
LABORATORY SAFETY

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LABORATORY CLOTHING AND PROTECTIVE EQUIPMENT

1. Purpose
2. Policy
3. Procedures
4. References

Attachment A - Guide to the Selection of
Laboratory Clothing

1. PURPOSE This Guide establishes Center-wide procedures for the use of laboratory clothing and other protective equipment.
2. POLICY Employees and visitors to laboratories and other designated areas identified in this Guide are required to wear protective clothing for their personal safety as well as to prevent chemical and microbiological contamination of the research conducted in the Center for Food and Applied Nutrition. All laboratory clothing shall be neat in appearance, properly fitted, mended and suitable for the specific laboratory's environment. At no time is laboratory clothing to be worn outside of the facility.
3. PROCEDURES The laboratory clothing and other protective equipment to be worn by laboratory personnel is dictated by the work environment and the amount of protection required as established in section 1.3 of the CFSAN Chemical Hygiene Program and section 2.1.5.4.1 of the CFSAN Radiation Protection Program Manual. Attachment A, Guide to the Selection of Laboratory Clothing, has been prepared for easy reference to the appropriate protective clothing for specific laboratory conditions.
 - A. All employees and visitors entering laboratories and other designated areas must wear safety glasses. Employees who require prescription lenses must contact the Safety Management Branch for arrangements.
 - B. Closed toe and heel shoes are to be worn when working in the laboratory. Open - toed shoes, sandals and high heeled shoes are not permitted.
 - C. Each laboratory division shall designate a laboratory clothing coordinator. The coordinator will

- (1) Determine specific laboratory clothing requirements (See Attachment A).
 - (2) Serve as the liason with the General Services Branch for the purpose of identifying any problems with the contract laundry service.
 - (3) Assure that 3 long sleeved cotton laboratory coats are provided to each designated laboratory employee.
 - (4) Maintain the storage of clean laboratory coats and coordinate the collection of soiled coats.
 - (5) Assure that the laundry contractor is apprised of any special cleaning and mending needs.
 - (6) Coordinate the supply of protective eyewear, disposable coats, head and shoe covering, gloves, and other protective equipment according to the needs of the division's laboratories.
- D. Laboratory personnel shall wear long sleeved cotton lab coats when performing work in the laboratory.
 - E. No employee is permitted to wear his/her protective clothing outside of the facility.
 - F. At MOD 1, contaminated disposable clothing shall be disposed of as medical waste.
 - G. Requirements for protective clothing to be worn in the barrier (MOD 1) are found in the CFSAN Laboratory Quality Assurance Manual Guide 3008.02.
4. REFERENCES Specific information for the training and operation of protective equipment as well as more detailed description of the types of materials to be used for adequate protection can be found in the following manuals available from the Safety Management Branch.
- A. Chemical Hygiene Program, July 1994
 - B. Radiation Protection Program Manual December 1994

Guide to the Selection of Laboratory Clothing

| Type of Work/Condition | Clothing/Protective Gear |
|--|---|
| General Laboratory Work | Long-sleeved cotton lab coat Closed toe and heel shoes Safety_Glasses |
| Corrosive Chemicals and Eye Irritation Hazards | Apron full face shield Safety Glasses or Goggles Chemically resistant gloves Apron |
| Toxic Vapors, Mists | * NIOSH - approved respirator equipped with chemical cart- ridges suited for the type of Contaminant |
| Toxic Dusts | * NIOSH - approved respirator (equipped with HEPA cartridges) |
| Skin Irritation and Absorption Hazards, Toxic, Allergenic and Sensitizing Chemicals | Chemically resistant gloves |
| Sterile/Clean Room Work | Gown, headcovering, gloves, face mask and shoe covering |
| Radioactive Materials | Safety Glasses or Goggles Latex or Rubber Gloves Long Sleeved Lab Coat |
| Animal Barrier Activities | See CFSAN Laboratory QA Manual Guide 3008.02, Protective Clothing in the Barrier. |

*Training and Medical clearance required.
Please contact the Safety Office.

