

In this issue of the Environmental Health and Safety (EHS) Listserv, January 4, 2013:

1. Don't Let This Happen In YOUR Work/Research Area!
 2. Elements of Creating Safety Cultures in Academic Institutions: Leaders Advocate and Model Safety
 3. Do YOU Need to Prepare for an EPA Inspection?
 4. 2013 Flu Season Warning
-

1. Don't Let This Happen In YOUR Work/Research Area!

Recently, a UNL employee unintentionally plugged an oil bath directly into a wall socket instead of a transformer, which controls the amount of electricity sent to the heating elements. Without the transformer, the oil heated to its ignition (auto-ignition) temperature and caught on fire. The employee unplugged the oil bath and attempted to extinguish the fire with a dry chemical extinguisher. The powder from the extinguisher caused the hot oil to 'froth' but did not extinguish the fire. The employee then switched to a carbon dioxide extinguisher, which quickly extinguished the flames. There were no injuries and only slight damage to the chemical fume hood where the oil bath was located.

Dry chemical extinguishers are rated to extinguish flammable and combustible liquid fires. The frothing observed was likely due to one of two causes. The dry powder from a dry chemical extinguisher is forcefully expelled in order to reach greater distances and in an initially narrow stream to create a cloud upon contact. Used at close range, the narrow stream of dry chemical may strike pools of burning liquids causing them to splash. This could have caused the frothing.

An alternate explanation for the frothing is evolution of carbon dioxide gas. Dry chemical extinguishers commonly use bicarbonates as the active ingredient. These act to extinguish fires by decomposing in the presence of the flames to release carbon dioxide. Sodium bicarbonate decomposes at about 270 C. Oil must reach a temperature of about 330°C to self-ignite. Thus, any sodium bicarbonate that entered the oil would have decomposed evolving carbon dioxide gas and causing the oil to froth.

Oil fires can re-ignite if the oil remains above its ignition temperature so removing exterior sources of heat is critical. For the same reason, covering the fire with a non-combustible item (i.e., a lid) is also effective as this will prevent air from reaching the oil which is a needed component for a sustained fire. .

The possibility of this type of incident might have been captured in the laboratory risk assessment which evaluates all components of research being conducted in the laboratory and job tasks of workers/researchers to identify hazards, assess the likelihood of occurrence, and develop mitigating strategies. In this case, the procedure for using oil baths would include a step that the user make sure that the oil bath is plugged into a transformer which controls the amount of electricity sent to the heating elements and NOT plugged directly into a wall outlet.

- EHS web-based training <http://ehs.unl.edu/training/online>
 - **Fire Extinguisher Training**
 - **General Electrical Safety Awareness**
- **Job Safety Assessments** SOP <http://ehs.unl.edu/sop/s-JSA.pdf>
- **EHS Listserv** (Risk Assessment series 7/31/12, 8/31/12, 9/27/12, 11/1/12) <http://ehs.unl.edu/listserv>

2. Elements of Creating Safety Cultures in Academic Institutions: Leaders Advocate and Model Safety

As you may recall from previous issues of the EHS listserv, there has been a great deal of national attention given to the topic of laboratory safety in higher education following investigations of serious incidents at UCLA and Texas Tech. As a result, the American Chemical Society (ACS) recently issued a report, ***Creating Safety Cultures in Academic Institutions***. While this report is focused on laboratory safety, its content is applicable to all campus settings. This report contained seventeen specific recommendations for creating vibrant, strong safety cultures in academic institutions. Each of these recommendations will be highlighted individually and presented as a series in the EHS listserv. This is the second issue in the series, and therefore highlights the second recommendation contained in the ACS report.

The second recommendation in the ACS report is: ***Encourage every leader to become a proponent of safety and safety education, and to demonstrate this care for safety in their actions with other staff members and students.***

Leaders of the academic institution must demonstrate that they value safety and expect others to follow. There should be a clear and consistent effort to build and maintain strong safety awareness. Leaders are the key to building a strong culture of safety. They inspire others to value safety, seek open and transparent communication to build trust, lead by example, accept responsibility for safety and hold others accountable for safety.

