

# K-State Entomology Department

## GOOD LABORATORY SAFETY PRACTICES

(Approved by the Entomology Faculty on December 13, 2000)

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The Department of Entomology at Kansas State University (KSU) is committed to providing a safe and healthy working environment for its students, staff, faculty, and the general public. To minimize the potential exposure to toxic and hazardous materials, the Department requires its students, staff, and faculty to adhere to all KSU laboratory safety policies and rules that govern the research and usage of specific hazards such as chemical, radioactive, and biohazardous materials. Specific laboratory safety rules can be found in *KSU Laboratory Safety Manual* and *KSU Radiation Safety Manual*. These safety manuals also can be found on the KSU Public Safety Department homepage (<http://www.ksu.edu/safety/programs.htm>). Other safety procedures such as Hazard Communication and Medical Surveillance can be found on the K-State Research and Extension homepage ([http://www.oznet.ksu.edu/pr\\_agsafe](http://www.oznet.ksu.edu/pr_agsafe)). The following laboratory safety practices are expected for Entomology laboratories that handle chemicals, biohazardous materials, or radioactive materials.

### 1. Safety and Emergency Equipment

The common safety and emergency equipment include fire extinguishers, first aid kits, emergency eye wash stations and emergency showers, spill kits, fire alarm pull stations, emergency telephones, and emergency exits. Learn and know what to do in an emergency, learn and know how to do it, learn and know where the necessary items are, and become familiar with the whole chain of events before it is necessary to do so.

### 2. Material Safety Data Sheets (MSDS)

When certain chemicals are purchased from a manufacturer or retailer, the company will send MSDS of these chemicals to your laboratory or to the Entomology Business Office. Each research laboratory or program must keep a complete and current set of the MSDS and must make it available to all employees and students working in the laboratory. In addition, it is laboratory's or Business Office's responsibility to make a copy of the MSDS for the Departmental Safety Coordinator to file the same to the departmental MSDS folders that are currently located in the Entomology Business Office (123 Waters Hall). The departmental MSDS folders should be current and complete and should be accessible to all personnel within the Department and other interested persons outside the Department. The MSDS should be filed to both the laboratory folder and departmental folder immediately after it is received. To learn how to file your MSDS, please read *Appendix I*.

### 3. Handling and Storage of Toxic and Hazardous Materials

Never pipette or suction hazardous, caustic, toxic, radioactive, cancer-causing, or biological materials with your mouth. Always perform all procedures involving the liberation of volatile

or toxic or flammable materials in a fume hood to eliminate the risk at the source. All chemical storage bottles should be labeled with content names, dates of acquisition/preparation, and any special safety/hazard notes. Chemicals should be stored based on compatibility. For more information on chemical compatibility, please contact K-State Research and Extension Safety Coordinator at 532-7068 or check *KSU Laboratory Safety Manual* (<http://www.ksu.edu/safety/progrm10.htm>). In addition, any equipment that is used for radioactive materials should be clearly labeled with radiation warning sign(s).

#### **4. Storage and Consumption of Food and Drink**

The separation of food and drink from locations containing toxic and hazardous materials and potentially contaminated items can minimize the risk of accidental ingestion. Never bring food, drink and related utensils into, be stored or be consumed in a laboratory handling toxic and hazardous materials. Do not use microwave ovens for heating food in such laboratories. The Department of Entomology accommodates a refrigerator and a microwave oven in 122 Waters Hall that can be used for storing and heating food/drink.

#### **5. Personal Protection**

Splashing toxic and hazardous materials onto exposed skin or into the eyes can cause serious health problems. The risk of exposure may arise from spilled or splashed chemicals when inappropriate clothing (e.g. shorts and short skirts) is worn. Appropriate eye protection, such as splash goggles, face-shields, or UV blocking glasses, must be available and worn if a risk of injury to eyes exists. Personal Protective Equipment (e.g., laboratory coats and gloves) does not belong in public areas even if presumed uncontaminated and should be stored properly in the laboratory. For example, laboratory coats can be hung near the door inside the laboratory if they are not used.

