STONY BROOK STATE UNIVERSITY OF NEW YORK	Environmental Health and Safety Manual Policy Number: EH&S **7-1**	
Title: **Personal Protective Equipment**		
Effective Date: 1993	Revision: 2/97	Number of Pages: 14

PURPOSE: To present the principles for proper selection of personal protective equipment and to establish procedures for its use.

SCOPE: University wide.

PROCEDURES:

I. Responsibilities

A. Departments

To ensure that the provisions of this policy are understood and practiced by their employees. Specifically, the department will:

1. Assist the Department of Environmental Health and Safety in assessing the workplace to determine if hazards are present or likely to be present in order to identify areas and work activities where personal protective equipment (PPE) is to be used. See Appendices A and B for guidelines.

2. Provide employees with the appropriate type and size of personal protective equipment. Employees with allergies to latex or other PPE material must be accommodated with alternate materials. PPE is provided without cost to the employee.

3. Control the issuance and storage area of protective equipment to ensure that it is sanitary, in reliable condition, and used properly.

4. Ensure the use of protective equipment when required.

5. Provide for medical evaluation as applicable. Medical evaluations are to be provided at no cost to the employee.

B. Department of Environmental Health and Safety

1. Assess each department's workplace to determine if hazards are present or likely to be

present in order to identify areas and work activities where personal protective equipment is to be used.

2. Complete a written certification of hazard assessment and proper selection of protective equipment.

3. Provide approval for protective equipment after completion of the hazard assessment and upon receipt of documentation of medical clearance from a qualified health care provider, as applicable.

4. Provide training on the selection, proper use and maintenance of personal protective equipment.

5. Maintain the written certifications of hazard assessment and training.

C. Employees

1. Use and maintain protective equipment as required.

2. Be trained as deemed necessary.

3. Be capable of demonstrating the ability to use PPE properly.

D. Purchasing

1. All purchase requests for PPE must be forwarded to the Department of Environmental Health and Safety prior to purchasing the equipment.

II. Equipment

1. Personal protective equipment is issued for specific types of hazards. Personal protective equipment must meet national standards (ANSI) and/or NIOSH certification where applicable.

2. Appendix A serves as a general guideline for the proper selection of various types of personal protective equipment. Appendix B is to be used to determine the hazards in each work area and selection guidelines for the appropriate personal protective equipment.

A. Eye Protection

1. Eye protection is required in work locations and during activities where eye hazards or potential eye hazards exist. These hazards may include flying particles, molten metal, chemicals such as acids or caustic liquids, gases, vapors or light radiation. Work areas where these hazards may be found include shop areas, laboratories, garages, ground work, construction sites, chemical use, machining, carpentry, welding, hazardous waste management, and laser operations.

2. Contact lenses do not provide eye protection from chemical assault. Contact lenses may cause materials or particles on the surface of the eye to become trapped. Some chemicals cause pain and spasms which make lens removal difficult. Contact lenses must not be worn where exposures to chemicals may occur unless chemical splash goggles are worn.

3. Protective eye and face devices purchased after July 5, 1994 shall comply with ANSI Z87.1-1989.

B. Head Protection

1. Head protection is required in work locations and during activities where head injury hazards or potential for head injury hazards exist. These hazards may include absorption of harmful substances, severe cuts or lacerations, abrasions, punctures, chemical burns, thermal burns and temperature extremes. Work areas where these hazards may be found include utility rooms, power plants, construction activities, and rigging.

2. Protective helmets purchased after July 5, 1994 shall comply with ANSI Z89.1-1986.

C. Hand Protection

1. Hand protection is required in work locations and during activities where injuries to the hands, chemical exposures or electrical contact or potential for hazards to the hands exist. Work areas where these hazards may be found include construction activities, hot work, maintenance activities, custodial activities, materials handling, waste management, chemical handling and blood or body fluid exposures.

2. Gloves used with chemicals must be selected to provide protection from the specific

chemical to be used. Permeation and degradation rates must be considered.

D. Foot Protection

1. Foot protection is required in work locations and during activities where foot injury hazards or the potential for foot injuries exist. These hazards may include falling and rolling objects, objects piercing the sole, or electrical hazards. Work areas where these hazards may be found include warehouses, maintenance areas, power plants, construction activities, material handling, landscaping, machine shops, drum and cylinder handling, and vehicle repair.

2. Protective footwear purchased after July 5, 1994 shall comply with ANSI Z41-1991.

E. Body Protection

1. Body protection is required in work locations and during activities where injuries to the body, chemical exposures, blood and body fluid exposures or the potential for hazards to the body may exist. Examples include laboratories, welding, fire fighting, and hazardous materials emergency response.

2. Permeation and degradation rates must be considered when body protection is required for chemical exposures.

F. Hearing Protection

1. Hearing protection is required in work locations and during activities where elevated noise levels exist. Examples include power plants and the incinerator. Consult the Hearing Conservation Program for specific guidelines.

G. Respiratory Protection

1. Respiratory protection is required in work locations and during activities where respiratory hazards or potential respiratory hazards exist. Examples include power plants, tuberculosis, some maintenance and custodial activities, and hazardous materials emergency response. Consult the Respiratory Protection Program for specific

guidelines.

H. Miscellaneous Protection

1. Other work locations and activities where hazards or potential hazards exist may require additional personal protective equipment and specific training. Examples of additional protective equipment may include surgical masks, welding aprons, metatarsal guards, safety belts, lanyards, cryogenic gloves, and electrical insulating cloths or mats. Specific review is required to identify when additional protective equipment is needed.

