



## **Guidance Note: Preparing Chemicals for Shipment to Anschutz Medical Campus**

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*This information is for your internal use and as a way of providing consistent information. There is no response required.*

### **Preparing Chemical Reagents for Shipment to Anschutz Medical Campus**

#### **Introduction**

Many chemical reagents are regulated by the Department of Transportation (DOT) as “hazardous materials”. Special training and licenses are required to transport hazardous materials on public roads. Researchers and staff will not be allowed to ship any chemicals in their personal vehicles to Anschutz Medical Campus. A qualified and insured hazardous materials Lab Packing Contractor (LPC) will be hired to properly segregate, pack and document the chemicals that will be shipped to Anschutz Medical Campus.

Researchers should plan on disposing of all expired or no-longer-needed chemicals prior to their move through the UCDHSC Environmental Health and Safety (EH&S) Department. All hazardous and non-hazardous chemical reagents will be handled and shipped by the Lab Packing Contractor to Anschutz Medical Campus.

#### **Chemical Inventory System**

Researchers are required to inventory all chemicals to be moved to Anschutz using the online [EH&S Chemical Inventory Database](#). Researchers also need to submit the inventory for their hazardous chemical stock solutions (hydrochloric acid, sodium hydroxide, ethanol – flammable, 2% sodium azide – toxic, etc.). It is not necessary to inventory non-hazardous chemical stock solutions or kits. For questions concerning the Chemical Inventory System, contact the [EH&S Move Representative](#), 303 724-0127.

#### **Chemical Stock Solutions**

Chemical stock solutions that are useful for further research will be shipped to Anschutz by the Lab Packing Contractor. Make sure that all the outdated or expired chemical stock solutions are properly disposed through EH&S as waste. Chemical stock solutions that are going to be shipped must be properly labeled with a complete chemical name and concentration. In addition, insure that your chemical stock solutions have a proper fitting lid (no cracked lids).

#### **DEA Controlled Substances**

A Drug Enforcement Agency (DEA) license is necessary to purchase controlled substances. Refer to the EH&S guidance note [“Controlled Substances”](#) for information on this subject.

## **Sorting Expired, Outdated and Surplus Chemical Reagents for Disposal**

To minimize the cost and risks of moving hazardous materials to Anschutz, EH&S is requesting that the researchers discard all of their expired, outdated, or surplus chemical reagents through EH&S prior to the move. All chemical reagent containers that are to be shipped to Anschutz must be in good condition (no cracks or corrosion), properly labeled, and have a proper fitting lid. If a chemical reagent container is in poor condition, has a cracked lid or is missing its label, it will not be shipped (dispose as waste).

Chemical waste cannot be shipped to Anschutz; it must be properly disposed through EH&S prior to the move. Please read the EH&S guidance note "[Explosive Chemicals](#)" prior to sorting through chemicals to identify those which may become unstable or potentially explosive when stored for extended periods of time.

EH&S recommends that laboratories start sorting through all their chemicals at least 60 days prior to move date. Do not forget to check every storage cabinet, shelf, drawer, walk-in cold room, refrigerators and freezers for chemical reagents.

Segregate expired or outdated chemical reagents in a separate area within the laboratory so that EH&S may remove these materials for proper disposal. Flammable solvents should be kept in flammable rated storage cabinets until they are picked up by EH&S. Researchers should place incompatible chemicals into secondary containers (plastic tubs or pails) so that if a reagent container leaks a dangerous chemical reaction will not occur.

Surplus chemical reagents that are in good condition may be given away to other researchers working at the 9<sup>th</sup> & CO campus. Make sure that the surplus chemicals are placed inside a secondary container (plastic pail) during transport in hallways or on the UCDHSC campus.

It will not be necessary to submit a "UCDHSC Chemical Waste Disposal Form" to EH&S to request large stocks (more than 25 containers) of chemical reagents to be removed from the laboratory. Call 303-315-5661 or 303-724-0127 to set up an appointment to have the outdated chemical reagents picked up.

## **Chemical Unknowns**

Unlabeled or improperly labeled chemical containers are considered "unknowns" and these materials may be discovered while sorting through the chemicals in the laboratory. If you discover unknowns you should attempt to properly identify the contents of the container by employee knowledge. Whenever an unknown cannot be properly identified it must be placed into its own separate plastic secondary container (plastic cup, bucket, pail, etc.). It is very important that unknowns have secondary containment to prevent incompatible chemicals from mixing together due to leaking or broken containers.

EH&S will characterize the chemical unknowns so that these materials may be properly disposed, however the individual departments may be assessed a fee to cover the cost of characterization and laboratory testing.

## **Flammable Solvents and Potentially Explosive Compounds**

Flammable solvents (alcohols, acetonitrile, acetone, ethyl ether, hexane, many organic solvents) should be stored inside an approved flammable rated storage cabinet prior to offsite shipment or disposal through EH&S.

Each AMC laboratory module will be limited to storing a maximum of two gallons of flammable solvents (including flammable solvent waste) outside of an approved flammable storage cabinet at any time. In addition, the total amount of flammable liquids permitted on an entire floor of an open laboratory building is limited to 450 gallons. Typically, 3-4 laboratory modules may be sharing a single chemical fume hood; therefore, flammable storage space under the hood will be limited. Researchers should plan on moving existing flammable storage cabinets and purchasing additional flammable storage cabinets as needed.

Refer to the EH&S guidance note "[Explosive Chemicals](#)" regarding the proper handling of potentially explosive compounds. Expired peroxidizable solvents (isopropyl ether, ethyl ether, furan, etc.) and potentially explosive compounds (dry picric acid, 2,4-dinitrophenylhydrazine, 2,4,6-trinitrosulfonic acid, etc.) will not be shipped to AMC. If you discover potentially explosive compounds that are in good condition, submit the UCDHSC chemical waste disposal form to EH&S so that these materials may be removed in a timely fashion. Whenever potentially unstable, explosive compounds (crystals present, discoloration etc.) are discovered, call EH&S immediately at 303-724-0345 for assistance.

