DEPARTMENT UNIT SAFETY COORDINATOR’S SEMINAR

Wednesday, November 13th, 2019
10:00am – 11:50am
Memorial Union, Horizon Room
Agenda

10:00 – 10:05  Welcome (Tom Doyle, EH&S)
10:05 – 10:25  Training & Lab Safety Updates (Tom Doyle, EH&S)
10:25 – 10:35  Hazardous Waste: the 4 L’s (Machelle Bamberger, EH&S)
10:35 – 10:40  Fire Prevention Program Update (Jim Patton, EH&S)
10:40 – 10:45  Q & A

** 10-Minute Break **

10:55 – 11:10  Near-Miss “Good Catch” Reporting (Hannah Glaspell, EH&S)
11:10 – 11:25  Ergonomics Program (Marcus Silkman, EH&S)
11:25 – 11:40  Shared Space Safety (Jenette Paul, EH&S)
11:40 – 11:45  Chemical Reuse (Rusty Root, Chem Stores)
11:45 – 11:50  Q & A - Future topics?
TRAINING AND LAB SAFETY UPDATE

Tom Doyle
Director, Environmental Health and Safety (EH&S)
Training Update

- Safety & Health Courses - [Vivid Online Association](#)
- Learning Management System (LMS) – [OSU Bridge](#)
  - 1st Phase - Lab Safety, July 2019
  - 2nd Phase - Shop Safety & Facility Services, Oct 2019 (e.g., Electrical Safety, Ladder Safety, Lock-Out-Tag-Out, Hazard Communication etc.)
- EH&S Training Materials [https://ehs.oregonstate.edu/training/training-materials](https://ehs.oregonstate.edu/training/training-materials)
- Current project - improve recordkeeping & reporting
- Next phase – add new courses (e.g., Emergency Preparedness)
Lab Safety Update

- Enterprise Risk Management Report – Lab Safety
  https://leadership.oregonstate.edu/trustees/meetings/academic-strategies-committee-meeting-10172019

- Office of Audit, Risk and Compliance
  https://leadership.oregonstate.edu/oarc/risk

- 2019 Enterprise Risk Management Topics
  https://leadership.oregonstate.edu/sites/leadership.oregonstate.edu/files/tab_d_enterprise_risk_management.pdf
Challenges and Opportunities Lab Safety Presents for OSU (all universities)

- Inexperienced lab workers
- High turnover
- Academic Freedom
- Decentralization
- The “Institutes”
- Variable Funding
- Research Focus
- Foreign Students

The Double Challenge: Laboratory Safety in Academia, Robin Izzo, Executive Director EHS, Princeton University (http://www.princeton.edu/~rmizzo/The%20Double%20Challenge)
Progress - Key Accomplishments

- Successful Regulatory Inspection
- New Safety Training
- Laboratory Safety Coat Program
- Increase in Lab Safety Training
- Increase in Hazardous Waste Pick-ups
- Lab Safety Assessments (Inspections)
- Fume Hood Testing Program
- Revival of the DUSC Department Unit Safety Coordinator Seminars (DUSC)
- Safety Beaver Buzz Newsletter
- Biosafety Program
- Printing and Mailing Services/EH&S - Hazmat Shipping Space Sharing
Emerging Trends
Types of Safety Cultures

- GENERATIVE: Safety is how we do everything round here
- PROACTIVE: Safety leadership and values drive our continuous improvement
- CALCULATIVE: We have systems in place to manage all hazards
- REACTIVE: Safety is important, we do a lot every time we have an accident!
- PATHOLOGICAL: We don’t care as long as we’re not caught!

Hierarchy of Safety Controls

- Elimination/Substitution
  - Requires a physical change to the workplace
- Engineering Controls
  - Most Effective
- Administrative Controls including Work Practices
  - Requires worker or employer to do something
- Personal Protective Equipment
  - Least Effective
  - Requires worker to wear something

What does success look like?