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USE OF CHEMICAL FUME HOODS

1. Purpose
 2. Policy
 3. Procedures
 4. References
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1. PURPOSE This Guide describes the policy and procedures for the proper use of chemical fume hoods.
 2. POLICY All experiments requiring the use of flammable, toxic or malodorous chemicals, particularly hazardous substances shall be carried out in a fume hood that has been certified to exhaust an average face velocity of 100 linear feet per minute (100 fpm). The CFSAN Safety Management Branch is responsible for assuring the proper function of chemical fume hoods in all center laboratories.
 3. PROCEDURES
 - A. The CFSAN Safety Management Branch shall inspect, and certify each fume hood annually according to procedures outlined in Appendix C of the CFSAN Chemical Hygiene Program.
 - B. Hoods that lack a certification sticker indicating that it had been inspected within a 12 month period shall be reported to the Safety Management Branch for corrective action.
 - C. The hood shall not be used for the permanent storage of chemicals and equipment. Only those materials needed for the immediate experiment should be present in the hood.
 - D. Position the hood sash so that the arrow on the sash is aligned with the arrow on the side of the hood. This is the position at which the average face velocity is at least 100 linear feet per minute. The sash can be used at a lower position but not a higher one.
 - E. Conduct all work at least 6 inches (15.24 cm) back from the front edge of the hood. Place all hazardous chemicals that need to be vented to the rear of the hood to avoid toxic vapors.

- F. Work requiring the use of carcinogens or radionuclides shall be conducted in an impervious tray lined with absorbent paper to prevent contamination to the working surface of the hood.
- G. Questions regarding hood maintenance shall be referred to the Washington Facilities Section (FB-8) or Beltsville Research Facilities Section (MOD I and BRF). Questions regarding airflow in the hood shall be referred to the Safety Management Branch.
4. REFERENCES For more detailed instruction for proper use of chemical fume hoods refer to the CFSAN Chemical Hygiene Program, July 1994.

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USE OF BIOSAFETY CABINET

1. Purpose
 2. Definitions
 3. Policy
 4. Procedure
 5. Reference
-
1. PURPOSE This Guide describes the policy and procedures for the safe use of biosafety cabinets in the laboratory.
 2. DEFINITIONS
 - A. Biosafety Level 1 (BSL1) - Work involving well characterized agents not known to cause disease in healthy human adults and of minimal potential hazard to laboratory personnel and the environment.
 - B. Biosafety Level 2 (BSL2) - Work involving agents of moderate potential hazard to personnel and the environment. The primary hazard of infection involves injection, ingestion or mucous membrane exposure. Procedures with aerosol or high splash potential are conducted in a Class II biosafety cabinet.
 3. POLICY All procedures that require the use of infectious agents that are not known to be transmissible by inhalation but having an aerosol or high splash potential (BSL2) shall be conducted in an approved biosafety cabinet.
 4. PROCEDURE
 - A. The CFSAN Safety Management Branch shall arrange the certification of each biosafety cabinet annually to assure proper operation.
 - B. Protocols (FDA Form 3244) for studies that require the use of BSL2 agents are required to be approved by the Safety Management Branch in addition to all other approvals stated in the CFSAN Laboratory QA Manual Guide 3009.03.
 - C. Researchers whose protocols require the use of a biosafety cabinet shall follow the procedures outlined in the Standard Operating Procedure for the Use of the Biosafety Cabinet approved and issued by the Safety Management Branch.

5. Reference

Standard Operating Procedure for the Use of Biosafety Cabinets
in the Laboratory.

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USE OF RADIOACTIVE MATERIALS

1. Purpose
 2. Definitions
 3. Policy
 4. Procedures
 5. Reference
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1. PURPOSE This Guide describes the Center-wide policy and procedures that dictate the safe use of radioactive materials.
 2. DEFINITIONS
 - A. Authorized User: The lead individual (principal investigator/Study Director) for the project using radioactive material.
 - B. Radiation Worker: An individual working under the supervision of an authorized user.
 3. POLICY All radiation workers and authorized users are required to receive instruction in accordance with 10 CFR 19.12 prior to the initiation of any work with CFSAN licensed materials. The instruction is to be given by the Radiation Safety Officer or a qualified member of the staff as required by the CFSAN Radiation Protection Program Manual.
 4. PROCEDURES
 - A. Laboratory personnel who expect to use radioactive materials in their research are required to take the 8 hour training course provided by the Radiation Safety Officer prior to the initiation of work with these materials. In addition to the 8 hour course, annual refresher training will be required. The Radiation Safety Officer shall maintain records of all training. No protocol will be approved without appropriate training.
 - B. In addition to the CFSAN - Protocol (FDA Form 3244) that is required for all laboratory investigations, researchers who require the use of radioactive materials shall complete for each project an Application for the Use of Radionuclides. The completed application shall be

submitted to the Radiation Safety Officer for review and approval. Radiation safety committee meetings are held on quarterly basis. Additional meetings may be held at the discretion of the CFSAN Radiation Safety Officer.

