



## PERSONAL PROTECTIVE EQUIPMENT

### CONTENTS

- 1.0 *PURPOSE*
- 2.0 *APPLICABILITY AND SCOPE*
- 3.0 *APPLICABLE REGULATIONS AND STANDARDS*
- 4.0 *DEFINITIONS*
- 5.0 *RESPONSIBILITIES*
  - 5.1 *Employee and Student Responsibilities*
  - 5.2 *Supervisor Responsibilities*
  - 5.3 *Career and Protective Services Responsibilities*
- 6.0 *PERSONAL PROTECTIVE EQUIPMENT SELECTION*
  - 6.1 *Eye and Face Protection*
    - 6.1.1 *Prescription Safety Eyewear*
    - 6.1.2 *Emergency Eyewash Facilities*
  - 6.2 *Head Protection*
  - 6.3 *Foot Protection*
  - 6.4 *Hand Protection*
  - 6.5 *Selection and Use of PPE in Laboratories*
    - 6.5.1 *Laboratory Coats and Gowns*
    - 6.5.2 *Foot Protection*
    - 6.5.3 *Faceshields and Eye Protection*
    - 6.5.4 *Gloves*
  - 6.6 *Cleaning and Maintenance*
- 7.0 *TRAINING AND COMMUNICATION*
- 8.0 *RECORD KEEPING*

- Appendix A Personal Protective Equipment Selection*
- Appendix B Glove Section*
- Appendix C Eye Protection*
- Appendix D Latex Glove Allergies*

### 1.0 *PURPOSE*

The purpose of the USC Personal Protective Equipment Program is to protect workers from both health and physical hazards in the workplace. Personal protective equipment (PPE) is used to protect workers from injury by creating a barrier against workplace hazards.

### 2.0 *APPLICABILITY AND SCOPE*

This program applies to USC students, employees, faculty and staff who may be exposed to physical, chemical and biological hazards in the workplace. Personal protective equipment is not a substitute for good engineering or administrative controls or good work practices, but should be used in conjunction with these controls to ensure health and safety. The selection and purchase of personal protective equipment (PPE) must be based upon an assessment of hazards anticipated in the work area.

### **3.0 APPLICABLE REGULATIONS AND STANDARDS**

California: Title 8, General Industry Safety Orders, 3380-3385  
Federal: Title 29, Code of Federal Regulations, Chapter 1910.95  
Title 29, Code of Federal Regulations, Chapter 1910.1450  
Title 29, Code of Federal Regulations, Chapter 1910.132-138  
ANSI Standard: Z 41.1, Z 87.1, Z 88, Z 89.1

### **4.0 DEFINITIONS**

**Personal Protective Equipment (PPE)** - Protection (head, eye, body, hand, and foot) by means of safety devices and safeguards of such design, strength and quality as to eliminate, preclude or mitigate the hazard.

**Engineering controls** - Eliminate or reduce exposure to a chemical or physical hazard through the use or substitution of engineered machinery or equipment. Examples include self-capping syringe needles, ventilation systems such as a fume hood, sound-dampening materials to reduce noise levels, safety interlocks, and radiation shielding.

**Administrative controls (or work practice controls)** - Changes in work procedures such as written safety policies, rules, supervision, and training with the goal of reducing the duration, frequency, and severity of exposure to hazardous chemicals or situations.

### **5.0 RESPONSIBILITIES**

The University shall make available personal protective equipment to workers whose responsibilities expose them to hazardous situations and environments. Environmental Health and Safety will assist in the hazard assessment of the workplace and the selection of personal protective equipment, but ultimate responsibility for implementation rests with each department.

#### **5.1 Employee and Student Responsibilities**

*It is the responsibility of each employee affected by this program to:*

- Follow the requirements of the Personal Protection Equipment Program;
- Wear personal protection equipment as required;
- Properly maintain and store personal protective equipment;
- Attend required training sessions;
- Regularly inspect personal protective equipment; and
- Inform the supervisor of the need to repair or replace personal protective equipment.

#### **5.2 Supervisor Responsibilities**

*It is the responsibility of each supervisor affected by this program to:*

- Assess job hazards (using MSDS, toxicological databases, Environmental Health and Safety services, etc.);
- Make personal protective equipment available to employees
- Provide appropriate personal protection equipment;

- Provide training on how to wear and maintain appropriate personal protective equipment;
- Ensure employees use the personal protective equipment provide to them.

