

Environmental Health & Safety

SafetyMatters

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ENVIRONMENTAL HEALTH & SAFETY

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New EH&S Services by Corey Wintamute

As part of Environmental Health and Safety's commitment to provide a healthy and safe work environment, we continually seek new ways to enhance our services. The following are some new initiatives available to the Columbia University research community:

Chemical Storage and Segregation RASCAL Tutorial

Storing and segregating chemicals in the laboratory often times can be a challenge, especially when space is limited. However difficult it may be, proper chemical storage and segregation are essential for maintaining a safe and compliant laboratory.

In order to assist laboratories with proper chemical storage and segregation, EH&S has developed the "Chemical Storage and Segregation 101" RASCAL module. This brief training is a helpful tool to guide laboratories through the "do's" and "don'ts" of chemical storage and is recommended for anyone who is uncertain of how to store and segregate chemicals safely, and for labs who have received a chemical storage violation from the FDNY. The training can be found at <https://www.rascal.columbia.edu/> under course number TC2100.

Chemical Storage Bins

EH&S currently has chemical storage bins available to help assist laboratories with chemical storage and segregation. The bins can be used for secondary containment of chemicals, especially where chemical containers need to be stored on the floor, as a means to physically separate chemicals, such as when storage space is limited, and, for segregating incompatible chemicals. The bins are available, free of charge and while supplies last, with the highest priority given to laboratories in immediate need of improving their chemical segregation and storage practices and to laboratories that have been issued a chemical storage violation by the FDNY. Bins are available in two sizes, small (approx. 7"x10") and large (approx. 12"x17"), and are 4" deep to accommodate a wide variety of chemical bottles. To request a bin, please contact your Research Safety Specialist (<http://ehs.columbia.edu/RSTeamMemberTerritory.pdf>).

Emergency Contact Information

Emergency contact information is essential in allowing EH&S and other first responders to assist during emergency situations in your laboratory. Without emergency contact information it can be difficult and time-consuming to contact laboratory staff who can provide critical instructions related to laboratory contents and hazards during off-hour emergencies. Now available online (<http://ehs.columbia.edu/LabDoorSign.html>) is a fillable PDF that allows you to create an insert with your laboratory's emergency contact information that can be placed into the laboratory door placards or posted on the door. Fill out your Emergency Contact Information today!

Laboratory Hazard Assessment Form

A primary service of EH&S is to assist researchers with the recognition, evaluation and control of laboratory hazards. An online form is available @ <http://ehs.columbia.edu/LaboratoryHazardAssessmentForm.pdf> for laboratories to request EH&S assistance in evaluating potential hazards. Upon receipt of the completed form, EH&S will arrange a visit to your laboratory for a consultation with the goal of developing an assessment strategy for evaluating potential hazards. Once the assessment is performed, EH&S will provide a list of recommendations to the laboratory for minimizing hazards.



Clearing the Air: Respiratory Protection Enhancements

by Rebecca Lonergan

**EH&S HAS
REDESIGNED THE
WEBSITE OFFERING
NEW FEATURES AND
ENHANCED
NAVIGATION.
HTTP://
EHS.COLUMBIA.EDU**

**NO
EATING
DRINKING OR
APPLYING COSMETICS
WHEN WORKING
IN THE
LABORATORY**

For Lab Fire Safety
Prevention tips,
check out:

FDN(wh)Y Me @
[http://](http://www.ehs.columbia.edu/FDNYMe.html)

[www.ehs.columbia.edu
/FDNYMe.html](http://www.ehs.columbia.edu/FDNYMe.html)

[On-line
Chemical Waste Pick-up
Request Form.](#)

[http://
vesta.cumc.columbia.edu/
ehs/wastepickup](http://vesta.cumc.columbia.edu/ehs/wastepickup)

What is a respirator? Do I need a respirator? I have a respirator, how do I maintain and store it? EH&S recently enhanced the University's Respiratory Protection Program website, available @ <http://www.ehs.columbia.edu/RespiratoryProtectionProgram.html>, to better guide individuals in answering these and other questions related to the University's Respiratory Protection Program.