- C. All radioactive material purchase orders must be approved by the Radiation Safety Officer (RSO). No purchase orders are to be placed until the protocol has been approved by the RSO.
- D. Other requirements for the receipt, handling, monitoring and disposal of radioactive materials are specified in the Radiation Protection Program Manual. Questions concerning specific documentation requirements, submission and approval timeframes may be directed to the Radiation Safety Officer, Safety Management Branch, HFS-657.

5. REFERENCE

Radiation Protection Program Manual, December, 1994.

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CHEMICAL WASTE DISPOSAL

1. Purpose
 2. Policy
 3. Procedures
 4. References
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1. **PURPOSE** This Guide establishes Center-wide policy and procedures for the removal and disposal of chemical waste materials from laboratories at the Washington DC (FB-8) and Maryland (MOD I and BRF) facilities.
 2. **POLICY** The Center for Food Safety and Applied Nutrition is required to dispose of chemical waste from its facilities in a manner that protects the environment and is consistent with the laws of the jurisdictions in which the facilities are located. The CFSAN Hazardous Waste Management Program is directed by the Safety Management Branch who has the responsibility of assuring that chemical waste generated from research activities are removed for disposal in a timely fashion according to the procedures outlined in the CFSAN Chemical Waste Management Guide for The State of Maryland and The District of Columbia Research Facilities.
 3. **PROCEDURES**
 - A. CFSAN Laboratory personnel shall take the necessary hazardous/bio-hazardous material training courses required for all new employees and the annual refresher courses according to the training needs of the employee and the jurisdiction of the facility to which the employee is assigned. The Safety Management Branch is responsible for providing the training and must be contacted for scheduling the appropriate courses.
 - B. Laboratory personnel shall record the contents of the waste container using a hazardous waste label available from the Safety Office.
 1. At FB-8, the date on which waste is first collected in the container must also be recorded on the label as "start date". Hazardous waste is to be picked-up and shipped off site before 90 days from the start date. The laboratory occupant is responsible for notifying the Safety Office for waste pick-up when

the container is full or at least 7 days prior to the 90 day expiration date. Empty waste containers are available from the shipping and receiving room SB-468, from the chemical waste contractor's room 5452 (Tuesday - Thursday) or from the Safety Office room 6014.

2. At MOD I/BRF, laboratory occupants are responsible for notifying the Safety Office when the waste container is full. Empty waste containers are available from the MOD I shipping and receiving room G-205.
 - C. CFSAN Chemical Waste Disposal Forms are available from the Safety Office (FB-8 Rm 6014, MOD I Rm 2003). They shall accompany every waste container scheduled for pick-up. Laboratory personnel must complete this form prior to the scheduled pick-up. Pick-up of chemical waste can be arranged by calling the CFSAN Safety Office Waste Hot Line (202) 205-5266.
4. REFERENCES
- A. CFSAN Chemical Waste Management Guide for Maryland and District of Columbia Research Facilities.
 - B. CFSAN Hazardous Waste Management Program Manual.

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TRANSPORT OF RESEARCH CHEMICALS RADIOACTIVE MATERIALS AND TISSUES

1. Purpose
2. Policy
3. Procedures

1. PURPOSE This Guide establishes Center - wide policy and procedures for the transport of research chemicals, radioactive materials and tissue samples between the CFSAN laboratory facilities FB-8, Washington, DC. and MOD 1/BRF in Beltsville Maryland.
2. POLICY Researchers involved in collaborative research that require the transport of chemicals radioactive materials and/or tissue samples between FB-8 and MOD 1/BRF must follow procedures dictated by the Safety Management Branch. The SMB is familiar with the Code of Federal Regulations (Title 49 Part 171.2 and 173.500-173.510) and the Interstate Commerce laws that govern the shipping of hazardous materials and non infectious research tissue samples between facilities in different jurisdictions.
3. PROCEDURES
 - A. Researchers who intend to transport either chemicals, radioactive materials or tissue sample are required to contact the Safety Office for the appropriate transport container and documentation requirements prior to the transfer of materials between FB-8 and MOD 1/BRF.
 - B. The transport of research chemicals, radioactive materials and tissue samples between FB-8 and MOD 1/BRF is to be done using a government vehicle.