The Goal

Motivation (leadership)
- President & senior leadership (Deans, Provost, Dept Heads, Directors, PI’s, etc…) spend time focusing on safety
- Lead by example
- Reward safety consciousness
- Make part of annual performance evals

Trust (reporting)
- Organization wide sharing of safety concerns & responsibility
- No-blame, accept responsibility and be accountable
- Reporting incidents

Expertise (implementation)
- Financial support
- Support from EHS
- Inclusion of safety in all training
- Unit safety committees
- Standard operating procedures
- Review of new hazardous procedures

Next Steps

- Adopt APLU “A guide to implementing a Safety Culture in our universities”
  - Update commitment to [Advancing Lab Safety](#)
  - Revise OSU Safety and Health Policy
  - Lab Safety - periodic agenda item at Provost and College Deans meetings
  - Topic of discussion at PI lab meetings
- Further development of Department Unit Safety Coordinators (DUSC)
  - College of Ag Science
  - College of Engineering
- Improve learning management system (LMS)
- Improve EH&S information management system
  - Hazardous material inventory module
- Near miss reporting
  - Accident prevention measure
- Education and training
  - Hosting seminars on Lab Safety
THE 4 L’S OF HAZARDOUS WASTE MANAGEMENT

Machelle Bamberger, Hazardous Waste Safety Officer
Introduction

• LABEL
• LID
• LEAKS
• LOCATION
✓ Provide Contact Name.
✓ Provide building name and room number where the waste was generated.
✓ List all contents and Percent volume in English, including water.
✓ Chemical abbreviations or nomenclature ARE NOT ACCEPTABLE.
✓ Check the appropriate boxes for the type of waste.
Lid

✓ Always keep the container closed, except when physically adding waste.

✓ Hazardous effluent containers from lab instruments must have leak tight lids.
Leaks

✓ Use Secondary containment for all Liquid waste.

✓ For solids, sealable plastic bags are acceptable.

✓ All containers must be clean and free of contaminants on the outside.
Location

✓ Keep waste in the room where it was generated.

✓ Placing waste into EH&S supplied Gray Tubs helps EH&S staff locate your waste during pickups.
Helpful Information

• EH&S provides at no cost:
  - Waste containers, you can order them at [online waste pick up request form](#).
  - Hazardous waste consultations, call us today at 541-737-2273.
  - Disposal of hazardous waste and universal waste such as batteries, lamps and used oil.
  - Lab Clean outs of old and expired chemicals, you can set this up by using [online waste pick up request form](#).

• EH&S also has a Chemical Reuse Program
  - To donate unexpired chemicals use [online waste pick up request form](#).
  - To obtain a chemical at no cost in the program, just go to OSU ChemStores and request chemical you need from Reuse Program.
FIRE PREVENTION PROGRAM UPDATE

Jim Patton, Fire Safety Officer
A NEAR-MISS REPORTING SYSTEM AT OSU

Environmental Health & Safety
Hannah Glaspell - Intern
Purpose & Goals

• EH&S is implementing a Near-Miss Reporting System in order to
  1. Gain both qualitative and quantitative insight to the factors leading to accidents in the OSU community
  2. Build a stronger safety culture and increase the level of alertness to risk
  3. Improve the safety and health of our faculty, staff, and students

• We need your participation recognizing and reporting near-misses to make this program successful
Why are Near-Misses Important?

• Near-miss incidents precede losses but are often overlooked
• Recognizing and reporting near-miss incidents can improve worker safety because they are considered warnings of potential accidents
What is a Near-Miss?

• An unplanned event that **did not** result in injury, illness, or damage but had the potential to do so.

• A Near-Miss is an opportunity to improve health and safety, prevent environmental damage, and ensure the security of an operation.
Examples ofNear-Misses

• Unsafe conditions
  • Inadequately guarded or unguarded equipment such as a saw or blade
  • Poor housekeeping such as cluttered surfaces or obstructed walkways

• Unsafe Behaviors
  • Neglecting to wear personal protective equipment (PPE)
  • Moving or working to quickly and with incorrect posture or technique.

• Injury that could have occurred but didn’t
  • An employee walks through the office and almost trips on an extension cord but catches self on the corner of a nearby desk.

