



"Safety Comes First"

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Academic Use

Universities, colleges, high schools, and other academic institutions use nuclear material in classroom demonstrations, laboratory experiments research, and to provide health physics support to other institutional nuclear materials users. These programs may vary in size from large, broad-scope programs involving chemical, physical, biological engineering, and biomedical research, to small programs using only gas chromatographs or self-shielded irradiators. These facilities are licensed in accordance with 10 CFR 30, 40, or 70 depending on the type of materials possessed.

Diagnostic Medical Use

Use of nuclear materials in radioactive uptake, dilution, excretion, imaging, or localization diagnostic clinical or research procedures. The metabolic or physiological properties of radiolabeled drugs are used to obtain medical information, and the radiation produced from sealed sources are used in diagnostic devices to image body parts or determine tissue density. Diagnostic medical use includes the use of certain portable imaging devices in dentistry and podiatry, as well as bone mineral analysis devices in podiatry.

Therapeutic Medical Use

Use of nuclear materials to deliver palliative (pain relieving) or therapeutic doses of radiation to specific tissues or body areas. Although most therapeutic uses of radiation involve the treatment of cancer, therapeutic doses may also be used to treat benign conditions such as the use of intervascular brachytherapy radiation to treat clogged blood vessels (restenosis).

Medical Research Use

Research involving human subjects using byproduct materials may only be performed if the licensee has a 10 CFR Part 35 medical use authorization. There are a wide variety of research uses of nuclear materials in human subjects. They include the use of nuclear materials in well-established nuclear medicine procedures to monitor a human research subject's response to a nonradioactive drug or device treatment as well as clinical trials to determine the safety or effectiveness of new radioactive drugs and devices. The particular medical research use must conform with the requirements in 10 CFR Part 35 and the possession and medical use authorizations in the license.

Source: NRC.gov

Bloodborne Pathogens—Minimizing Exposure



“Health professionals are particularly at risk of exposure...”

Bloodborne pathogens (BBPs) are microorganisms in blood and bodily fluids that can cause serious health risks. The three BBPs that have posed a serious health threat if contracted are the hepatitis B virus (HBV); the hepatitis C virus (HCV); and the human immunodeficiency virus (HIV), which causes acquired immune deficiency syndrome (AIDS). BBPs are usually transmitted or passed on when microorganisms enter the body through mucus membranes or through breaks in the skin. They may also enter the body through open cuts, nicks, skin abrasions, and cracked skin caused by various types of dermatitis.

Health professionals are particularly at risk of exposure, especially if they aren't wearing the proper personal protective equipment (PPE) or practicing universal precautions. Universal precautions are a method of infection control whereby blood and bodily fluids are treated as if known to be infected with BBPs.

Here are the steps health professionals can take to minimize their risk of exposure:

- Use extreme caution in everything you do at work.
- Be vaccinated against hepatitis B.
- Ask to see your company's exposure control plan. An exposure control plan is a written document that describes which jobs involve potential exposure to BBPs and what steps are in place to limit or eliminate that exposure.
- Always use the PPE provided for you when handling blood or bodily fluids, as any opening on your body or skin—eyes, mouth, skin rash, or cut—is a route of entry for pathogens. PPE may include disposable, single-use gloves; masks, face shields, goggles, or protective eyewear with side shields; and lab coats, gowns, and similar protective clothing, including caps, hoods, and protective shoe covers or boots. Check disposable gloves for tears or punctures before use. Bandage cuts or broken skin before putting on gloves.
- Don't keep food or drink in work areas, and don't eat, drink, smoke, apply cosmetics, or handle contact lenses in areas with exposure potential.
- Avoid bending, breaking, or recapping used needles. If recapping is necessary, use a one-handed technique. Immediately dispose of used needles and other sharps in designated, puncture-resistant containers labeled with the bright orange or orange/red biohazard symbol.

Bloodborne Pathogens, Cont.

