



*"Safety Comes First"*

# Case Western Reserve University Environmental Health and Safety

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## *Focus on Asbestos*

<b>OSHA Focus on Asbestos</b>	1	<p><b>What is asbestos?</b> Asbestos is the name given to a group of naturally occurring minerals used in certain products, such as building materials and vehicle brakes, to resist heat and corrosion. Asbestos includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these materials that have been chemically treated and/or altered.</p> <p><b>What are the dangers of asbestos exposure to workers?</b> The inhalation of asbestos fibers by workers can cause serious diseases of the lungs and other organs that may not appear until years after the exposure has occurred. For instance, asbestosis can cause a buildup of scar-like tissue in the lungs and result in loss of lung function that often progresses to disability and death. Asbestos fibers associated with these health risks are too small to be seen with the naked eye, and smokers are at higher risk of developing some asbestos-related diseases.</p> <p><b>Are you being exposed to asbestos?</b> General industry employees may be exposed to asbestos during the manufacture of asbestos-containing products or when performing brake and clutch repairs. In the construction industry, exposure occurs when workers disturb asbestos-containing materials during the renovation or demolition of buildings. Employees in the maritime environment also may be exposed when renovating or demolishing ships constructed with asbestos-containing materials. In addition, custodial workers may be exposed through contact with deteriorating asbestos-containing materials in buildings.</p> <p><b>Are there any OSHA standards that cover workers exposed to asbestos?</b> Yes. The Occupational Safety and Health Administration (OSHA) has the following three standards to protect workers from exposure to asbestos in the workplace:</p> <ul style="list-style-type: none"> <li>• 29 CFR 1926.1101 covers construction work, including alteration, repair, renovation,</li> </ul>
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## *Equipment Clearance for Disposal or Relocation*

*“(equipment) must be cleared first by Radiation Safety.”*

Whether your laboratory equipment has outlived its useful lifespan, is just taking up valuable lab space, or simply needs to be moved from one location to another, CWRU Facilities is well equipped to handle just about anything you and your laboratory may offer up for moving or disposal. Before Facilities is asked to handle your equipment, it is important to ensure that it is properly decontaminated before it leaves your laboratory. In addition, you must have your equipment certified free of any contamination if it will be handled by outside contractors or by moving company during relocation.

### **Equipment Decontamination**

Environmental Health and Safety, along with Facilities Management, manage a Laboratory Equipment Clearance program on our campus. All laboratory equipment and potentially contaminated furniture used in a laboratory must be cleared by EHS prior to disposal or relocation through campus Facilities. The first step in the process is determining whether or not you need to have your equipment cleared by EHS. For example, if the equipment was used in an office or had no potential for exposure to chemical, biological, or radioactive materials, clearance through EHS is not necessary. All other equipment must be certified that it is free of contamination prior to disposal as follows:

- Any equipment that contains a radioactive source or that potentially came into contact with radioactive materials must be tested and cleared by a Radiation Safety Officer from EHS prior to handling for disposal or relocation. Please note that any equipment from Case Medical School must be cleared first by Radiation Safety.
- Equipment that has been used in experiments involving biological materials must be decontaminated with a 10% bleach solution by laboratory personnel prior to handling for disposal or relocation. All exposed surfaces of the equipment or potentially contaminated furniture must be wiped down with the bleach solution. In addition, if your laboratory is disposing of or moving a Biological Safety Cabinet (BSC) that has been used with any infectious agents, including bloodborne pathogens, you will need to contact EHS to schedule decontamination from one of our selected vendors.
- In general, other laboratory equipment can be decontaminated with 70% of alcohol solution. If your equipment appears to be heavily contaminated to perform

## *Equipment Clearance, cont.*

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decontamination safely, contact EHS for guidance.

- Finally, any equipment that contains oil or any other chemicals must be properly recovered prior to disposal or move. The owner of the equipment must drain the oil and/or chemicals and collect them for disposal through EHS hazardous waste disposal program prior to disposal or relocation of the equipment. Contact EHS for guidance if necessary. Refrigerant/Freon recovery is performed by a vendor through campus Facilities and the equipment owner will be charged a flat fee of \$100 per each piece of equipment with refrigerant or Freon.

### **Equipment Clearance**

The next step in the process is to have the equipment or furniture cleared by EHS. In order to schedule a safety clearance, you must complete the [Safety Clearance Protocol and Request Form](#) which can be found on EHS website, and return the completed form to the EHS office (delivered in-person or by FAX). Please note that for the equipment disposal you will need to enter into the form a current and legible speedtype number which will be billed for the disposal of the equipment. After EHS receives your Safety Clearance Request Form, EHS staff will visit your laboratory, ask a few questions about the equipment to be moved or discarded, verify that it has been properly decontaminated as described above and affix the "Clearance Sticker" to your equipment for disposal. A safety clearance form will be filled out as a record of equipment clearance and this form will be posted on the equipment as well. This process will indicate to Facilities (or moving company) that it is safe to handle and dispose of (or move) the equipment.