• Events where a safety barrier is challenged
  • Chemical spill within a fume hood, projectile hits safety glasses, etc.
Recognition and Reporting

• It will take time and practice to recognize near-misses in your workplace
  • Materials for near-miss recognition can be provided by EH&S
• If you think it was a near-miss, go ahead and report it.
• Encourage your coworkers and students to report them as well.
Barriers to Reporting

1. Fear of disciplinary action, fear of peer teasing, and fear of a lengthy investigation.
2. Motivational issues such as a lack of incentive and unsupportive management.
3. Lack of management commitment resulting in sporadic emphasis.
4. Individual confusion as to what constitutes a near miss and how it should be reported.
What you can do to remove barriers

• Use EH&S training materials and resources to clearly communicate to principal investigators (PIs), employees, and students what qualifies as a Near-Miss.

• Remind PIs, employees, and students that there will not be any penalty for reporting a Near-Miss.

• Commit to recognizing, reporting, and addressing Near-Misses within your department, lab, or shop.

• Encourage reporting be providing appropriate incentives or rewards for recognizing Near-Misses.
Reporting Instructions

Encourage students, lab managers, and PIs to complete a report as soon as possible after a near-miss.

There are two ways to report Near-Misses:

1. Online: use the following link (or by navigating to the Forms page on the EH&S website) my.ehs.oregonstate.edu/qualtrics/near-miss
   • Online form requires an ONID login

2. On paper: a printed copy sent to the EH&S office or can be scanned in and sent to safety@oregonstate.edu
Thank you for taking the time to complete a Near-Miss or "Good Catch" report. These reports help EH&S better understand what safety issues face students and employees on our campuses. EH&S may be in contact with you if we feel that we can assist in making your process or equipment safer.

**If any injury or property damage did occur, DO NOT fill out this form. Fill out an accident report or sharps injury report.**

This survey should take less than 5 minutes.

Please provide the following information for follow-up.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td></td>
</tr>
<tr>
<td>Department</td>
<td></td>
</tr>
<tr>
<td>Building/Lab</td>
<td></td>
</tr>
<tr>
<td>E-mail</td>
<td></td>
</tr>
</tbody>
</table>

When did the Near-Miss occur?

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td></td>
</tr>
</tbody>
</table>

Check all that apply to the situation being reported.

- Inappropriate PPE
- Other: ___
Near-Miss or “Good Catch” Report

Please complete the following form to the best of your knowledge. Include details when available. These reports help EH&S better understand what safety issues face students and employees on our campuses.

Name: ______________________ Building/Lab: ______________________ Date: ________________
E-mail: ______________________ Department: ______________________ Time: ________________

1. Check all that apply to the situation being reported:
   - [ ] Inappropriate PPE
   - [ ] Unsafe behavior of lab or shop members
   - [ ] Unsafe equipment (malfunctioning or improperly stored)
   - [ ] Inappropriate use of equipment
   - [ ] Other: ____________________________

2. Was there a written Standard Operating Procedure (SOP) for the task being performed? (Circle one)
   - [ ] Yes
   - [ ] No

3. If so, was the SOP being followed? (Circle one)
   - [ ] Yes
   - [ ] No

4. What was the potential severity of the near-miss?
   - [ ] High - fatality, permanent injury, or significant property damage could have occurred
   - [ ] Moderate - serious injury or moderate property damage could have occurred
   - [ ] Low - minor injury, light property damage, or experiment contamination

5. What is the probability that a similar near-miss or a potential incident will take place?
   - [ ] High - task occurs frequently and by numerous individuals
What happens after you report?

