

**In this issue of the Environmental Health and Safety (EHS) Listserv, February 21, 2011:**

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**1. Flammable, Corrosive, and Toxic Gas Safety**

Do you use/store/plan to work with hydrogen, anhydrous ammonia, carbon monoxide, hydrogen chloride or other flammable, corrosive, or toxic gases? If so, plan to attend the Laboratory Safety Colloquium February 22 or 23, 2011.

Environmental Health & Safety (EHS), in partnership with the Office of Research & Economic Development, is sponsoring a campus-wide Laboratory Safety Colloquium, **Flammable, Corrosive, and Toxic Gas Safety**, presented by Pam Hendershot, Praxair Specialty Gas & Equipment.

Five sessions are being offered so you can attend the one that best fits your schedule:

**Tuesday, February 22, 2011:**

East Campus Union from 3:30 – 4:30 p.m.

**Wednesday, February 23, 2011:**

Beadle Center, Room N176 from 9:30 – 10:30 a.m.

East Campus Union from 11:30 a.m. – 12:30 p.m.

Othmer Hall, Room 110 from 1:30 – 2:20 p.m.

Hamilton Hall, Room 104 from 3:30 – 4:30 p.m.

There will be a short question and answer period following the presentation, with refreshments available. No pre-registration is required.

Previous colloquia are available for online reference and review:

- Office of Research & Economic Development web site  
[http://research.unl.edu/lrj\\_9-06.shtml](http://research.unl.edu/lrj_9-06.shtml)
- Environmental Health & Safety web site  
<http://ehs.unl.edu/training/#colloquium>

**2. Carbon Monoxide – When Breathing Can Kill**

Recently a failed flue caused carbon monoxide poisoning of 42 UNL fraternity men. Luckily these men only became ill and no one died. When carbon monoxide builds up in enclosed or semi-enclosed spaces, “breathing can kill”.

Carbon monoxide (CO) is a colorless, odorless, tasteless gas that can cause sudden illness or death. CO is a product of incomplete combustion in cars and trucks, small gasoline engines, stoves, lanterns, burning charcoal and wood, and gas ranges, water heaters, and heating systems, for example.

Low levels of carbon monoxide poisoning cause symptoms similar to those of the flu or a cold, including shortness of breath on mild exertion, mild headaches, and nausea. Higher levels of poisoning lead to dizziness, mental confusion, severe headaches, nausea, and fainting on mild exertion. Ultimately, carbon monoxide poisoning can result in unconsciousness, permanent brain damage, and death.

According to the *Journal of the American Medical Association*, carbon monoxide poisoning is the leading cause of accidental poisoning deaths in America. Each year, more than 400 Americans die from unintentional CO poisoning, more than 20,000 visit the emergency room and more than 4,000 are hospitalized due to CO poisoning.

How can you address the hazard of carbon monoxide? Here are some tips:

- **Do** have your heating system, water heater and any other gas, oil, or coal burning appliances serviced by a qualified technician every year.
- **Do** seek prompt medical attention if you suspect CO poisoning and are feeling dizzy, light-headed, or nauseous.
- **Don't** use a generator, charcoal grill, camp stove, or other gasoline or charcoal-burning device inside your home, basement, or garage or near a window.
- **Don't** run a car, truck, forklift/powered-industrial truck, or other fuel-burning engine inside a garage or other enclosed and poorly ventilated space.
- **Don't** burn anything in a stove or fireplace that isn't vented.
- **Don't** heat your house with a gas oven.

If you have an attached garage, a gas stove or gas-powered furnace or hot water heater in your home or work area, you should have a battery-operated carbon monoxide detector. Follow the manufacturer's instructions for placement, cleaning, periodic testing, and replacement. A good practice is to check or replace the battery when you change the time on your clocks each spring and fall.

If the CO detector sounds, go outside immediately and call 911. Carbon monoxide detectors are intended to protect healthy adults. In the home, take the ages and health of family members into account when assessing the effectiveness of a detector.

Resources:

- Centers for Disease Control – Carbon Monoxide  
<http://www.cdc.gov/co/faqs.htm>

### 3. Cold Weather Stress

We tend to think of stress due to cold weather as a hazard that only exists in the middle of winter. However, cold stress occurs with extreme cold, defined as temperatures less than 50°F (10°C), varying with chill factor, wetness, and /or protection from wind.

Employees who work in cold environments and/or are exposed to extreme cold are at risk of suffering cold stress. Nebraska's average daytime temperatures fall within this definition for the months of November through March.

