastes saturated with human blood.
3. Pathological waste
4. Discarded sharps* such as needles, syringes, scalpel blades (i.e. anything that can puncture)
5. Discarded cultures and stocks of infectious agents including items used to transfer, inoculate and mix cultures.
6. Discarded animal carcasses containing organisms or agents unusual to the animal environment or pathological or hazardous to humans.

*Discarded sharps must be in rigid, puncture proof containers.

Packaging

1. All biohazardous waste must be packaged in the boxes provided by Stericycle. If you don't have one, contact Facilities or EHS.
2. Orient all boxes in the direction indicated by the up arrows stamped on each box.
3. Double line all biohazardous waste boxes with the red bags provided.
4. Sharps containers, when full, can be placed in the biohazardous waste boxes.
5. Liquids must be in rigid leak proof containers that are designed to hold liquids and can be sealed to prevent leaks and spills.
6. Keep boxes under 55 lbs. Any bulging, leaking or damaged boxes will be rejected.
7. Properly seal all boxes with clear packaging tape*.
8. Submit a work order to Facilities to have any full boxes picked-up.

Continued on page 3

USING BROKEN GLASS AND SHARPS CONTAINERS

By Peter Nagle

Broken glass containers and sharps containers are a common sight in our labs at both campuses. Both are used to safely package any material capable of causing cuts, punctures or abrasions to human skin. Below is a review of how to use both of these containers safely and correctly.

Broken glass containers help prevent accidental cuts to our housing staff who collect and handle trash. In addition to broken glass, items capable of puncturing bags and causing injury must be discarded in a broken glass container. This includes:

- Noninfectious slides
- Vials
- Pasteur pipettes
- Empty chemical bottles
- Broken or fragile glass or plastic
- Pipettes
- Pipette tips

Please do not overflow or put more than 20 pounds of material in a broken glass container. An over-stuffed container can defeat the purpose of the box and cause injury to personnel. A container with only glass slides can weigh 20 pounds when half full; therefore, it should be considered full and sealed for pickup at that time.

When a broken glass container is full, seal it with tape and set it aside for Facilities. Facilities will not pick up boxes that are not sealed shut. Submit a work order to Facilities making sure to click the moving icon so the work order is given to the right personnel. If requested, Facilities can leave a replacement box behind when they pick the full one up.

Continued on page 3



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*All boxes must be sealed with clear packaging tape. Masking tape, scotch tape or any other tape not designed for sealing large packages is not acceptable. Also, interlocking the flaps whether on the bottom or top of the container is not acceptable. All boxes must be taped shut. Remember, Facilities will not pick up any boxes that are not properly sealed.

Unacceptable Items

1. Hazardous waste
2. Chemical waste*
3. Radioactive waste
4. DEA regulated waste
5. Pharmaceutical waste
6. Sharps that are not packaged in rigid containers

*Sheep or other animal parts dissected in student laboratories should not be discarded as biohazardous waste, especially if they are still in the liquid preservative. This waste stream can be handled by our hazardous waste vendor.

If you have any questions regarding biohazardous waste generation, handling or packaging procedures, please contact EHS.

Warning: Read the Signs

By Ronnie Souza

When do people pay the most attention to signs? It seems to be while driving a car. Have you ever wondered why? Most likely it's because signs are the simplest way to direct, instruct and warn. Did you happen to notice all the signs on your commute to work today? "You'll need to detour on this road," one tells you. "Slow down, you're driving too fast" another advises. "Watch out for that bump," you are warned.

Road and travel indicators are not the only signs that direct, instruct and warn. Safety signs and labels in the workplace, especially laboratories, do this too. Just as it's risky to ignore road signs, it's also dangerous to ignore laboratory safety signs and labeling. These messages are in place to prevent accidents and injuries. They alert employees to potential hazards in the laboratory. Let's look at some of the more common examples, note their colors and discuss what the colors symbolize:

DANGER: These signs have a **red** background and warn of immediate danger. Failure to comply could result in serious injury or death.



CAUTION: These have a **yellow** background and warn of potential hazards. They also instruct you to take certain measures to protect yourself.



Continued on page 4

Sharps containers are for items that have been in contact with infectious material or items that are designed for cutting or scraping, such as razor blades and scalpels. Any tool meant for cutting or scraping must be discarded in the sharps container regardless of whether it has come in contact with infectious material or not. The following items must be discarded in sharps containers:

- Hypodermic needles
- Syringes
- IV tubing with needles attached
- Lancets
- Scalpel blades
- Razor blades

Any items listed under broken glass that have come into contact with infectious material must also be discarded in the sharps container.