(Continued from page 2)

- Wipe up blood or bodily fluid spills immediately. Use the disinfectant provided for this specific use.
- Use a brush and dustpan, tongs, or forceps to pick up potentially contaminated glass or other debris. Don't use your hands!
- Double-bag infectious waste if the outside of the first bag has been contaminated by blood or bodily fluids.
- Remove protective clothing immediately after you leave the work area. Place it in the proper receptacles for laundering or decontamination.
- Discard disposable gloves and masks in designated containers, which should be labeled "biohazard."
- Wash your hands after removing gloves. Use a disposable towel for turning on the faucets to avoid cross-contamination.
- Don't suction or pipette potentially infectious materials with your mouth.
- If you need to perform CPR, use a one-way valve mask. Use disposable airway equipment and resuscitation masks.



***"Discard
disposable
gloves and
masks in
designated
contain-
ers..."***

Source: Safety BLR

Holiday Sustainability



***"Donate
used
decorations
to thrift
shops."***

The holiday season is a festive time of year, with celebrations, presents, and time spent with family and friends. However, it also can lead to an increase in the amount of waste we generate and energy that we use. Fortunately, there are some ways to make the holidays a little more eco-friendly:

Travel

- Try a "staycation" and stay at home for the holidays this year to reduce your carbon footprint.
- If you decide to travel, rent an electric vehicle or take public transportation.

Lighting

- Recycle your old holiday lights. Instead of throwing them out, you can bring your old lights to a thrift store (if in working condition) or hardware store (if faulty).
- Use Energy Star®-qualified LED lights. They are 90% more efficient than traditional lights and have a longer life span.
- Use Wi-Fi or a timer so that your lights are only on for a certain amount of time during the day and night.

Decorations

- Reuse or repurpose decorations from previous years.
- DIY your decorations using items you already have.
- Donate used decorations to thrift shops.

Trees

- Consider buying a potted tree with a root ball that's native to your area. Potted Christmas trees can be replanted after the holidays and reused all year long and for years to come.
- If purchasing a cut tree, make sure it's locally grown and gets mulched or otherwise recycled after the holidays rather than thrown into a landfill.
- If purchasing an artificial tree, take good care of it so you can use it for at least 10 years, which is the same environmental impact as using a real tree each year.

Presents

- Support your local businesses by purchasing gift certificates from area restaurants and shops.
- DIY your gifts. Some ideas include homemade ornaments, handmade soap, and baked goods.
- Gift an experience, such as a zoo or museum membership, a spa day, or an art workshop.

Holiday Sustainability, Cont.

(Continued from page 4)

Gift Wrap

- Make the wrapping part of the gift. For example, you can fill a gardening pot with gardening supplies or fill a mixing bowl with cooking utensils and ingredients for a meal.
- Use a gift bag or basket. These can be used year after year.
- Ensure your wrapping paper is recyclable. Wrapping paper with metallic flakes, colored shapes, glitter, and plastics can't be recycled.

Disposal

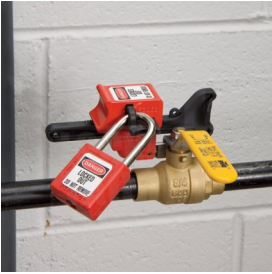
- Donate or sell any presents you don't want but could be enjoyed by others.
- Store, freeze, or repurpose leftovers for future meals. Compost any unwanted food.
- Recycle all items that are recyclable. You can look up which items can be recycled by visiting your state's recycling guidelines website.



“Recycle all items that are recyclable...”

Source: Safety BLR

Lockout/Tagout For 'Other' Employees



*"A
lockout
device
physi-
cally
prevents
access to
the con-
trols ..."*

Unauthorized employees should never try to restart or run machinery or equipment that's locked out or tagged out and should never try to remove or bypass lockout or tagout devices. Only someone specifically authorized to perform lockout and tagout procedures is allowed to use or handle the devices. However, it's important for "other" employees to be able to identify the three primary types of devices used to protect them from the hazardous energy of machines or equipment: energy isolation devices, locks, and tags.