Supervisors have the primary responsibility for implementation of the PPE Program in their work area. This involves:

- Providing appropriate PPE and making it available to employees.
- Ensuring employees are trained on the proper use, care, and cleaning of PPE.
- Maintaining records on PPE assignments and training.
- Supervising staff to ensure that the PPE Program elements are followed and that employees properly use and care for PPE.
- Seeking assistance from OHS to evaluate hazards.
- Notifying OHS when new hazards are introduced or when processes are added or changed.
- Ensuring defective or damaged equipment is immediately replaced .

### **5.3 Career and Protective Services Responsibilities**

*It is the responsibility of the Division of Career and Protective Services to:*

- Assist departments to identify hazardous tasks that require personal protective equipment;
- Provide assessments of work practices and procedures;
- Assist supervisors with selection of personal protective equipment; and
- Assist in training personnel in the proper use and care of personal protective equipment.
- Conduct workplace hazard assessments to determine the presence of hazards which necessitate the use of PPE.
- Conduct periodic workplace reassessments as requested by supervisors and/or as determined by OHS.
- Maintain records on hazard assessments.
- Provide training and technical assistance to supervisors on the proper use, care, and cleaning of approved PPE.
- Provide guidance to the supervisor for the selection and purchase of approved PPE.
- Periodically reevaluate the suitability of previously selected PPE.
- Review, update, and evaluate the overall effectiveness of the PPE Program.

## **6.0 PERSONAL PROTECTIVE EQUIPMENT SELECTION**

### **6.1 Eye and Face Protection**

Prevention of eye injuries requires that all persons who may be in eye hazard areas wear protective eyewear. This includes employees, visitors, researchers, contractors, or others passing through an identified eye hazard area. To provide protection for these personnel, Supervisors of such areas shall procure a sufficient quantity of goggles and/or plastic eye protectors which afford the maximum amount of protection possible. If these personnel wear personal glasses, they shall be provided with a suitable eye protector to wear over them.

Suitable protectors shall be used when employees are exposed to hazards from flying particles, molten

metal, acids or caustic liquids, chemical liquids, gases, or vapors, bioaerosols, or potentially injurious light radiation.

- Wearers of contact lenses must also wear appropriate eye and face protection devices in a hazardous environment.
- Side protectors shall be used when there is a hazard from flying objects.
- Goggles and face shields shall be used when there is a hazard from chemical splash.
- Face shields shall only be worn over primary eye protection (safety glasses or goggles).
- For employees who wear prescription lenses, eye protectors shall either incorporate the prescription in the design or fit properly over the prescription lenses.
- Protectors shall be marked to identify the manufacturer.
- Equipment fitted with appropriate filter lenses shall be used to protect against light radiation. Tinted and shaded lenses are not filter lenses unless they are marked or identified as such.

### **6.1.1 Prescription Safety Eyewear**

OSHA regulations require that each affected employee who wears prescription lenses while engaged in operations that involve eye hazards shall wear eye protection that incorporates the prescription in its design, or shall wear eye protection that can be worn over the prescription lenses (goggles, faceshields) without disturbing the proper position of the prescription lenses or the protective lenses. Personnel requiring prescription safety glasses must contact the Office of Health and Safety to have their request for prescription safety glasses processed.

### **6.1.2 Emergency Eyewash Facilities**

Emergency eyewash facilities meeting the requirements of ANSI Z358.1 will be provided in all areas where the eyes of any employee may be exposed to corrosive materials. All such emergency facilities will be located where they are easily accessible in an emergency.

## **6.2 Head Protection**

Head protection will be furnished to, and used by, all employees and contractors engaged in construction and other miscellaneous work. Head protection is also required to be worn by engineers, inspectors, and visitors at construction sites when hazards from falling or fixed objects, or electrical shock are present. Bump caps/skull guards will be issued and worn for protection against scalp lacerations from contact with sharp objects. However, they will not be worn as substitutes for safety caps/hats because they do not afford protection from high impact forces or penetration by falling objects.

## **6.3 Foot Protection**

Safety shoes shall be worn in the shops, warehouses, maintenance, cagewash, glassware, and other areas as determined by OHS. All safety footwear shall comply with ANSI Z41-1991, "American National Standard for Personal Protection - Protective Footwear."

Safety shoes or boots with impact protection are required to be worn in work areas where carrying or handling materials such as packages, objects, parts or heavy tools, which could be dropped; and for other activities where objects might fall onto the feet. Safety shoes or boots with compression protection are required for work activities involving skid trucks (manual materials handling cars) or other activities in which materials or equipment could potentially roll over an employee's feet. Safety shoes or boots

with puncture protection are required where sharp objects such as nails, wire, tacks, screws, large staples, scrap metal etc., could be stepped on by employees causing a foot injury.