Respiratory protection, like all Personal Protective Equipment (PPE), is the last line of defense in reducing or eliminating potential exposure. In order to properly and safely determine the need for respiratory protection, EH&S must conduct a hazard assessment for an area or specific process, reviewing alternative means of eliminating or reducing exposure to a potentially hazardous material. One recent program enhancement is the addition of a "Laboratory Hazard Assessment Form" available @ <http://ehs.columbia.edu/LaboratoryHazardAssessmentForm.pdf>. The form is intended for use by laboratory staff to request an assessment of a specific work practice or hazardous materials use, particularly where effective engineering controls, such as chemical fume hoods or biological safety cabinets, may not be feasible in eliminating or minimizing potential exposures.

In addition to the website enhancements, EH&S collaborated with Human Resources and New York Presbyterian Hospital's Workforce Health and Safety (WHS) at CUMC to streamline medical clearance and fit-testing for N-95 respirator users. WHS will now perform a respirator fit-test as part of the medical clearance process. Remember, employees must be fit-tested prior to initial use of a respirator and annually thereafter. Each year, the National Institute for Occupational Safety and Health (NIOSH) designates September 5th as "N-95 Day." Now is a great time to "celebrate" by reaching out to EH&S @ occsafety@columbia.edu with any questions or concerns you may have regarding respirator use for your task or work area.

Going Green with Solvent Recycling By Keith Bottum

Solvent recycling gives the University and its laboratories a unique chance to "Go Green" by reducing waste. EH&S has partnerships with several laboratories that are taking advantage of this opportunity. For instance, since 2008, the Chemistry Department has recycled 3,300 gallons of used solvents, which has saved them tens of thousands of dollars and shrunk the University's environmental footprint by reducing laboratory waste that would have otherwise been incinerated. An added benefit is that many solvents can be recycled multiple times before eventually requiring disposal, so the savings can really add up quickly.

EH&S is on a mission to help save even more and we need your help. With two solvent recyclers available at the Morningside campus, EH&S has the capacity to grow the solvent recycling program and is actively seeking new partners in laboratories in CEPSSR, Engineering Terrace, Fairchild, Mudd, Northwest Corner, Pupin and Schermerhorn who generate waste Acetone, Ethanol, Ethyl Acetate, Hexane and Xylene.

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Going Green with Solvent Recycling continued from page 2.

Participation in the program is easy. Simply collect your waste solvents, separate from all other chemical waste, in specially labeled containers provided by EH&S. We will then recycle and return to your laboratory the exact same solvent you gave to us in a purified and ready-to-reuse condition.

For more information regarding the solvent recycling program at Morningside please contact a hazmat@columbia.edu or visit: <http://www.ehs.columbia.edu/SolventRecyclingBrochure.pdf>

I Smell Gas by Harry J. Oster

If you were to smell natural gas in your laboratory, what would you do? You should immediately turn off all ignition sources followed by a check all gas valves in the laboratory to ensure they are closed. While laboratories typically have adequate air exchange rates to prevent the build-up of dangerous concentrations of natural gas, if the space has operable windows, it would be prudent to open the windows to help increase fresh air.

A gas outlet is identified by a blue colored circle on the top of the valve. In many labs, valves are located on the inside or outside frame of a chemical fume hood (Fig. #1), on the laboratory bench (Figs. #2, 3), or both.

If the valve is of the lever type, ensure the valve is completely in the “off” position by checking that the lever handle is perpendicular to the discharge nozzle as shown in the photo (Fig. #3). If the shut off valve is of the cross handle type, grasp the handle and turn completely to the right in a clockwise direction (Fig. #2).

If a natural gas odor is detected in a shared space, please be courteous and safety-conscious by checking ALL valves in the room – not just the valves in your work area. Some laboratories have many valves located along their workbenches, so be aware of their locations to avoid unknowingly or accidentally striking and opening the valve.

If the source of the leak cannot be quickly identified, evacuate the laboratory and call Public Safety and Facilities Operations to report the suspected gas leak.

