

Open Flame Use in Biosafety Cabinets

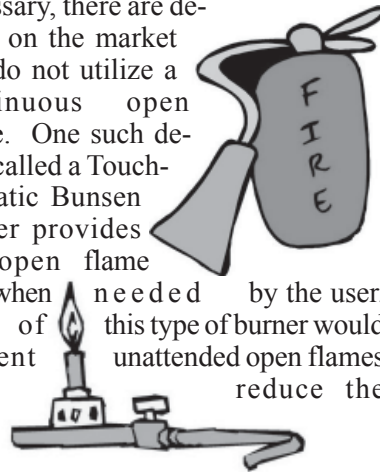
By Robert Golden

In recent months, there have been several fires inside the work areas in Biosafety Cabinets and Laminar Flow Clean Benches in laboratories. These fires started because open flames from Bunsen burners ignited flammable material. In one case, a clean wipe came into contact with an open flame and in another, paper towels that had been soaked with ethanol ignited.

Fortunately, no one was injured and property damage was contained to inside the cabinetry. The cost to repair cabinets damaged by fire can be substantial and could include decontamination, filter replacement, recertification, clean up, work surface repair or replacement, not to mention damage done to the surrounding area by smoke and water. There is also the potential for

emergency personnel to be exposed to biohazardous agents.

The Center for Disease Control (CDC) does not recommend open flames in Biosafety Cabinets. Instead, CDC recommends using sterile equipment and surface decontamination prior to beginning bio-applications. When a flame is necessary, there are devices on the market that do not utilize a continuous open flame. One such device called a Touch-O-Matic Bunsen burner provides an open flame only when needed by the user. Use of this type of burner would prevent unattended open flames and reduce the



possibility of fire-related damage or injury. Another device that can be used to sterilize equipment without a flame is called a Hot Glass Bead Dry Sterilizer. There are similar models manufactured and available on the market. See examples below:

EF3578 Touch-O-Matic Burner Mixed Gas from Daigger Laboratory Equipment and Supplies (1-800-621-7193) <http://www.daigger.com/catalog/product?deptId=Burners&prodId=3578>

EF9955AX Hot Glass Bead Dry Sterilizer: Uses dry heat (250°C) to sterilize instruments. <http://www.daigger.com/catalog/product?deptId=Sterilizers&prodId=9955AX>

If you have any questions, contact Robert Golden at rwwgolden@purdue.edu or call 49-41496.

Integrated Safety Plan: Promoting a Culture of Safety

By Judah Young

Executive Memorandum C-36, the Revised Environmental Health and Safety Compliance Policy, appoints the Vice President for Physical Facilities (Wayne Kjonaas) as the Environmental Health and Safety Compliance Officer (OSHA Officer) for Purdue University. C-36 requires Purdue staff to comply with all applicable environmental health and safety (EHS) laws, policies, procedures, and instructions. The OSHA Compliance Officer is responsible for and authorized to

develop and implement EHS programs and coordinate and monitor compliance.

With the concurrence of the Vice President for Research, the University OSHA Officer is also authorized to certify a safety program. The Integrated Safety Plan (ISP) is the safety program developed to provide a structure for Vice Presidents, Chancellors, Deans, Directors, and Heads of Schools, Divisions, Departments, and Offices to cooperate with the University OSHA Officer. The ISP assists in communication of EHS issues across the organization and calls

for departmental level safety committees, and individual self-audits. The ISP provides indemnification from regulatory fines for units with a certified safety program. Radiological and Environmental Management (REM) acts as an agent of the OSHA Compliance Officer to certify a safety program.

Implementing the Integrated Safety Plan in your department begins with a safety committee that serves as a source of safety information for staff and requires the support of directors, deans,

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Safety Training Requirements



By Linda Swihart

The Occupational Safety and Health Administration (OSHA) writes volumes of rules designed to protect and improve workplace safety and health, and most of these rules require that safety training be administered to employees. Many of the rules include explicit instructions about **who** must receive the training, **when**, **how often**, and **what** the training must include, and or what the training must accomplish (performance criteria).