#### **6. Avoidance of Toxic and Hazardous Contamination**

Insertion or removal of contact lenses and any other manipulations, and application of cosmetics or lip balm in the laboratory could transfer hazardous materials to your eyes or mouth and should be done outside the laboratory with clean hands. Laboratory coats and gloves may be contaminated with radioactive material, biohazardous agents or chemicals and should not be worn in areas such as coffee areas, classrooms and conference rooms. Generally, laboratory clothing should not be washed at home. If a washer dedicated to use for laboratory clothing is not available, laboratory clothing must be washed separately from general clothing. After a washer has been used for laboratory clothing, clean the washer by running it through one full cycle with no clothes in it, but with a full load of hot water and detergent. For cleaning personal clothing contaminated with pesticides, please check the *KSU Agricultural Safety Manual* or the K-State Research and Extension homepage ([http://www.oznet.ksu.edu/pr\\_agsafe/pesticide&fertilizersafety.htm](http://www.oznet.ksu.edu/pr_agsafe/pesticide&fertilizersafety.htm)). Because wearing of gloves is no guarantee that your hands are not contaminated, wash your hands before leaving the laboratory to minimize the risk of carrying radioactive, biological, or other hazards out of

your work area into areas that should be clean and uncontaminated. Make certain that soap and towels are provided in your work area.

## **7. Disposal of Chemicals and Hazardous Materials**

Do not discard broken glassware, used sharps, discharged batteries, fluorescent and high intensity discharge lamps, and chemical wastes in the regular trash receptacles. Broken glassware, used sharps (e.g., needles, syringes, scalpel blades and razor blades), any discharged batteries, burned-out fluorescent and High Intensity Discharge (HID) lamps, and chemical wastes should not be discarded in the regular trash receptacles. Fluorescent and HID lamps contain 15-75 mg of mercury. This mercury could possibly escape from the lamp if discarded in a sanitary landfill, leading to the contamination of the groundwater. The KSU Department of Environmental Health & Safety recycle all burned-out fluorescent and HID lamps and discharged batteries. For properly disposing broken glassware, please see *Appendix II*. For preparations of pick-up services for used sharps, discharged batteries, burned-out lamps, and chemical waste, please see *Appendix III, IV, V and VI*, respectively.

## **8. Laboratory Smoking Policy**

Smoking is prohibited. The proximity to hazardous toxic, radioactive, infectious and flammable substances makes smoking in laboratories a risk of ingestion and fire. For more information, check the Kansas State University Smoking Guidelines (<http://www.ksu.edu/safety/program1.htm>).

## **9. Laboratory Safety for Non-employees**

Unauthorized person(s) should not be allowed in laboratories that handle toxic chemicals, biohazardous materials, or radioactive materials. Authorized means having business in the laboratory with the permission of the principal researcher. It also means that such authorized persons must be provided the same kind of protection from toxic chemicals and hazards as persons working in the laboratory, and be made aware of the hazards in the laboratory. Anyone under the age of eighteen has to be under immediate and direct supervision of a qualified authorized person at all times.

## **10. Laboratory General Safety**

Lock your laboratory when it is unoccupied. This is applied to the situation not only when you leave for the night but also when you enjoy a coffee break or take lunch.

## **11. Radiation Safety**

The faculty member responsible for the research project(s) must obtain a license to use radioactive materials. Licensees must apply to the Campus Radiation Safety Committee. The license will cover only the radioisotopes and quantities approved. For more information, check *KSU Radiation Safety Manual* (<http://www.ksu.edu/safety/program3.htm>) or contact the KSU

Radiation Safety Officer(s) at 532-5856. It is highly recommended that all students, laboratory technicians, research assistants and associates, and faculty members who are using or expecting to use radioactive materials in near future participate in the three one-hour radiation safety training sessions at least once every three years. The previous topics of the training include 1) basic characteristics of radioactivity and radiation, 2) risk assessment, and 3) radiation protection.

## **12. Biosafety**

The Institutional Biosafety Committee (IBC) and the University Research Compliance Office (URCO) have developed online training modules for personnel conducting research using infectious agents, or recombinant DNA (rDNA) at KSU. All personnel listed in the IBC Registration Document as proposing to work with infectious agents and/or rDNA at KSU must complete the applicable training modules prior to final IBC approval of the project. The training modules must be completed only once. Upon completion, the URCO will issue a Certificate of Completion of Training, and maintain a permanent record of training in the database. For more information, check the Kansas State University Research Compliance homepage (<http://www.ksu.edu/research/compliance>).