Leaders can promote safety by:

- Effectively identifying, planning for and mitigating to the extent possible, hazards inherent to their particular area of work/research.

- Repeatedly encouraging all in their sphere of influence to be accountable for the safety of themselves and their co-workers.
- Evaluating previous incidents toward the goal of communicating lessons learned, whether the incident occurred locally or in another institution of higher learning.

Who is a leader in the workplace/research lab/teaching lab? The answer is basically EVERYONE. Faculty, Principal Investigators, Postdoctoral scholars, Laboratory/Work area Managers, and Graduate Teaching Assistants are those we think of first. But anyone whose work/safety practices may be observed by others should consider themselves a 'model of safety' for others in their area.

Every member of the campus community is encouraged to adopt the "Safety Ethic" articulated in the ACS report: "Value safety, work safely, prevent at-risk behavior, promote safety, and accept responsibility for safety." Be an advocate of safety and model safety in your work area.

Resources:

- Creating Safety Cultures in Academic Institutions
http://portal.acs.org/portal/PublicWebSite/about/governance/committees/chemicalsafety/CNBP_029720
- ACS Committee on Chemical Safety resources <http://www.acs.org/safety>

3. Do YOU Need to Prepare for an EPA Inspection?

Review the EHS **Waste Management** Safe Operating Procedures (SOPs) and if you use/dispose of chemicals or any of the other items listed, YOU need to prepare. UNL is subject to unannounced inspections by the Environmental Protection Agency (EPA) and/or Nebraska Department of Environmental Quality (NDEQ), to assess compliance with waste management regulations. These inspections typically occur every 2-3 years. We anticipate an inspection sometime during the next several months.

As a reminder, if you are the subject of such an inspection:

- Review the **Items/Materials Prohibited from Trash Cans and Dumpsters** SOP.
- Review your work area. Make sure that all containers are closed, properly labeled, in good condition, and located in the same area where the waste was generated.
- If an inspector visits your work location, answer their questions honestly, but answer **only** the question asked. There is no need to volunteer information. After you have answered the inspector's question, wait silently and patiently for their next question.

- Avoid the temptation to keep talking because silence is uncomfortable. If you don't know the answer to a question - **don't guess** just say that you don't know. You may direct the inspector to your supervisor or someone else who may know the answer.

Resources:

- **State or Federal Hazardous Waste Inspections** SOP http://ehs.unl.edu/sop/s-state_fed_inspections.pdf
- **Waste Management** SOPs <http://ehs.unl.edu/sop/waste-management>

4. 2013 Flu Season Warning

Seasonal flu (influenza) is a contagious respiratory illness caused by viruses. The flu season typically peaks in January or February. This year the season has begun early, suggesting it could be a bad year for the illness. The Centers for Disease Control and Prevention offers information on prevention and treatment for the general public and health professionals both, including news and updates as the season progresses.

Following are a few tips to protect yourself and others:

- Get vaccinated. A flu shot is the best way to stop the spread. The CDC recommends that everyone 6-months of age or older get vaccinated.
- Wash your hands often, especially after coughing or sneezing. Soap and scrub at least 20 seconds to kill the germs on your hands.
- Cover your cough or sneeze, using your elbow, NOT your hand. Flu is primarily spread through droplets expelled when infected people cough, sneeze, talk.
- Wipe down your work area regularly with disinfectant wipes, especially items you touch often like door handles and shared equipment.
- Stay home when sick.

Resources:

- CDC Seasonal Influenza (flu) Resources <http://www.cdc.gov/flu/freeresources/>
- U.S. Department of Health & Human Services <http://www.flu.gov/#>

Remember...SAFETY IS AN ATTITUDE!

Environmental Health and Safety
University of Nebraska-Lincoln
3630 East Campus Loop
Lincoln, NE 68583-0824
(402) 472-4925
<http://ehs.unl.edu>