For example from 29 CFR 1910.1450, the Laboratory Standard: “The employer shall provide employees with information and training to ensure that they are apprised of the hazards of chemicals present in their work area.” The Standard continues with a description of the required content of the

information and training as well as some required outcomes.

Another example, 29 CFR 1910.1030, Bloodborne Pathogens Standard includes the requirement “*The training program shall contain at a minimum the following elements...*” and lists 14 explicit requirements followed by “*the person conducting the training shall be knowledgeable in the subject matter covered by the elements contained in the training program as it relates to the workplace that the training will address.*”

REM offers many training programs and can provide information about available training materials that cover the basics of many common hazardous activities in lab and non-lab work areas. These include chemicals, radioisotopes, forklift

operation, biohazards, cranes and hoists, lasers, x-rays, machinery, compressed gases, centrifuges, cryogenics, PPE, confined space entry, electrical safety, PPE, hearing conservation, fall protection, ergonomics, and lockout/tagout.

Many training programs are also open to graduate students regardless of employment status.

If any department or any supervisor would like assistance from REM to satisfy some of their training responsibilities, they are encouraged to contact REM regarding training programs. Below are some of the training topics and contacts. See the REM website “Program Summaries” section for a more complete list.

Training	Applies To These Employees	Contact
Biosafety Awareness	At risk for exposure to biohazardous materials	Robert Golden
Bloodborne Pathogens	With potential exposure blood or blood products	Robert Golden
Chemical Hygiene Plan	Engaged in laboratory use of chemicals	Linda Swihart
Ergonomics	At risk for posture or motion injury	Regina Brummett
Hazard Communication	Engaged in non-laboratory use of chemicals	Lila Albin
Hazardous Materials Shipping	That ship hazardous materials and specimens off campus	Lanie Hazlewood
Lockout/Tagout	With potential exposure to uncontrolled energy	Don Campbell
Personal Protection	Whose work requires any personal protective equipment	Kristi Evans
Respiratory Protection	Wearing air-purifying or air-supplying respirators	Steve Jurss
Worker Protection	Working with or near applied pesticides	Judah Young



Potable Water Sources

By Robert Golden

In new buildings there are two distinct water systems, potable and general use. Each system is routed through a back-flow protection device that prevents potential contamination sources from inside the building (labs, mop sinks, cooling water, cross-connections) from reaching the main distribution system. Water sources in older buildings are also designated as being potable and general use with the difference being that individual back-flow devices do not separate them. The only water that

should be consumed in any building is from the potable water source, i.e., drinking fountains, kitchenette sinks, and restroom sinks. All other water sources inside the building are defined as part of the general use system, i.e., laboratory sinks, service sinks, RO and distilled water, wall faucets, etc... and should not be consumed either directly or used for beverages. If you have any questions, contact Robert Golden at, rwgolden@purdue.edu or call, 49-41496.



The Keys to Lifting Safely

By James Schweitzer

Most of us have experienced a sore back. Was it repetitive motion, overexertion, or just something you couldn't put your finger on? Many of the cases of back injuries are just transient but can be linked to improper lifting, poor posture, or not being in shape. OSHA statistics show back injuries always rank at or near the top for workplace injuries. Both at home and on the job it is important to focus on a few keys to ensure that the item you need to move is done safely. It is important to plan before lifting and carrying heavy loads. Take these items into consideration before plunging into the task:

- Examine the object. Check the weight listed on the packaging, or try tilting a corner to estimate the weight.
- If the object is too heavy or too awkward to lift by yourself, get a handtruck or other persons to help you. Don't try to be a superhero!
- Get a good grip on the item. Wearing gloves may make it easier to lift and they will protect you from scratches, splinters and bruises.
- Maintain solid footing. Wear safety footwear with non-skid soles to prevent falls and with safety toes to protect you in case you drop the item on your foot.