#### **6.4 Hand Protection**

Suitable gloves shall be worn when hazards from chemicals, cuts, lacerations, abrasions, punctures, burns, biologicals, and harmful temperature extremes are present. Glove selection shall be based on performance characteristics of the gloves, conditions, durations of use, and hazards present. One type of glove will not work in all situations.

The first consideration in the selection of gloves for use against chemicals is to determine, if possible, the exact nature of the substances to be encountered. Read instructions and warnings on chemical container labels and MSDSs before working with any chemical. Recommended glove types are often listed in the section for personal protective equipment.

All glove materials are eventually permeated by chemicals. However, they can be used safely for limited time periods if specific use and other characteristics (i.e., thickness and permeation rate and time) are known. The Office of Health and Safety can assist in determining the specific type of glove material that should be worn for a particular chemical.

#### **6.5 Selection and Use of PPE in Laboratories**

PPE may be required to reduce the risk of exposure of an employee by contact, inhalation or ingestion of an infectious agent, toxic substance, or radioactive material. For biological agents, the Biosafety Branch, OHS, in conjunction with the Lab Supervisor will determine the Biosafety Level for the lab and the appropriate type of PPE required to be worn while working in the lab. Personnel utilizing radioactive materials are required to follow the requirements for protective equipment and clothing provided by the CDC Radiation Safety Manual and the Radiation Safety Officer.

##### **6.5.1 Laboratory Coats and Gowns**

The lab coat can be used to protect street clothing against biological or chemical spills as well as to provide some additional body protection. The specific hazard(s) and the degree of protection required must be known before selecting coats for lab personnel.

The CDC/NIH guidelines (BMBL) for biocontainment practices recommend the use of a lab coat, gown, smock, or uniform while working in BSL2 laboratories. They further recommend solid-front or wrap-around gowns, scrub suits, or coveralls.

##### **6.5.2 Foot Protection**

Safety shoes should be worn in any area where there is a significant risk of dropping heavy objects on the foot. For general biological lab use, comfortable shoes such as tennis shoes or nurses shoes are used extensively. Sandals and other types of open-toed shoes are not permitted in labs using biohazards or chemicals, due to the potential exposure to infectious agents or toxic materials as well as physical injuries associated with the work.

Boots, shoe covers, or other protective footwear, and disinfectant footbath may be required for work in BSL3 labs.

**6.5.3 Faceshields and Eye Protection**

Faceshields and goggles should be worn whenever procedures with a high potential for creating aerosols are conducted. These include necropsy of infected animals, harvestig of tissues, or fluids from infected animals and manipulations of high concentrations or large volumes of infectious materials. Appropriate eye and face protection shoul dalso be worn by all personnel entering animal rooms housing non-human primates.

**6.5.4 Gloves**

Gloves are worn in labs and animal rooms when handling infected animals and when skin contact with infectious materials, including blood and body fluids, is unavoidable.

**6.6 Cleaning and Maintenance**

It is important that all PPE be kept clean and properly maintained. Cleaning is particularly important for eye and face protection where dirty or fogged lenses could impair vision. PPE should be inspected, cleaned, and maintained at regular intervals so that the PPE provides the requisite protection. Personal protective equipment shall not be shared between employees until it has been properly cleaned and sanitized. PPE will be distributed for individual use whenever possible.

It is also important to ensure that contaminated PPE which cannot be decontaminated is disposed of in a manner that protects employees from exposure to hazards.

**7.0 TRAINING AND COMMUNICATION**

Any worker required to wear PPE shall receive training in the proper use and care of PPE. Periodic retraining shall be offered by OHS to both the employees and the supervisors, as needed. The training shall include, but not necessarily be limited to, the following subjects:

- When PPE is necessary to be worn.
- What PPE is necessary
- How to properly don, doff, adjust, and wear PPE.
- The limitations of the PPE.
- The proper care, maintenance, useful life and disposal of the PPE.

After the training, the employees shall demonstrate that they understand the components of the PPE Program and how to use PPE properly, or they shall be retrained.

**8.0 RECORD KEEPING**

Written records shall be kept of the names of persons trained, the type of training provided, and the dates when training occurred.

**9.0 PROGRAM APPROVAL AND REVIEW**

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Date revised	02/05/2006	Alfred M. Bouziane