## **13. Emergency, Incident Investigation and Reporting**

If you are injured on the job and you are on K-State's payroll, you should report to the emergency room at Mercy Hospital (telephone: 785-776-3322) on College Avenue. You should tell them that you are a K-State employee and all charges will be sent into Workers Compensation. You must also notify the Entomology main office immediately. All accidents involving personal injury, substantial damage to equipment, or near miss that could have resulted in a serious injury, shall be reported to the Department Head or his/her designee and investigated the same day. For investigation and reporting procedures, please check the K-State Research and Extension homepage ([http://www.oznet.ksu.edu/pr\\_agsafe/generalsafetywords.htm](http://www.oznet.ksu.edu/pr_agsafe/generalsafetywords.htm)).

## **APPENDIX I: MATERIAL SAFETY DATA SHEETS (MSDS) HANDLING**

After your laboratory purchases certain chemicals, the manufacturer or retailer will send the MSDS for those chemicals to you or to the Entomology Business Office.

### **A. If the Entomology Business Office receives the MSDS:**

1. The office personnel should mark the MSDS with the faculty's last name and date on the upper right corner of the first page of the MSDS;
2. Make a copy of the complete MSDS;
3. Place the original MSDS in the faculty's or his/her technician's mailbox. It is the laboratory's responsibility to file it to the laboratory MSDS folder;
4. Place the copy of the MSDS in the Department Safety Committee chair's mailbox. It is his/her responsibility to file it to the Entomology Department MSDS folder.

### **B. If the laboratory receives the MSDS:**

1. The person who receives the MSDS should mark the MSDS with the faculty's last name and date on the upper right corner of the first page of the MSDS;
2. Make a copy of the complete MSDS;
3. File original MSDS to the MSDS folder of the laboratory that possesses the chemical;
4. Place the copy of the MSDS in the Department Safety Committee chair's mailbox. It is his/her responsibility to file it to the Entomology Departmental MSDS folder.

## **APPENDIX II: PROPER DISPOSAL OF BROKEN GLASSWARE**

1. Deposit broken glassware into a relatively strong cardboard box labeled with "BROKEN GLASSWARE";
2. When the box is full, seal the box with shurtape or other relatively strong tapes;
3. Label it again if "BROKEN GLASSWARE" has been covered by the tape;
4. Ask a custodian to pick it up for proper disposal.

## **APPENDIX III: PROPER DISPOSAL OF USED SHARPS**

1. Deposit the used sharps including needles, syringes, scalpel blades and razor blades into a container labeled with "SHARPS DISPOSAL ONLY";
2. When the container is full, seal cover or seal the container;
3. Call the KSU Department of Environmental Health & Safety (108 Edwards Hall) at 532-5856 for a pick-up service. You would need to tell them the location for the pick-up, your name and phone number.

#### **APPENDIX IV: BURNED-OUT FLUORESCENT AND HIGH INTENSITY DISCHARGE LAMPS**

1. Place the burned-out bulbs in the designated container labeled with “USED FLUORESENT BULBS” in 122 Waters Hall;
2. The Department will call the KSU Department of Environmental Health & Safety (108 Edwards Hall) at 532-5856 for a pick-up service.

#### **APPENDIX V: DEALING WITH DISCHARGED BATTERIES**

1. Remove the discharged batteries from your instrument. The batteries can be all lead (Pb) sealed, alkaline, mercury, silver, nickel-cadmium (NiCad), lithium hydride, and others;
2. Send the discharged batteries to the KSU Department of Environmental Health & Safety (108 Edwards Hall) via campus mail;
3. If the discharged batteries are wet cell batteries, call the KSU Department of Environmental Health & Safety (108 Edwards Hall) at 532-5856 for a pick-up service. You would need to tell them the location for the pickup, your name and phone number.

#### **APPENDIX VI: PREPARATION FOR CHEMICAL WASTE PICK UP**

1. The person responsible for the generation of the waste or the person in charge of the materials should handle the chemical waste;
2. Label all containers describing the materials contained;
3. Date all containers;
4. Tops, caps, and lids are required on all containers;
5. Noncompatible materials should be kept separated;
6. Box groups of containers so that they can be carried easily by hand;
7. Label the box “PUBLIC SAFETY – WASTE”.
8. Call the KSU Department of Environmental Health & Safety (108 Edwards Hall) at 532-5856 for a pick-up service. You would need to tell them the location for the pick-up, your name and phone number.