If you have any questions in regards to the cost of the disposal, please contact Customer Service at 216.368.2580

### **E-Waste**

While electronic equipment from the office areas does not need to be cleared, computers, monitors, laptops, old phones and similar items **must not** be placed with regular trash but instead must be disposed of as E-Waste. More information may be found about our recycling programs at <https://www.case.edu/ehs/LabSafety/equipment.html>

For questions, contact: Bob Sopko, ITS, [bob.sopko@case.edu](mailto:bob.sopko@case.edu), 216.368.1522 or Stephanie Corbett, Director of Office of Sustainability, [stephanie.corbett@case.edu](mailto:stephanie.corbett@case.edu),

*"...equipment that contains oil or any other chemical must be properly recovered..."*

## *Biosafety Bulletin: Risk Group vs. Biosafety Level (part II)*



Heidi Page

*“Always know the Risk Group of the pathogen that you are utilizing ...”*



We learned in an earlier newsletter that Risk Group refers to the danger an organism poses to human health while Biosafety levels refer to the conditions under which one works with a given organism.

Often, the Risk Group of an organism will correspond to the BSL conditions under which the pathogen will be manipulated; however, how the organism will be cultured and manipulated is just as important as the Risk Group in determining proper containment practices.

There are times when the risk group of a pathogen will not correspond to the BSL laboratory designation. For example, the seasonal influenza virus is a RG-2 organism according to the National Institutes of Health; however, BSL-2 conditions would not be acceptable if researchers were attempting any of the following:

- Production of large culture volumes
- High viral titers
- Insertion of genes to increase the host range, virulence or to increase resistance to current vaccines or anti-viral medications

Under any of the above mentioned conditions influenza, a RG-2 organism, would need to be manipulated under BSL-3 conditions.

Always know the Risk Group of the pathogen that you are utilizing in your research and always consider your experimental aims and protocols when determining the best BSL conditions under which to work.

Any questions? Contact the CWRU Biosafety Officer, Heidi Page for guidance or a comprehensive risk assessment - 216-368-5864.

## *When to Record a Post-Experimental Survey*

You should always survey your work area after using isotopes, but you must keep a record of that survey if there is more than 200 uCi present. The 200 uCi limitation encompasses the total activity in an open vial, not just the activity taken out of the vial for an experiment.

Recorded surveys need to include both probe readings and wipe tests of the work area and its immediate surroundings, such as the floor and any equipment used in the experiment (pipette, centrifuge, etc.). You do not need to survey the entire laboratory. Make sure to include the make, model, serial number, and calibration date of the meter used on your survey. Also attach the liquid scintillation counter printout to the survey. These surveys should be kept in your laboratory's radiation notebook and be available for inspection during a Compliance Review.

Some laboratories choose to aliquot their stock vials so that they only need to do one recorded post-experimental survey. This IS perfectly acceptable. For example, if your laboratory orders 10 mCi of an isotope and divides that into ten aliquots (100 uCi each), the laboratory would only need to perform a recorded post-experimental survey once (when the original stock vial was opened). After that, since the aliquots are below 200 uCi, they do not need to record the survey. If you do not aliquot the stock vial, then a recorded survey must be done every time the stock vial is opened until the total activity falls below 200 uCi.

Post-experimental surveys are critical because they allow you to detect contamination before it has the chance to spread throughout the laboratory. Also remember to check your work area before you begin an experiment and to periodically check your work area and gloves for contamination with a Geiger counter during the experiment. If you have any questions about when to do a survey, please call the Radiation Safety Office at 368-2906.



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## Focus on Asbestos, cont.

*“...exposure to asbestos must not exceed 0.1 fiber per cubic centimeter (f/cc) of air, averaged over an 8-hour work shift.”*

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and demolition of structures containing asbestos.

- 29 CFR 1915.1001 covers asbestos exposure during work in shipyards.
- 29 CFR 1910.1001 applies to asbestos exposure in general industry, such as exposure during brake and clutch repair, custodial work, and manufacture of asbestos-containing products.

The standards for the construction and shipyard industries classify the hazards of asbestos work activities and prescribe particular requirements for each classification:

**Class I** is the most potentially hazardous class of asbestos jobs and involves the removal of thermal system insulation and sprayed-on or troweled-on surfacing asbestos-containing materials or presumed asbestos-containing materials.

**Class II** includes the removal of other types of asbestos-containing materials that are not thermal system insulation, such as resilient flooring and roofing materials containing asbestos.

**Class III** focuses on repair and maintenance operations where asbestos-containing or presumed asbestos-containing materials are disturbed.

**Class IV** pertains to custodial activities where employees clean up asbestos-containing waste and debris.

There are equivalent regulations in states with OSHA-approved state plans.