Recognition → Disclosure → Prioritization

Distribution → Causal Analysis → Solutions and Dissemination
Prioritization helps determine the:

1. Level of attention given to the report
2. Depth of causal analysis that will be performed
3. Resources that will be dedicated to finding and implementing solutions
4. Extent to which the information will be disseminated

Near-Misses Prioritized based on:

1. Potential Severity
2. Probability of Recurrence
3. Extent of Safety Barriers
4. Breadth of Applicability
5. Corrective Actions Taken
Causal Analysis

• Causal analysis includes both direct- and root-causes of the near-miss.
• The extent of the causal analysis is determined by the priority of the near-miss.
Solutions and Dissemination

• Identified causes will be addressed with solutions

• Dissemination:
  • Active parties will be informed of solutions and corrective actions
  • Share the near-miss and solutions with the whole department, college, or the university at large
ERGONOMICS PROGRAM

Marcus Silkman, Occupational Safety
Program Overview

• Office Ergonomics
  • Ergopoint
  • Assessments
  • Lending Library

• Lab Ergonomics
  • Assessments
  • Resources

• Safety In Motion (SIM) Training
  • Train the trainers
  • Material Handling

• SAIF
  • Additional Support
  • Quick Reference Materials
SHARED SPACE SAFETY

Information and Best Practices for Maintaining Health & Safety Elements in Shared Lab Spaces

Jenette Paul, Laboratory Safety Officer
Shared Lab Spaces

Many laboratories on campus (shops too perhaps) are transitioning from individual lab rooms to shared spaces in order to increase resource efficiency.

- Examples: Johnson Hall, LPSC, new building at Hatfield in Newport

Because there are many different PI groups and researchers involved, health and safety concerns can sometimes be difficult to address.
## Examples of Shared Lab Spaces

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Open lab concept with multiple lab benches assigned to separate PIs/lab groups (e.g. LPSC, Johnson Hall)</td>
</tr>
<tr>
<td>2</td>
<td>Lab or equipment rooms maintained by the department and available for use for all researchers or students.</td>
</tr>
<tr>
<td>3</td>
<td>Lab rooms that belong to a specific PI but one or more pieces of equipment are available to other researchers.</td>
</tr>
</tbody>
</table>
### Factors Affecting Safety in Shared Labs

<table>
<thead>
<tr>
<th>Physical Size of Lab</th>
<th>Diversity of Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overcrowding and lab orientation</td>
<td>Variety of hazards and equipment, each</td>
</tr>
<tr>
<td></td>
<td>with their own training and maintenance</td>
</tr>
<tr>
<td></td>
<td>burdens.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Researchers/PIs</th>
<th>Experience/Turnover of Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple PIs working autonomously in</td>
<td>Large numbers of employees, frequent</td>
</tr>
<tr>
<td>their research, but must work together</td>
<td>turnover, and employees at various</td>
</tr>
<tr>
<td>on safety.</td>
<td>stages in their research careers</td>
</tr>
</tbody>
</table>

**Shared Lab**
Common Challenges Encountered by Shared Labs

Lack of Individual Accountability
- Ex) What is in this chemical bottle? Who forgot to label it?

Hazard Communication Amongst Lab Groups
- Ex) I am working with a highly air-reactive chemical and it is a new process to my employees. Maybe I should let my neighboring lab groups know to avoid my side of the lab and what the potential hazards are with this process?

Lack of Mechanisms for Resolving EH&S matters
- Ex) What is in this chemical bottle? Do I send an email out to 50+ employees to find out? Do I re-train all of them? Who can I talk to about it?

Training Maintenance and Documentation
- Ex) Did Jenette do her training? I can’t see her training records but she works in my lab space and uses my equipment…

Poor General Housekeeping
- Ex) What you do (or don’t do) at one bench, affects the groups at all the other lab benches.
Demonstrate a Commitment to Safety

- Conduct regular (quarterly) meetings for all PIs and/or Lab Managers that occupy the shared space. Topics to discuss include:
  - standardizing safety expectations (e.g. do they put their coat on at the door or once they get to their lab bench?).
  - hazard communication discussions (e.g. what are the high hazards in your space that my employees need to know about?).
  - safety issues arising in the lab that may need to be discussed (e.g. someone keeps forgetting to fill out a waste label correctly).
- What occurs at one lab bench can and may affect employees from another lab group; stress the importance of safety to employees during lab meetings.

The One Minute Manager by Kenneth Blanchard
Establish Housekeeping Guidelines

- Work with the other PIs in your area to conduct frequent lab clean-ups.