Please do not over-fill a sharps container as it will become difficult to close. There is a fill line on each sharps container. Once the material reaches the line, seal the container closed, discard in an open biohazardous waste box, and start a new sharps container. If you do not have an open biohazardous waste box readily available, please contact EHS.



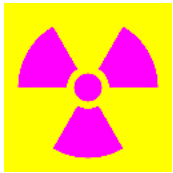
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WARNING: Warning signs have an **orange** background and indicate immediate danger or the potential for serious injury or death if not obeyed.



RADIOACTIVE MATERIALS: Radioactive materials signs indicate the presence of radioactive material in the room. It is easily identified by the conventional three-blade radiation symbol (trefoil). The blades of the symbol must be **magenta, black or purple** on a **yellow** background.



BIOHAZARD: These have a florescent **orange** or an **orange-red** background to indicate the presence of infectious biological material.

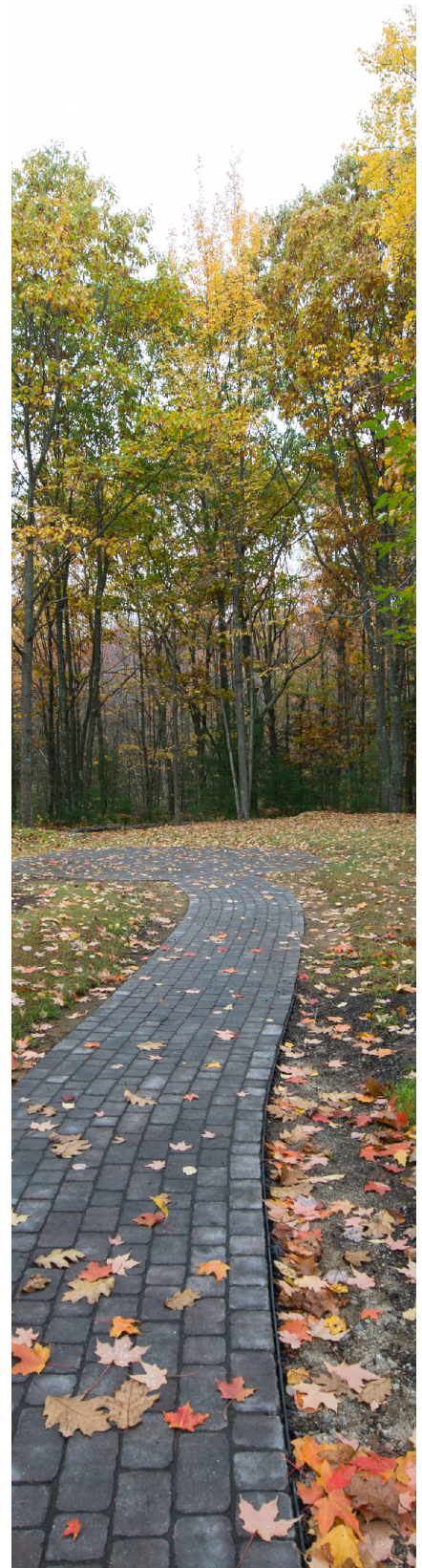


SAFETY INSTRUCTION: Safety instruction signs have a **green, white and black** background and give directions for safe procedures.



Correct placement of signs also adds to their effectiveness. Workplace safety signs should be placed as close to the hazard as possible. Unfortunately, safety journals are filled with stories about people who were seriously injured or lost their lives because they failed to observe workplace safety signage. It may be up to your employer to make sure signs are in place, but it's up to you to read and follow them. Not doing so can have serious consequences.










Continued on page 5



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CHEMICAL WARNING LABELS and ASSOCIATED HAZARDS:

<p>Health Hazard</p>  <ul style="list-style-type: none"> • Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity 	<p>Flame</p>  <ul style="list-style-type: none"> • Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides 	<p>Exclamation Mark</p>  <ul style="list-style-type: none"> • Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (Harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non-Mandatory)
<p>Gas Cylinder</p>  <ul style="list-style-type: none"> • Gases Under Pressure 	<p>Corrosive</p>  <ul style="list-style-type: none"> • Skin Corrosion/Burns • Eye Damage • Corrosive to Metals 	<p>Exploding Bomb</p>  <ul style="list-style-type: none"> • Explosives • Self-Reactives • Organic Peroxides
<p>Flame Over Circle</p>  <ul style="list-style-type: none"> • Oxidizers 	<p>Environment (Non-Mandatory)</p>  <ul style="list-style-type: none"> • Aquatic Toxicity 	<p>Skull and Crossbones</p>  <ul style="list-style-type: none"> • Acute Toxicity (Fatal or Toxic)



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