- Know where you are going to put the load before you pick it up.
- Arrange your work area and tasks to minimize lifting. Store frequently-used materials in elevated locations so you do not have to lift them from the floor.

If you decide that you are able to lift the load safely, remember these keys:

- Get as close as possible to the load.
- Position your feet approximately shoulder-width apart. If necessary, straddle the load.
- Tuck in your backside, and bend your knees.
- Never bend from the waist or stretch out your upper body.
- Squat down, and lift the load by using the strength of your leg muscles, rather than your back.
- Never twist your body when carrying a load. If it is necessary to turn, move your feet, rather than your body.
- Before you start to move with the load, be sure you can see over it.
- When setting down the load, make sure you do not put strain on your back by bending over. Squat down again if necessary.

Integrated Safety Plan

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and administrators. Committees should meet regularly to provide an opportunity for self-evaluation as well as time to discuss emerging safety issues and accident trends. REM staff are available to help facilitate these meetings if needed. REM will also assist with the hazard assessment, review self-audit checklists, monitor regulatory compliance, and provide other EHS services.

Measures used to determine success are based on criteria that include the formation or expansion of a departmental safety committee that consistently communicates EHS information in a timely fashion. The desired outcomes of the ISP are:

1. Integrate environmental health and safety into the learning, discovery, and engagement mission at Purdue
2. Ensure individual accountability
3. Assure a proactive system is in place to address environmental health and safety issues
4. Improve the level and consistency of regulatory compliance, campus wide
5. Reduce Purdue employees injury rates through effective and timely communication and training

REM will evaluate the ISP process and results on a continuing basis and adjust the implementation plan as needed. REM will use the feedback received from departments, shared information, and accident and injury statistics as a measure of the success in achieving the desired outcomes of the ISP. REM will work with departments to develop criteria that best meet the shared goals of university compliance and departmental needs. To set up a safety committee, contact REM to schedule a meeting where a REM representative can review the requirements of the ISP and assist in developing or expanding your safety committee to encompass the ISP.

Laboratory Renovation Tips

By Kevin Thedans

If you are planning a laboratory renovation or repair, there are some easy steps to make the job go smoother and often times faster.

Begin by:

- Disposing of all unwanted chemicals as early as possible by contacting the REM hazardous waste section at 49-40238.
- Clean out all drawers and cabinets of debris and sharps, i.e. razorblades
- Decontaminate your fume hoods or biosafety cabinets.
- If your area handles radioactive materials, contact the REM Rad Safety section at 49-42350 and make arrangements for a contamination survey.

Finally, if you have questions concerning the renovation or repair job, you may contact the Project Manager from Facilities Planning & Construction. Following these procedures will help make a safer work place and reduce construction time.

Meet Our New Staff Member

REM is delighted to announce the appointment of Elena Dominguez as a Hazardous Materials Chemist. Elena received a B.S. in polymer chemistry in Spain. She received an M.S. in chemistry in Scotland and an M.S. in Natural Resources and Environmental Management (NREM) at Ball State University. Her research, phytoremediation of contaminated soils by used motor oil, appeared in three scientific publications. She received an outstanding graduate student award in 2002 and an outstanding graduate student thesis award in 2003 at NREM. She worked as an intern at Lee and Ryan Environmental Consulting in remediation and in chemistry at Sherry Laboratories. She enjoys swimming, painting, and hiking. Elena is located in HMMT, and may be contacted at 49-41510 or at eedominguez@purdue.edu.



Elena Dominguez
Hazardous Materials Chemist

Fire Equipment Services Joins REM

By Jim Schweitzer

As of September 2, the Fire Equipment Services Department (FES) will become a part of Radiological and Environmental Management. The FES group has principal responsibility for maintaining and testing building fire

alarms and inspecting and maintaining fire extinguishers. In addition, the group provides training and fire safety services for special events and construction. Kevin Thedans, Construction Health and Safety Coordinator, will serve as Manager for FES. Welcome Fire Equipment Services!

REM NEWS

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