Fig #1



Fume hood gas valve (blue cap)

Fig #2



Turn valve clockwise to close To close, make sure lever is perpendicular to

Fig #3



Medical Surveillance Program for Bloodborne Pathogens Available to Faculty and Staff at All Campuses by Christopher Aston

Federal OSHA regulations require that medical surveillance, including Hepatitis B Virus (HBV) vaccination, be offered at no cost to all employees at potential risk of exposure to bloodborne pathogens (BBP). This includes laboratory research with human blood, tissues or otherwise potentially infectious material, treating student athletes with bleeding injuries, or laundering of blood-soaked items (for a full list of tasks and BBP-containing materials, review the University's BBP exposure control plan, Appendix B and C. <http://ehs.columbia.edu/BloodbornePathogensExposureControlPlan.html>).

EH&S is pleased to announce that in addition to the long-standing medical surveillance program available to personnel (staff and faculty) at Columbia University Medical Center (CUMC), personnel at Morningside, Lamont-Doherty and Nevis, that are considered as potentially at risk, are now able to access medical surveillance services, including HBV vaccination, at CUMC through an agreement with New York Presbyterian Hospital Workforce Health and Safety.

The HBV vaccine is administered over a course of three injections and provides long-lasting immunity in most individuals. Personnel must actively accept or decline this offer of vaccination. Those with no prior vaccination who do not wish to receive the vaccine must elect a "Declination" option acknowledging that they are aware of the vaccine's benefits and that they may choose to be vaccinated, free of charge, at any time in the future. Program enrollment will be completed through a RASCAL form. Specific enrollment instructions will be sent via email to eligible individuals in Fall 2013.

First-time visits to Workforce Health and Safety require an appointment made by a supervisor or department administrator through CUMC Human Resources by visiting <http://www.cumc.columbia.edu/hr/employment> and clicking on the Medical Surveillance Registration Form link. Workforce Health and Safety also performs BBP post-exposure evaluations. If you believe you have been exposed to a BBP in the workplace, regardless of vaccination status, report immediately to Workforce Health and Safety during business hours in the Harkness Pavilion, 1st Floor; at other times report to the nearest hospital Emergency Room, with follow-up at WHS upon return to work. If you are a CUMC or MS student, medical surveillance will continue to be provided through Student Health Services, with one exception; CUMC students that require medical clearance to work on an IACUC protocol are evaluated by WHS.

Please contact the EH&S Biosafety Program at biosafety@columbia.edu with further questions about BBP exposure control.

"5 Ls" of Hazardous Waste Management by Hazardous Materials Team

The 5 Ls is a tool developed by EH&S to simplify the complex regulations for the proper collection, storage and management of hazardous waste. The 5 Ls stand for: CoLLect, Labeled, Lid, Locate, and Leaks. Accordingly, all hazardous waste must be CoLLected-never treated on-site or drain disposed. All waste containers must be Labeled with the Columbia University orange hazardous waste label and the chemical contents must be clearly written on the label. All containers must be covered with a tight-fitting Lid at all times; open containers allow waste to evaporate, which is not legal, and could allow waste to spill if knocked over. Waste containers must be Located in the room of the waste's generation, not moved to other areas for convenience. Lastly, waste containers should be checked for Leaks, at least weekly, and evidence of leaks should be referred to EH&S immediately. For more information, visit <http://www.ehs.columbia.edu/HazardousWaste.html> or contact a Hazardous Materials Specialist at hazmat@columbia.edu.

Standardizing Hazard Communication by Maytal Rand

The Occupational Safety and Health Administration (OSHA) was established in 1970 with a mission of ensuring the health and safety of workers across the country. As part of their mission, OSHA has established a Hazard Communication (HazCom) Standard as a method for helping employers and employees identify potential hazards in the workplace. Recent updates to the HazCom Standard include the integration of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

With the integration of GHS into the OSHA standard, workers in the United States will now participate in a system for the classification and labeling of chemicals that is identical to the system utilized by their international counterparts. For chemical manufacturers, the required changes have been welcomed as they can now market their products with a standardized complement of information on the Safety Data Sheet (SDS) and the container label regardless of where the chemical is bought, sold, shipped or used.