Several cold weather-related conditions may lead to serious health problems. The four main conditions are:

- **Hypothermia.** In cold weather your body may lose heat faster than it is produced. Prolonged exposure will eventually use up all your body's stored energy, resulting in an abnormally low body temperature. If low body temperature affects your brain, you may not be able to think clearly or realize you are in trouble. Warning signs include: shivering, fatigue and loss of coordination.
- **Frostbite.** Frostbite is an injury caused by freezing, characterized by reduced blood flow, leading to lack of feeling and color in the affected body parts. Most often the body parts affected are nose, fingers, toes, ears, cheeks or chin. Warning signs include: numbness, aching, tingling or stinging, bluish or pale skin, skin that feels unusually firm or waxy.
- **Trench Foot.** Can occur in temperatures as high as 60°F if your foot is constantly wet. Wet feet lose heat 25 times faster than dry feet. To prevent heat loss in such conditions, your body shuts down blood flow to your feet, so the skin dies due to lack of oxygen and nutrients as well as a build-up of toxic materials. Warning signs include: skin redness, bleeding under the skin, tingling pain, swelling, blisters or ulcers, numbness.
- **Chilblains.** Repeatedly exposing skin to temperatures from just above freezing to as high as 60°F can cause permanent damage to groups of small blood vessels in the skin, characterized by redness and itching that return with subsequent exposures. Body parts most often affected are cheeks, ears, fingers and toes. Warning signs include: redness, itching, possibly blistering/ulcers, inflammation.

NOTE: Warning signs are provided above as guidelines only. You may not experience all of the warning signs listed for each condition. ANY of the signs listed should be considered a WARNING.

Prevention is always the best policy to avoid cold stress. Here are some precautions workers should take if they must work in extreme cold:

- Appropriate clothing. Layered clothing, loose and not too tight, provides better insulation yet allows good blood circulation. Wear footwear designed for cold, wet conditions.
- Cover your head to reduce body heat loss. Protect ears, face, hands and feet.

- Try to schedule work for the warmest/driest/least windy part of the day. Take regular breaks in a warm, dry, and protected area. Limit the total amount of time outside during extremely cold weather.
- Do not touch cold metal surfaces with bare skin.
- Stay hydrated by drinking plenty of fluids, especially warm fluids. Avoid drinks with sugar and/or caffeine.
- Avoid exhaustion or fatigue, because energy is necessary to keep muscles warm.
- Be aware if you are taking medications that make you more susceptible to cold stress. Certain medical conditions also increase your risk: diabetes, high blood pressure, or cardiovascular disease.
- Monitor your physical condition and that of your co-workers. You may not be aware of warning signs that a co-worker would be able to observe.

A “Cold Stress Equation” chart available from the Occupational Safety and Health Administration (OSHA) will help you evaluate temperature/wind combinations to more safety work outdoors.

Resources:

- Occupational Safety & Health Administration (OSHA). “*Tips to Protect Workers in Cold Environments.*” [http://www.osha.gov/as/opa/cold\\_weather\\_prep.html](http://www.osha.gov/as/opa/cold_weather_prep.html)
- OSHA. “*Cold Stress Card-The Cold Stress Equation.*” <http://www.osha.gov/Publications/OSHA3156.pdf>
- Centers for Disease Control (CDC) & Prevention. “*Cold Stress.*” <http://www.cdc.gov/niosh/topics/coldstress/>
- CDC . “*Extreme Cold: A Prevention Guide to Promote Your Personal Health And Safety*” [http://www.bt.cdc.gov/disasters/winter/pdf/cold\\_guide.pdf](http://www.bt.cdc.gov/disasters/winter/pdf/cold_guide.pdf)

#### 4. Asbestos Awareness...and More

EHS has a new web-based training course called **Asbestos Awareness**. This course is designed as an “awareness level” training intended to familiarize you with the types of materials/articles that may contain asbestos, the hazards of asbestos, relevant asbestos regulations, and techniques that should be used to avoid an asbestos hazard.

This course, or the instructor-led equivalent, should be taken by UNL employees who conduct custodial and light maintenance types of activities and operations that, if done improperly, could disturb Asbestos Containing Materials (ACM). This course can raise awareness of potential asbestos issues for employees who are thinking about remodeling or helping someone else remodel a personal residence or other structure.

**And more...**EHS has, and will continue to post, new web-based classes on topics of relevance to your work at UNL. Periodically review these courses online, looking at them with an eye to which topics might be useful to your home activities as well. The **Employee Training Needs Assessment –EHS Related Topics** serves as a guide to employee training needs, but also is your personal guide to topics available.

**And even more...** Do you use compressed gas cylinders or chemicals in the course of your work? Are you sure you know all you need to about electrical safety in the laboratory and preventing laboratory fires? Cryogenics? Centrifuges? Ventilated hoods/cabinets?

EHS and the Office of Research have co-sponsored a laboratory safety colloquium for several years. Presentations on past topics are available for review through the EHS web site.

Resources:

- EHS Web-based Training <http://ehs.unl.edu/onlinetraining/>
- Employee Training Needs Assessment for EHS-Related Topics  
<http://ehs.unl.edu/pamphlets/EmployeeTrainingNeedsAssessment.pdf>
- EHS Laboratory Safety Colloquium <http://ehs.unl.edu/training/Colloquium/>

**Remember...SAFETY IS AN ATTITUDE!**

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