1. An Energy Isolation Device

- Before any service or maintenance is performed on a machine, before there's any possibility that there could be an unexpected start-up or release of energy that could cause an injury, an isolation device is used.
- An energy isolation device is used to cut off the machinery or equipment from its energy source.
- Push buttons, selector switches, interlocking gates, and other control circuits located on a piece of equipment are NOT examples of energy isolation.
- Examples of an isolation device include an electrical circuit breaker or switch located in an electrical panel on a wall away from the equipment; a valve to control liquid or gas pressure, such as a pipeline valve leading to equipment; or a machine block.

2. A Lockout Device

- A lockout device physically prevents access to the controls to turn the machine or equipment on or off.
- Any machine with a power source has to be locked out when the unexpected start-up or release of stored energy could cause injury to employees.
- The lockout has to make the machine inoperative and immovable.
- Lockout devices have to be strong and durable enough to prevent removal except with bolt cutters or other metal-cutting tools.
- Lockout devices have to include a tag or other legible means to identify the employee who applied the device. Examples include a padlock or combination lock, a block, a chain, a multilock hasp, a wheel valve cover, or a ball valve cover.

3. A Tag or Tagout Device

- A "tag" is a prominent warning device with a means to attach it securely to an energy-isolating device. The writing on the tag has to indicate that the energy-isolating device and the equipment being controlled can't be operated until the tagout device is removed.
- A tag or tagout device is often used along with a lockout device, and it has to be used whenever the energy-isolating device isn't lockable.
- Tags or tagout devices warn people not to start up the machine or equipment.
- Tagout devices are for warning purposes only and don't control hazardous energy.
- Tags have to be readable and legible with phrases such as "Do Not Start," "Do Not Open," "Do Not Close," "Do Not Energize," or "Do Not Operate" so anyone working near them can notice and understand them.
- They have to be attached securely to the isolating device at the same place a lockout device would be attached. They have to be durable so they can't be crumpled or made unreadable.
- Tagout devices can't be removed by anyone except an authorized employee. The tagout device must identify the person who attached it.

Chemical Spotlight: Ethanol

Because it can readily dissolve in water and other organic compounds, ethanol is an ingredient in a range of products, including personal care and beauty products, paints, varnishes and fuel.

In personal care products, ethanol can be used as an astringent and preservative. It's used as a solvent in some household products including paint. Most gasoline in the United States contains ethanol for increased performance of vehicles.

As a food additive, ethanol is used to evenly distribute food coloring and to enhance the flavor of food extracts. Because ethanol is a very pure form of alcohol, its use in foods is regulated by FDA and the Bureau of Alcohol, Tobacco and Firearms. The FDA has labeled ethanol as a Generally Recognized as Safe (GRAS) substance for use in food products.

Because ethanol is effective in killing microorganisms like bacteria, fungi and viruses, it is a common ingredient in many hand sanitizers. The U.S. Centers for Disease Control and Prevention (CDC) recommends the use of hand sanitizers in situations where soap and water are not available.² Practicing hand hygiene is also an important part of helping to stop the spread of COVID-19. Using hand sanitizers or alcohol-based hand rubs (ABHR) can help to inactivate SARS-CoV-2, the strain of coronavirus that causes COVID-19.

Ethanol is highly flammable and should not be used near open flames. Ethanol inhalation can cause coughing or headaches, according to the CDC.

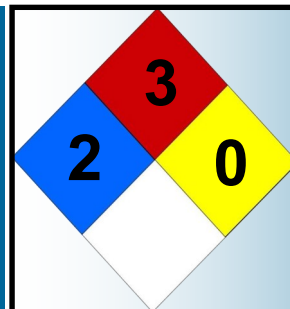
FDA has labeled ethanol as a Generally Recognized as Safe (GRAS) substance, which means that a panel of qualified experts determined that ethanol is safe to use in food products.⁶ Because ethanol is a very pure form of alcohol, its consumption and use in foods is regulated by the U.S. Food and Drug Administration (FDA) and the Bureau of Alcohol, Tobacco and Firearms.