In the laboratory, the primary changes that have come about from OSHA's adoption of GHS are as follows:

- ◆ **Labels:** All chemical manufacturers will be required to update their labels to include a pictogram and signal word, a hazard statement for each hazard class, as well as a precautionary statement that recommends measures to mitigate exposures to hazardous substances.
- ◆ **Hazard Classification:** A data-driven analysis of the intrinsic properties of each chemical is now required in order to identify and assign the physical, health and environmental hazards that will be used for labeling and safety information purposes.
- ◆ **Safety Data Sheets (SDS):** SDSs, formerly known as Material Safety Data Sheets (MSDS), will now appear in a 16 section standardized format:

Section 1 - Identification	Section 9 - Physical and Chemical Properties
Section 2- Hazard(s) Identification	Section 10 - Stability and Reactivity
Section 3 -Composition Information	Section 11- Toxicological Information
Section 4 - First-Aid Measures	Section 12 - Ecological Information
Section 5 - Fire-Fighting Measures	Section 13– Disposal Considerations
Section 6 - Accidental Release Measures	Section 14 - Transport Information
Section 7 - Handling and Storage	Section 15 - Regulatory Information
Section 8 - Exposure Controls/Personal Protection	Section 16 - Other information including date of preparation or last revision

OSHA requires that all personnel be trained on the GHS integration to the Hazard Communication Standard by December 1, 2013. Accordingly, EH&S has been incorporating the relevant information into its monthly *Laboratory Safety, Chemical Hygiene and Hazardous Waste Management Training* course and the Rascal-based version, as well as presenting it during post-laboratory survey information sessions. While we are well on the way to meeting this training deadline, EH&S will be offering additional opportunities to the research community, in Fall 2013, for HazCom training. Additionally, Facilities Management personnel have already received the required training on the changes to the HazCom Standard.

Working Safe and Smart in Machine Shops by James Kaznosky

With the Fall 2013 academic semester upon us, it is a good time for a refresher in the Columbia University Shop Safety program. Academic machine shops, like research laboratories, present a myriad of potential hazards, which, if not identified and controlled, could cause harm. The most important reminders about safe shop use are: never use equipment unless trained and familiar with its safe operation; use a buddy system when working; restrain hair and loose clothing and remove jewelry; wear proper PPE and never modify equipment, including protective devices. For more information about Shop Safety visit <http://www.ehs.columbia.edu/ShopSafety.html>

Safe Use of Radioactivity – What to Wear at Work by Radiation Safety Team

Imagine this scenario – it's a hot summer day and personnel in the lab are wearing shorts and open toe shoes. You however, are wearing a lab coat, gloves and eye protection and are standing at your work bench pipetting samples into centrifuge tubes. A co-worker walks by with a rack of micro centrifuge tubes and stops to chat for a minute. As they turn to leave, another co-worker walks by and they collide. The rack of tubes is knocked from their grasp and hits the floor; two tubes pop open and the contents splash on your leg and their foot. Your co-worker tells you that the tubes contained P-32 for a RNA assay, so you quickly grab a survey meter and locate spots of radioactive contamination on the back of your bare leg and top of their feet. Although you are wearing the proper personal protective equipment (PPE) for the work (i.e. lab coat, gloves and eye protection), you are not wearing proper work attire which results in skin contamination. A lab coat is short – usually extending to just above the knees and is not designed to protect from splashes on exposed skin, and certainly does not cover the feet.

Skin contamination can result in radioactivity passing through the skin into the body, or if it remains on the skin, delivering a substantial radiation dose (100s of mrem) before it can be removed. Because radioactivity, similar to other hazardous materials, can be dropped, spilled, splashed or otherwise spread accidentally in the lab, the Radiation Safety Manual (<http://www.ehs.columbia.edu/RadiationSafetyManual.pdf>) and the Policy for Personal Protective Equipment in Research Laboratories (<http://www.ehs.columbia.edu/PPEPolicy2.pdf>) prohibit open-toed shoes, sandals, shorts and short skirts in the laboratory.

Bottom line - Good radiological and chemical hygiene practice includes covering exposed skin to prevent contamination. Keep appropriate work clothing (long pants or long skirts, and closed-toed shoes) at work, especially during hot weather when you may be inclined to wear shorts and sandals to get to/from work. This way you can change into and out of appropriate work attire and work safely.

Vision Statement

Environmental Health & Safety (EH&S) provides expert guidance and timely service to the University Community through our commitment to health and safety. Employing best practices and collaboration, and by building long term relationships, we promote a productive and safety conscious work environment.



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Do you have a suggestion for a future *SafetyMatters* article? Do you have a comment on something you just read?

Please share it with us at newsfeedback@columbia.edu