### **What are the permissible exposure limits for asbestos?**

Employee exposure to asbestos must not exceed 0.1 fiber per cubic centimeter (f/cc) of air, averaged over an 8-hour work shift. Short-term exposure must also be limited to not more than 1 f/cc, averaged over 30 minutes. Rotation of employees to achieve compliance with either permissible exposure limit (PEL) is prohibited.

### **Are employers required to conduct exposure monitoring?**

In construction and shipyard work, unless you are able to demonstrate that employee exposures will be below the PELs (a “negative exposure assessment”), you are generally required to conduct daily monitoring for workers in Class I and II regulated areas. For workers in other operations where exposures are expected to exceed one of the PELs, you must conduct periodic monitoring. In general industry, you must perform initial monitoring for workers who may be exposed above a PEL or above the excursion limit. You must conduct subsequent monitoring at reasonable intervals, and in no case at intervals greater than 6 months for employees exposed above a PEL.

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## *Focus on Asbestos, cont.*

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### **Must employers create regulated areas?**

Employers must create controlled zones known as regulated areas that are designed to protect employees where certain work with asbestos is performed. They must limit access to regulated areas to authorized persons who are wearing appropriate respiratory protection. Employers must also prohibit eating, smoking, drinking, chewing tobacco or gum, and applying cosmetics in these areas. They must display warning signs at each regulated area. In construction and shipyards, workers must perform Class I, II, and III asbestos work (and all other operations where asbestos concentrations may exceed a PEL) within regulated areas. In general industry, employers must establish regulated areas wherever asbestos concentrations may exceed a PEL.

### **What compliance methods must employers use to control exposures?**

Employers must control exposures to or below the PELs using engineering controls and work practices to the extent feasible. Where feasible engineering controls and work practices do not ensure worker protection at the exposure limits, the employer must reduce employee exposures to the lowest levels achievable and then supplement them with respiratory protection to meet the PELs. In construction and shipyards, each work classification has specific control method requirements. In general industry, specific controls are prescribed for brake and clutch repair work. For example, employers must prohibit certain practices, such as the use of compressed air, to remove asbestos.

### **When are employers required to provide respiratory protection for workers?**

Employers must provide and ensure the use of respirators when a PEL is exceeded. In construction and shipyards, employers must require workers to use respirators when performing certain work. Generally, the level of exposure determines the type of respirator needed. In addition, the standards specify the type of respirator to be used for certain asbestos work. (See CFR 1910.134.) Employees must get respirator training and medical clearance to use respirators.

### **Are employers required to provide protective clothing for workers?**

Yes. For any employee exposed to airborne concentrations of asbestos that exceed a PEL, the employer must provide and require the use of protective clothing such as coveralls or similar full-body clothing, head coverings, gloves, and foot coverings. Employers must provide face shields, vented goggles, or other appropriate protective equipment wherever the possibility of eye irritation exists and require workers to wear them.

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*“Employers must also prohibit eating, smoking, drinking, chewing tobacco or gum, and applying cosmetics in these (contaminated areas.)”*

## *Focus on Asbestos, cont.*

(Continued from page 7)

### **Must employers provide hygiene facilities?**

Yes. They must establish decontamination areas and hygiene practices for employees exposed above a PEL. In addition, employees may not smoke in work areas that might expose them to asbestos.

### **Do OSHA standards require employers to provide training?**

Yes. In construction and shipyards, you must provide training for employees exposed above a PEL and for employees involved in each identified work classification. The specific training requirements depend upon the particular class of work being performed. In general industry, they must provide training to all employees exposed above a PEL. Employers must also provide asbestos awareness training to employees who perform housekeeping operations covered by the standard. They must place warning labels on all asbestos products, containers, and installed construction materials when feasible.

### **What are employers required to provide concerning medical examinations?**

In construction and shipyards, you must provide medical examinations for workers who, for 30 or more days per year, engage in Class I, II, or III work or experience exposure above a PEL. In general industry, you must provide medical examinations for workers who are exposed above a PEL.

### **What are the recordkeeping requirements for asbestos exposures?**

Employers must keep accurate records of the following:

- All measurements taken to monitor employee exposure to asbestos—30 years;
- Medical records, including physician's written opinions—duration of the employee's employment plus 30 years; and
- Training records—1 year beyond the last date of employment.

### **How can you get more information on safety and health?**

OSHA has various publications, standards, technical assistance, and compliance tools to help you, and offers extensive assistance through workplace consultation, voluntary protection programs, grants, strategic partnerships, state plans, training, and education. OSHA's Safety and Health Program Management Guidelines (Federal Register 54:3904-3916, January 26, 1989) detail elements critical to the development of a successful safety and health management system. This and other information are available on OSHA's website.

For one free copy of OSHA publications, send a self-addressed mailing label to OSHA Publications Office, P.O. Box 37535, Washington, DC 20013-7535; or send a request to our fax at (202) 693-2498, or call us at (202) 693-1888.

To order OSHA publications online at [www.osha.gov](http://www.osha.gov), go to **Publications** and follow



*“In general industry, you must provide training to all employees exposed above a PEL.”*



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