Ethanol Safety

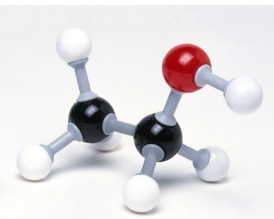
To discourage the drinking of pure ethanol from personal care or cleaning products, a "denaturant," such as a bitter flavoring, is usually added. Denaturants make alcohol unsuitable for human consumption, but does not change the other properties of the substance.



Source: ChemicalSafetyFacts.org



"To discourage the drinking of pure ethanol products, a "denaturant," ... is usually added."

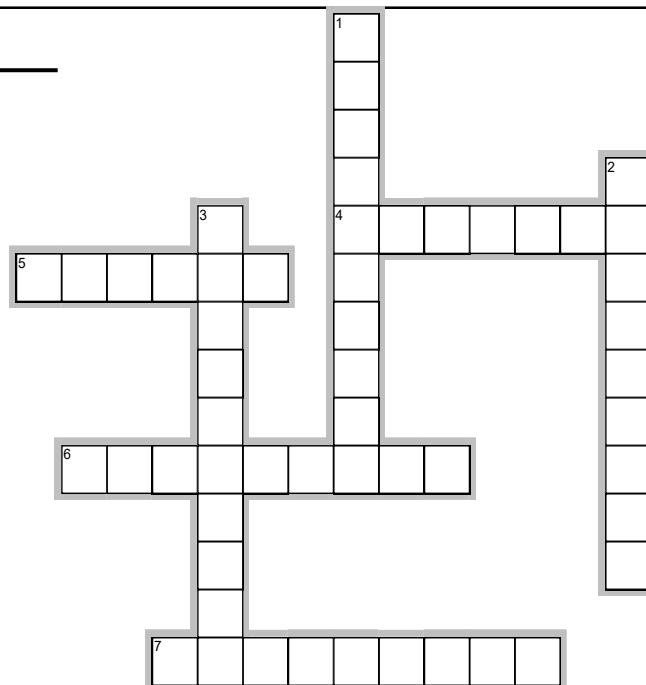


Fun Page

F U N P A G E

Across

4. Use of radioactive materials include therapeutic doses of radiation to specific _____ or body areas.
5. Discard disposable _____ and masks in designated biohazard containers.
6. Potted Christmas trees can be _____ after the holidays.
7. Avoid bending, breaking, or _____ used needles.



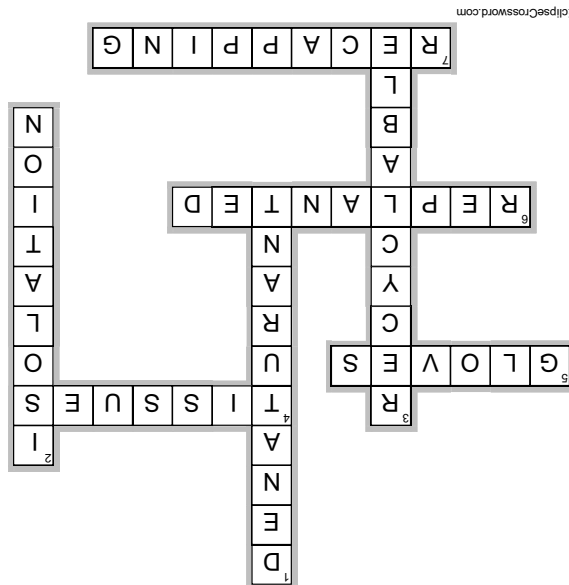
Down

1. A bitter _____ is added to ethanol to keep people from consuming it.
2. The three primary types of devices used to protect employees from the hazardous energy are _____ devices, locks, and tags.
3. Ensure your wrapping paper is _____.

Funny Corner



Puzzle Answers



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Safety Quotes

*Safety
never
takes a
holiday.*

*~Author
Unknown*

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case.edu/ehs/about/newsletters

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