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## Safe Travels This Summer

If you're traveling on vacation this summer, more than likely you'll be taking along some of your electronic devices, along with some extra batteries.

If you're traveling by air and plan to bring along those devices; your cell phone, laptop, tablet, hand-held gaming system, camera, etc., and extra batteries, there are things you need to know.

The US Department of Transportation (DOT) and individual airlines have established requirements to reduce potential risks associated with transporting Li batteries by air. How those batteries may be transported with you, depends not only on the type of Li battery, but also the watt-hour rating (for Li-ion) or lithium content (for Li metal) of the battery. This information is often printed on the battery or is available from the manufacturer.

- Never bring damaged batteries with you.
- Know which type of Li battery you are taking with you.
- Know the watt-hour rating (for Li-ion) or lithium content (for Li metal) of the battery.
- Electronic devices or equipment need to be protected to prevent accidental activation.
- When possible, transport spare batteries in their original packaging. When this is not possible, the battery connections (contacts or terminals) must be protected to prevent accidental short circuit. This may be accomplished by placing tape on the connections. Electrical tape is ideal for this, but any tape that does not contain metallic material is acceptable. Package each battery separately, or free of metal objects such as coins, keys, etc.

Individual airlines can establish more stringent requirements so it is best to check with the airline prior to your flight.

Type of battery	Watt-hour (Wh) or Li content (grams)	Installed in equipment or spare	Checked baggage	Carry-on Baggage
Li metal	≤ 2 grams	Installed in equipment	Permitted	Permitted
Li metal	≤ 2 grams	Spare	Forbidden	Permitted
Li metal	> 2 grams	Either	Forbidden	Forbidden
Li-ion	≤ 100 Wh	Installed in equipment	Permitted	Permitted
Li-ion	≤ 100 Wh	Spare	Forbidden	Permitted
Li-ion	>100 Wh and ≤ 160 Wh	Installed in equipment	Permitted – Operator approval required	Permitted – Operator approval required
Li-ion	>100 Wh and ≤ 160 Wh	Spare – Max. of 2	Forbidden	Permitted – Operator approval required
Li-ion	> 160 Wh	Either	Forbidden	Forbidden

## Safety Spotlight

As a researcher at UC Riverside, Sara Kwan experienced the importance of having a strong safety culture in a laboratory. Sara entered the UC lab environment in the aftermath of a horrific lab accident that resulted in the death of a young researcher. UC Riverside soon implemented rigid safety policies in step with changes required by the UC system. Sara recalls a very low tolerance for infractions in laboratory safety and gives credit to her strong safety acumen, to the training and experience at UC Riverside. When Sara arrived at Yale, she partnered with her then Principal Investigator, Professor Menachem Elimelich, to develop a core safety culture for all researchers in their laboratory.

Sara first observed a few challenges unique to her laboratory as they performed a variety of research experiments, with the variance most prominent in their biological research. She noted inconsistencies with the interpretation of EHS lab safety guidelines by her co-workers, so she worked to simplify the safety protocols for her lab. In addition, Sara also worked to improve the safety culture in the following ways.

- Sara first volunteered to serve as co-lab safety manager.
- She created posters for biomedical waste disposal that relied heavily on images over words to simplify their unique lab waste streams.
- She developed a lab safety checklist to onboard new researchers in her lab (to make sure that all relevant EHS training was completed before starting work and to review lab specific protocols for biomedical waste).
- Sara implemented a 5 minute safety briefing at every lab meeting where she reviewed a basic but related lab safety element pertinent to their laboratory.
- She invited EHS lab safety specialists in to provide brief focused trainings or discussions on topics of interest or need.
- Sara created a lab Wiki page to host the safety information specific to and most pertinent to their laboratory.

EHS is proud to partner with Professor Elimelich and Sara Kwan on their work establishing safe work practices, and their efforts to build a strong, positive safety culture in their laboratory.

## Oil Bath Substitutes

Oil baths are messy and have been associated with numerous fires in research laboratories over the years. Mineral oil is especially a concern due to its low flashpoint.

Silicon oil is used as a safer substitute due to its higher flashpoint, but can still ignite and release noxious odors if heated to a high temperature or for too long a period of time. Also, because oil can degrade over time it needs to be changed on a regular basis. Some labs use sand or metal beads in place of oil. This may work for your lab, but there are issues of heat transfer with the sand which limits their use.

Other common alternatives to oil baths include heating mantles and heating blocks. Both are safer alternatives than oil baths but do have a higher initial cost. Some heating mantles can also present shock hazards and may not provide uniform heating. Heating blocks are becoming more popular for heating round bottom flasks, since the equipment and flasks are easy to clean and there is minimal chance of any spillage. These blocks are placed directly on stirring hotplates and offer rapid and uniform heating with little chance of spillage. Please consider switching from oil baths to one of these safer alternatives for your research.

## Don't Leave Yourself Exposed

While sandals, flip flops and crocs are the go-to footwear for summer months, they are definitely not appropriate footwear for laboratories. Such shoes offer no barrier or protection between your feet and spilled hazardous liquids or broken glass.

Your laboratory footwear needs to cover your foot completely and be compatible with the materials you use in the lab (some plastics may react with certain chemicals and dissolve easily).

If you want to wear your sandals to work, keep a pair of shoes at work that are closed at the heel and toe, and completely cover your foot. Then change into them when you arrive before going into the lab, and change out of them when you leave the lab. Your feet will thank you!

Don't forget to pair those shoes up with clothing that covers your legs and safety glasses if you're working in a lab where hazardous materials are used. Be sure to add gloves and a lab coat if you're directly handling any hazardous material.



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EVALUATION • RESPONSE • PREVENTION  
HAZARDOUS MATERIALS MANAGEMENT • TRAINING

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## Rules of the Road



If it's hot outside, it's even hotter inside your car. On a 90-degree day, the temperature inside a vehicle can quickly rise another 20 degrees in just the first 10 minutes.

After your car has been parked in the sun for a while it can be uncomfortable and has the potential to cause burns. Plus, we all know the deadly consequences of leaving children or pets in a hot car.

Here are some tips on how to prepare for driving in the summer heat.

### Always Look Before You Lock:

- Always check the back seats of your vehicle before you lock it and walk away.
- Keep a stuffed animal or other memento in your child's car seat when it's empty, and move it to the front seat as a visual reminder when your child is in the back seat.
- If someone else is driving your child, or your daily routine has been altered, always check to make sure your child has arrived safely.

### Reduce the amount of sunlight coming in through the windows:

- Park in the shade if possible.
- If you have a sunroof, close the shade.
- Put a sunshade in the windshield and rear seat window.
- When parked in a secure area, lower each window a fraction or so, if weather permits.

### Be careful of hot surfaces:

- Open the windows for the first few minutes to let buildup heat escape.
- Bring a towel to sit on if you have leather or vinyl seats.
- Be careful not to touch the metal part of the seatbelt as you can burn yourself.  
Keep a light pair of gloves in the car if you find the steering wheel too hot to handle.