- Establish labeling procedures so employees immediately know who owns what. Options such as color-coding labels (i.e. colored stickers or tape) or listing PI’s name.

- It is important to make a strict policy that if chemicals are not labeled correctly within 7-days, they will be removed as hazardous waste.

- Remind employees that what they do at their lab bench also affects employees of other lab benches.
Consistent Onboarding/Training

- Make a commitment to ensure employees have completed OSU Lab Safety Training Program prior to starting work in the lab.
- If all the PIs in the lab agree on certain lab expectations that are more strict than the standard EHS requirements (e.g. color coded labeling), you can share the “Shared Lab Space Guidelines” with employees as part of their onboarding.

OSU Laboratory Safety Training Program (2019)

The OSU Laboratory Safety Training Program is a series of six short courses packaged into our training program totaling less than 2 hours. You will have 30 days to complete the program.

LET’S GET STARTED
Equipment Sharing

- Designate a competent individual who will be the main person training and maintaining the equipment. This person should be the one documenting training and ensuring there is an SOP for the equipment. For example: many autoclaves are located in shared department facilities but EHS has gotten multiple complaints that users are not trained by a competent individual.

- Posting SOPs and a “trained individual” list next to the equipment can remind new employees that they must go through training.

- Information on who the competent individual is and what training requirements you have for the equipment can be put in your “Shared Space Guidelines” document.
Empower Employees/Delegate

- Labs should be conducting annual self-assessments, however EHS suggests increasing the frequency to monthly for shared labs. Each month assign a different employee to do a safety walkthrough in their lab area and the nearby lab areas. This allows the employees to feel like they have an active part in their own safety and their fellow colleagues’ safety.

- It is important your employees feel empowered to say something if they see an unsafe lab behavior (e.g., lack of PPE). Many shared spaces share a “mob mentality” when it comes to wearing PPE.
Questions?

If you have any additional tips or tricks that you use in your shared lab space that you would like to tell us about, please email me at Jenette.paul@oregonstate.edu
References


Utilizing Chemistry’s Chem Store to reduce Chemical Waste

Rusty Root

Coordinator-Building Services
Chem Purchasing/Facilities/Building Management
143 Gilbert Hall

rusty.root@oregonstate.edu

PH: 541-737-6722   Cell: 541-231-9243
Utilizing Chemistry’s Chem Store to reduce Chemical Waste

• Program started in July 2018
• EH&S brings new, sealed, unexpired chemicals to Chem Stores
• The are available for “purchase” to anyone with a valid index at no-cost

• Since July ’18,
  • 109 containers have been recovered
  • 51 have been re-distributed
  • There is an average 34 items available
Utilizing Chemistry’s Chem Store to reduce Chemical Waste

• How to find Free Chemicals?

  • [https://chemstores.chem.oregonstate.edu/](https://chemstores.chem.oregonstate.edu/)
  
  • [Chemical Catalog]

  • Web Browser Search (CRTL + f)

  • Search “EHS” to find free chemicals
Utilizing Chemistry’s Chem Store to reduce Chemical Waste

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<tr>
<th>Product Name</th>
<th>Location</th>
<th>Stock Left</th>
<th>Price</th>
<th>Product No.</th>
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<td>IRON (II) NITRATE 9-HYDRATE, ACS &gt;98.0% (500g) - EA</td>
<td>C.O2</td>
<td>3</td>
<td>$59.33</td>
<td>V9J0R1</td>
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<tr>
<td>ISOPROPL ACETATE, 99+%, EA</td>
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<td>$0.00</td>
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<tr>
<td>LaSiTe (Sb, Bi) Electroplating Gel stain (1L) - EA</td>
<td>C-43</td>
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<td>$50.00</td>
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<tr>
<td>LACTIC ACID, ACS &gt;98% (500g) - EA</td>
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<td>U3L0D</td>
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<td>2</td>
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<tr>
<td>LITHIUM DIMETHYLACETACETATE, 250g - EA</td>
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<td>6</td>
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<td>METHANOL, ORGANIC LCM (500L) - EA</td>
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<td>METHANOL, ACS/VSP - 1 GAL (NEED OWN BOTTLE)</td>
<td>DB</td>
<td>42</td>
<td>$15.00</td>
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Utilizing Chemistry’s Chem Store to reduce Chemical Waste