### **RNase/DNase & Protease Free Molecular Biology Grade Chemicals**

It will be the researcher's responsibility to properly prepare all of their RNase/DNase and protease-free chemical reagents for shipment. The Lab Packing Contractors will be responsible for properly segregating, packing, and shipping the RNase/DNase and protease-free chemicals; therefore, they must be able to read the container's label. One gallon "zip lock" bags are recommended for storing these chemicals prior to packing for shipment.

### **Compressed Gas Cylinders (General Air)**

Large compressed gas cylinders will not be shipped to AMC. All large compressed gas cylinders will be returned to General Air through UCDHSC Materials Management. Submit an electronic request form to UCDHSC Materials Management, [Request to Pick Up Compressed Gas Cylinders](#), to have your large compressed gas cylinders removed from the laboratory. If the compressed gas cylinders have not been removed within three days after submitting the electronic request form, call UCDHSC Materials Management at 303-315-0175. Researchers are responsible for removing the regulators from the gas cylinders and replacing the protective cylinder cap. Compressed gas cylinders must be secured from falling over by use of a stand or chain mounted to the wall.

Researchers will be responsible for ordering replacement compressed gas cylinders through General Air and having them delivered to Anschutz. Do not order replacement compressed gas cylinders through General Air until the research laboratory has been physically relocated to Anschutz.

Small compressed gas cylinders or lecture bottles that were obtained from other gas suppliers that are old or outdated will be disposed through EH&S as waste. Small compressed gas cylinders or

lecture bottles that are new or have a legitimate use will be shipped to Anschutz by the Lab Packing Contractor.

## **Mercury Thermometers, Sphygmomanometer, Blood Pressure Cuffs, Barometers & Other Equipment**

Mercury is a potentially toxic and regulated material. Researchers are responsible for properly segregating all of their mercury containing thermometers, sphygmomanometers, blood pressure cuffs, barometers and other equipment prior to the move. The Lab Packing Contractor will be responsible for shipping all mercury containing equipment to Anschutz. Discard all expired or outdated mercury containing equipment through EH&S as waste.

EH&S has an exchange program for replacing mercury thermometers with non-mercury thermometers. Contact the UCDHSC [Hazardous Materials Specialist](#), 303-724-0344, for more information regarding the program.

Make sure that mercury thermometers have been removed from heating blocks, ovens, incubators, water baths, refrigerators and freezers prior to the move. Place mercury thermometers in their protective shipping tubes. All useful mercury containing equipment will be packaged and shipped by the LPC.

If you spill any metallic mercury, call EH&S at 303-724-0345 to clean up the spill with a special mercury vacuum cleaner. Keep people out of the spill area to prevent the mercury beads from spreading over a larger area.

## **Tax Free Ethanol (200 proof & 190 proof) Cannot be Shipped to AMC**

All 200 and 190 proof ethanol purchased at this campus has been obtained through an ATF Alcohol permit issued to University of Colorado Hospital and **cannot** be shipped to AMC. No 200 proof or 190 proof ethanol (including formulations) may be shipped to the Anschutz Medical Campus. All 200 proof or 190 proof ethanol remaining in laboratories prior to the final move date must be transferred to other 9<sup>th</sup> and CO campus laboratories or submitted to EH&S as chemical waste.

The UCDHSC EH&S Department holds an ATF permit for the Anschutz Medical Campus and distributes this to researchers at cost. For more information contact the [Hazardous Materials Specialist](#), 303 724-0127.

## **Select Agents/Toxins**

If you have [Select agent Toxins](#) to be shipped, segregate them with other toxins, and separate from all other chemical reagents. The Lab Packing Contractor will package and transport toxins in separate shipping containers.

## **Refrigerated Chemical Reagents and other Supplies**

Refrigerators must be emptied. All chemical reagents and other related supplies currently stored inside refrigerators must be removed by the researchers prior to the move. If your refrigerator has been used to store radioactive materials you must also perform smear surveys according to the

guidance provided by UCDHSC Radiation Safety. If your refrigerator has been used to store infectious agents you must wipe down your refrigerator with an appropriate disinfectant.

All non-hazardous reagents and supplies (agar, bovine serum, cell culture media, etc.) can be packaged in reusable rigid plastic coolers supplied by the Project Manager for shipment to AMC. It is imperative that the researchers do not place any hazardous chemical reagents (phenol, chloroform, TEMED, acrylamide, hydrogen peroxide, etc.) in the plastic coolers. Add packing material (e.g. Styrofoam) to prevent breakage. The moving contractor will transport the plastic coolers to AMC.

Researchers will be responsible for unpacking the contents of the coolers. In addition, the researchers will be responsible for removing the packing materials from the coolers and cleaning up any non-hazardous reagents that may have leaked during shipment.

### **Freezers & Frozen Chemicals**

All hazardous chemical reagents currently stored inside freezers (-20 or -70) must be removed by the researchers prior to the move. All hazardous chemical reagents (flammable, oxidizing, corrosive, reactive, or toxic) that must remain frozen must be prepared for shipment by the Lab Packing Contractors.

In general, frozen specimens/samples and most frozen stocks and cultures may be shipped inside a -20 or ultracold freezer in accordance with the UCDHSC DOT exemption. See the EH&S guidance note for "[Biological Materials Shipping UPDATE – January 2007](#)" or contact the Biosafety Office, 303-724-0235, for explicit instructions.