



February 2005

## Hazardous Materials/Dangerous Goods Shipping Policy on the web

<http://www.nd.edu/~riskman>

If you want to ship research samples/preps and/or any radioactive material to another facility, you must contact Risk Management and Safety (RM&S) **AT LEAST 48 HOURS PRIOR** to the desired shipment date. RM&S must determine if the material falls under the DOT Dangerous Goods Regulations.

Risk Management has put together a Hazardous Materials/Dangerous Goods Shipping Policy to guide you in the shipping process.

Per DOT regulations, anyone shipping dangerous goods must be trained and pass an examination on proper packaging, labeling and paperwork. Failure to comply can result in both criminal and civil penalties for the shipper.

Many samples including, but not limited to, infectious substances and radioactive materials, require specific DOT approved boxes. While RM&S tries to maintain a supply of approved boxes, there may be times that an approved box must be ordered.

If the shipment is leaving the country, RM&S must verify that the material can and will be accepted in that country.

Please contact Andy Welding (1-5037 or [welding.1@nd.edu](mailto:welding.1@nd.edu)) for all radioactive materials shipments and Lisa Bogner (1-5037 or [dahl.2@nd.edu](mailto:dahl.2@nd.edu)) for shipments of infectious materials, chemicals or non-hazardous samples on DRY ICE.

## Coming Soon: Biosafety Manual and Biosafety Training

Risk Management with the Institutional Biosafety Committee (IBC) is finalizing a Biosafety Manual and will implement biosafety training in late March.

**Watch for notices of the upcoming training!**

## Radioactive Waste Reminders

1. When completing the rad waste pick-up form, if aqueous waste is included, remember to list components of the waste (eg. water, buffer). You may use the section in "Solutes" column to do this.
2. DO NOT USE biohazard bags for radioactive waste that does not contain biohazardous material.
3. Sharps, such as needles and razor blades, must be put in approved sharps containers. Those containers should then be labeled as radioactive. Pipette tips and pipettes do not have to go into a sharps container, but they must go into a puncture proof container such as a cardboard box.
4. Thoroughly deface all radioactive labels before disposing any non-radioactive material in the regular trash. Also, because radioactive waste containers must be labeled as such, radioactive labels on items going into those containers (eg stock vials) can be defaced or removed.

### Waste Pickup Schedule Reminder:

Galvin 1<sup>st</sup> and 3<sup>rd</sup> Tuesdays  
1:00PM – 3:00PM

Stepan/  
Nieuwland 2<sup>nd</sup> and 4<sup>th</sup> Tuesdays  
1:00PM – 3:30PM

Fitzpatrick Hall/  
Cushing 3<sup>rd</sup> Wednesday  
1:00PM-2:30PM

Radiation Lab 4<sup>th</sup> Thursday  
1:00PM-2:00PM

# Biosafety Cabinets & Tissue Culture Hoods

*Upon recent inspection of all biosafety cabinets in Biology and Chemistry, a few certifications were found to be out of date. According to NIH/CDC guidelines, biosafety cabinets **must be certified annually** to ensure employees are properly protected.*

*What is a Biosafety Cabinet?* - A biosafety cabinet (BSC) is *not* a chemical fume hood. Fume hoods are designed to remove chemical fumes and aerosols away from the work area. BSCs are designed to provide both a clean work environment and protection for employees who work with biological hazards. BSCs use vertical laminar airflow to create a barrier to airborne particles, such as microorganisms. They use High Efficiency Particulate Air (HEPA) filters to clean air going into the work area and out to the environment. The air in most BSCs is recirculated over the work area through the HEPA filter. The HEPA filter removes airborne particles from the air, but does not remove chemical fumes. A single exception is a specific special model of Class II Type B2 BSC that is UL classified as a fume hood. Refer to the Centers for Disease Control and Prevention's booklet *Primary Containment for Biohazards: Selection, Installation and Use of Biosafety Cabinets* for more detailed information.

*When Should I Use a Biosafety Cabinet?* - Use a BSC for manipulations of human pathogens or antineoplastics that are likely to create aerosols (such as vortexing open tubes, pipetting, opening caps after centrifuging, sonicating, aspirating with a syringe, etc.). Use for *all* manipulation of airborne transmitted pathogens (such as *Brucella abortus*, *Mycobacterium tuberculosis*, etc.).

*Open Flames in a Biosafety Cabinet* - Using open flames, such as Bunsen Burners, in a BSC disrupts the air flow, compromising protection of both the worker and the work. In addition, if the flame of the burner is too large, or ignites a wash bottle of ethanol (often found in a BSC), the excessive heat may melt the adhesive holding the HEPA filter together or burn holes in the filter media. Alternative methods such as disposable inoculating loops or electric incinerators are recommended.

*Ultraviolet Lights in a Biosafety Cabinet* - Remember that the ultraviolet (UV) light in your BSC is only useful as an extra precaution in keeping the work area decontaminated between uses, because UV light has very little power to penetrate even through a dust particle. Always clean and decontaminate the work area thoroughly using a chemical disinfectant, such as bleach or ethanol, after each use.

*Annual Certification Testing* - Improper airflow or filter leaks in a BSC could expose laboratory personnel to biohazardous materials. To ensure that BSCs on campus are providing necessary protection to workers and the environment, it is essential that the BSCs be routinely inspected. RM&S is working on a university wide contract with a certified vendor to provide this service annually for all BSCs on campus. Testing will be done according to the nationally accepted standards of NSF International. Your BSC should have a label on it stating the date it was last tested.

*Moving or Repairs* - In addition to annual testing, BSCs must also be re-tested whenever they are moved or have filters changed.

*Purchasing a New Biosafety Cabinet* - If you plan to purchase a new BSC, contact Risk Management and Safety (RM&S) at 631-5037 for assistance in choosing the appropriate BSC for your needs and to get the BSC on the schedule for annual certification testing.

The BSC should be certified by NSF International according to NSF Standard 49. Work with any infectious agents or recombinant DNA classified as requiring Biosafety Level 2 or higher containment will not be permitted in a BSC that does not pass certification testing for containment.

Verify with RM&S that the BSC type (Class II Type A, Class II Type B2, etc.) is appropriate for the type of work that it will be used for (type of biological agents to be contained and any chemicals to be used.)

If the BSC is a Class II Type B3, the connection to the exhaust preferably should be a thimble connection and not a gas tight connection.

Installation of BSCs must allow access to both supply and exhaust filters for annual certification testing and filter changes:

Top of cabinet must be far enough below the ceiling (at least 18") to allow field testing of exhaust flow according to NSF Standard 49.

Any connections to exhaust ductwork must allow access for field testing of exhaust flow according to NSF Standard 49.

Any outlets inside the work area of the BSC should be ground fault circuit interrupter (GFCI) outlets.

## **References:**

*Iowa State EH&S website*

*Biosafety in Microbiological and Biomedical Laboratories 4<sup>th</sup> Edition, CDC/NIH*