• 11/12/19 Free Inventory

<table>
<thead>
<tr>
<th>SKU</th>
<th>Title</th>
<th>Stock</th>
<th>SKU</th>
<th>Title</th>
<th>Stock</th>
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<tbody>
<tr>
<td>EHS003</td>
<td>AMMONIUM SULFAMATE, (500G), - EA</td>
<td>1</td>
<td>EHS045</td>
<td>PLATINUM OXIDE (1g) - EA</td>
<td>2</td>
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<tr>
<td>EHS004</td>
<td>AZOSULFAMIDE (100G) - EA</td>
<td>1</td>
<td>EHS046</td>
<td>PLATINUM(IV) OXIDE (250mg) - EA</td>
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<td>EHS005</td>
<td>2-PHENLHYDROXETHANOL (1L) – EA</td>
<td>1</td>
<td>EHS048</td>
<td>PALLADIUM 10% ON ACTIVATED WOOD CARBON (10g) - EA</td>
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<tr>
<td>EHS006</td>
<td>TRIZMA BASE (1KG) 99% - EA</td>
<td>1</td>
<td>EHS050</td>
<td>XYLENES (18.9L) - EA</td>
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<tr>
<td>EHS007</td>
<td>MALACHITE GREEN (25g) – EA</td>
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<td>EHS052</td>
<td>METHYL SULFOXIDE 99.7% PURE 100ML - EA</td>
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<tr>
<td>EHS008</td>
<td>THIMEROSAL (100g) – EA</td>
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<td>EHS053</td>
<td>METHANOL OPTIMA LC/MS 4L - EA</td>
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<td>EHS011</td>
<td>N,N - DIMETHYL FORMAMIDE (4L) BIOSYNTHESIS – EA</td>
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<td>EHS055</td>
<td>POTASSIUM BROMIDE ANHYDROUS 99.95% 25G - EA</td>
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<td>EHS022</td>
<td>SODIUM PHOSPHATE DIBASIC HEPTAHYDRATE (500g) – EA</td>
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<td>ZINC ACETATE, 500G - EA</td>
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<td>EHS025</td>
<td>ALUMINUM SULFATE 18 HYDRATE (500g) – EA</td>
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<td>EHS057</td>
<td>TRIETHANOLAMINE &gt;99.0%, 500mL - EA</td>
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<td>EHS032</td>
<td>SUCCINIC ANHYDRIDE (250G) - EXPIRED – EA</td>
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<td>LITHIUM CHLORIDE ACS, 500g - EA</td>
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<tr>
<td>EHS036</td>
<td>ETHANOLAMINE &gt;98%, 100ML - EA</td>
<td>3</td>
<td>EHS059</td>
<td>ZINC CHLORIDE, 100g - EA</td>
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<tr>
<td>EHS038</td>
<td>PHENOL, LIQUIFIED, 100ML - EA</td>
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<td>EHS060</td>
<td>N,N,N’,N’-TETRAMETHYL-ETHYLENEDIAMINE, 100mL - EA</td>
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<td>EHS039</td>
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<td>ISOAMYL ACETATE, 500mL - EA</td>
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<td>LITHIUM DIETHYLAMIDE, 250G - EA</td>
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<td>EHS062</td>
<td>HEXANE ANHYDROUS 95%, 100mL - EA</td>
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<td>EHS043</td>
<td>LITHIUM CHLORIDE, GRANULAR (454g) - EA</td>
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<td>METHANOL ANHYDROUS, 1L - EA</td>
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<tr>
<td>EHS044</td>
<td>XYLENES (500mL) - EA</td>
<td>1</td>
<td>EHS064</td>
<td>ETHANOL, 200 PROOF ACS, 1L - EA</td>
<td>2</td>
</tr>
</tbody>
</table>

OSU Chem Stores, 7-2271, chemstores@oregonstate.edu
Questions?