DRS helps the campus community fulfill their laboratory goals (research, teaching, etc.) utilizing biological, chemical, and radiological materials in a manner that stresses safety. DRS is committed to assisting campus units in identifying and managing biological, chemical, and radiological hazards in order to reduce the risk of harm to the campus community and the environment.
Laboratory Safety Section  
iss@illinois.edu
- General chemical use
- Laboratory audits
- Flammable assessment

Biological Safety Section  
sss@illinois.edu
- Biological waste
- Sharps disposal
- IBC registration

Radiological Safety Section  
rss@illinois.edu
- Laser registration
- Radiological waste

Chemical Waste Section  
cws@illinois.edu
- Chemical waste
- Chemical recycling

Unsure who to contact? Call 217-333-2755 or email drs@illinois.edu
Importance of Laboratory Safety

• High profile accidents at other universities
  – UCLA: $t$-BuLi fire (fatal)
  – Dartmouth: Exposure to single drop of $Me_2Hg$ (fatal)
  – Texas Tech: Explosion (serious bodily injury, lost 3 fingers)

• Recent accidents at University of Illinois
  ❖ Pet. ether lab fire (water and fire damage, near miss for personal injury)
  ❖ Nitric acid waste explosion in teaching lab (near miss, minor exposure)
  ❖ LiAlH$_4$/Et$_2$O fire (2013 teaching lab)
The Result of Accidents

- Electric fire due to flammable solvents
- Nitric acid waste explosion
- Sulfuric acid spill (4 L)
The Result of Accidents

Petroleum ether fire

Lecture bottle rupture
Preventing Accidents

Lab personnel must be trained before working in a lab.
- DRS training
- Lab Specific training

Hazard awareness training for laboratory work never ends.
- Actively seek information on the hazards you handle.
- Hands-on-training.
- Train new workers how to properly identify and handle hazards.
  - Write SOPs on procedures you perform often. Use it to train others.
- Perform a thorough risk assessment before attempting experiments (DRS has a risk assessment tool on their website).

Don’t become complacent.
- Accidents happen to inexperienced as well experienced lab workers.
- Always be cautious when entering any lab.
Preventing Accidents

Working in a laboratory, you must:
– Know the dangers of the materials and procedures being used.
– Utilize safe work practices and engineering controls.
– Wear proper laboratory attire and PPE.
– Be aware of emergency procedures (fires, spills, medical emergencies, etc.).
– Dispose of research waste in a responsible and safe manner.

Ultimately you are responsible for your own safety!

Are you prepared for an emergency? Spills, fire, medical emergencies?
Online Resources

www.drs.illinois.edu

Online safety training

Information Guides
Laboratory Safety Plan

www.drs.illinois.edu

- Every research lab must have one.
- Comprehensive safety plan.
- Contains safety information relevant to the laboratory’s specific hazards (bio, chem, or rad).
- Serves as a training tool for lab personnel and includes documentation of training.
Laboratory Safety Plan

• **Laboratory Management**
  - The laboratory should have a hazard profile. These hazards must be addressed in safety training. A hazard profile for chemicals can be created using the Laboratory Hazard Assessment tool.

• **Laboratory Safety Guide (Campus Plan)**
  - Baseline safety information and expectations for all of campus.
  - This will not provide you with all of the safety information you need. Lab specific safety information is an important part of your training.

• **Standard Operating Procedures (SOPs)**
  - All labs must develop SOPs for the hazards present in their space.
  - Developed by those familiar with the hazards and processes.

• **Training Checklist**
  - Make sure all of your training is documented. This includes online training, SOPs, hands-on-training.
Accident Response

Always be prepared for a potential spill.
- Have a spill kit fully stocked to handle the hazards you are working with.

Always be prepared for a potential exposure.
- Wear Personal Protective Equipment (PPE).
- Know where the nearest safety shower/eyewash is located.
- Make sure the eyewash has been tested recently.
Summary of Common Findings

- Laboratory Safety Plans not available or up-to-date.
- Lack of chemical SOPs.
- Training on chemical hazards not taking place.
- Legacy chemicals
  - Some peroxide formers were decades old.
- Eyewashes/safety showers not tested.
- Incompatible chemicals stored next to one another.
- Improper storage of gas cylinders

Hazard Profile

- Bio and radiation info was already in the system. Using the chemical inventories for the labs, a hazard profile was developed for each room.
- What are the labs in Animal Sciences working with?
  - Acutely toxics, health hazards, corrosives, flammables, water reactives, explosives, cryogens, oxidizers, peroxide-forming chemicals.
  - Compressed gases – Toxic, Flammable, Oxidizing, Inert, Corrosive
QUESTIONS

Contact DRS at 333-2755 or DRS@illinois.edu if you have any questions.

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