III. Training

1. Training must be provided for all employees who must wear PPE. Topics include:

   a. when PPE is necessary

   b. what PPE is necessary

   c. how to properly don, doff, adjust and wear PPE

   d. limitations

   e. proper care, inspection, maintenance, useful life, and disposal

2. Training must be provided to employees before they are allowed to perform work requiring the use of PPE.

3. Employees must be retrained when there are changes in the workplace which impact the use of PPE; when there are changes in the types of PPE to be used; or when inadequacies in an employee's knowledge or use of assigned PPE indicate that the employee has not retained understanding or skill.

4. Written certification verifying that the employee has received and understood the subject training is required.

-Rev. 2/97-

TITLE: **Personal Protective Equipment**	POLICY: **7-1**

INQUIRIES/REQUESTS: Environmental Health and Safety
110 Suffolk Hall
Zip 6200
Main Office: 632-6410
FAX: 632-9683

RELATED FORMS: Personal Protective Equipment Hazard Assessment

RELATED DOCUMENTS:

29 CFR 1910.132 *Personal Protective Equipment General Requirements*

29 CFR 1910.133 *Eye and Face Protection*

29 CFR 1910.134 *Respiratory Protection*

29 CFR 1910.135 *Head Protection*

29 CFR 1910.136 *Foot Protection*

29 CFR 1910.137 *Electrical Protective Equipment*

29 CFR 1910.138 *Hand Protection*

ANSI Z41-1991 *Personal Protection: Protective Footwear*

ANSI Z87.1-1986 *Practice for Occupational and Educational Eye and Face Protection*

ANSI Z89.1-1986 *Protective Headwear for Industrial Workers*

-Rev. 2/97-

APPENDIX A

The following table is presented to serve as a guideline for the proper selection of various types of personal protective equipment. The Department of Environmental Health and Safety should be consulted for specific recommendations and requirements, including chemical permeation and degradation information.

Body Area	**Hazards**	**Type(s) of Protection**
Eye/Face	General Plant Wear	Safety Glasses with Side Shields
	Low Velocity Flying Chips	Safety Glasses with Side Shields
	High Velocity Flying Chips	Impact Goggles or Safety Glasses with Full Faceshield
	Corrosive Liquid	Chemical Goggles and Full Faceshield
	Welding, Cutting or Hot Work	Welding Helmet with Tinted Lenses and Safety Glasses with Side Shields
Head/Ears	General Plant Wear: - Elevated Work, including Cherry Pickers, Telescoping Booms, or Aerial Work Platforms - Rigging - Material Handling - Maintenance - Construction Operations - Demolition Operations - Confined Space	Hard Hat
	High Noise Levels	Ear Plugs or Muff
Respiratory	Low Hazard Inert Dust	

-Rev. 2/97-

System	Not Requiring Respiratory Protection	Dust Mask
	Respirable Dust	Dust/Mist or HEPA Respirator
	Low Concentration of Solvent Vapors	Respirator with Organic Vapor Cartridge
	Acid Mist	Respirator with Acid Mist Cartridge
	High Concentration of Dusts or Vapors	Supplied Air Respirator
	Oxygen Deficiencies or Toxic Gases	Self Contained Breathing Apparatus
Hands/Arms	Handling Rough or Sharp Objects	Leather Gloves
	Handling Hot Objects	Leather, Aluminized Fabric, High Intensity Heat Resistant Gloves
	Using Organic Solvents	Various Glove Materials: Nitrile, Rubber, PVC, etc.
	Potential Exposure to Blood or Body Fluids	Latex Gloves
	Electric Current	Rubber Dielectric Gloves
	Petroleum	Nitrile Gloves
Feet/Legs	General Plant Wear or Light Material Handling	Safety Toe Shoes

-Rev. 2/97-

	Chainsaws or Abrasive Blasting	Leggings or Chaps
	Working with Steam or Corrosive Liquids	Safety Toe Boots
	Chemicals	Various Overboots Depending on Chemical
Trunk/Body	Exposure to Vehicular Traffic	Red or Orange Reflective Warning Garments
	Welding, Cutting, or Brazing	Cape or Snood
	Punctures, Impact or Cuts	Canvas or Leather Apron
	Chemicals	Lab Coat
	Maintenance	Coveralls

-Rev. 2/97-

Appendix B
Personal Protective Equipment Hazard Assessment

Section 1. Demographic Data		
Department	**Building**	**Room No.**
Evaluator	**Date**	
Contact Person	**Phone No.**	
Type of Work Performed		

Section 2. Personal Protective Equipment

Gloves	R/U	Eye/Face	R/U	Hearing	R/U
Acid		**Safety Glasses**		**Earplugs**	
Base		**Chemical Goggles**		**Muffs**	
Solvents		**Face Shield**		**Combination**	
Oil		**Impact Goggles**			
Infectious		**Heat**			
Radiation		**Light**			
Cold Surface		**Welding Helmet**			
Hot Surface					
High Voltage					
Cuts					

Body	R/U	Head	R/U	Foot	R/U
Lab Coat		**Impact**		**Chemical**	
Aprons		**Cold Weather**		**Impact**	
Coveralls		**Electrical (low)**		**Puncture**	
Full Body Suit		**Electrical (high)**		**Non-conductive**	
Cold Weather				**Conductive**	
Heat Suit				**Cold Weather**	
Safety Belt or Harness					

Respirator	Hazard	Manufacturer	NIOSH TC NO.	R/U
1/2 Face				
Full Face				
PAPR				
Disposable				
Self Contained				
Airline				

R=Required U=Utilized

Personal Protective Equipment Requirements

I. General Requirements

1. **Eye Protection:** When an operation or activity has the potential of an eye injury from dust, liquids, impact, glare, or any other foreign object entering the eye.

2. **Face Protection:** When an operation or activity has the potential of a face injury from flying objects, chemical splash, or injurious radiation. Eye protection must always be worn under face protection.

3. **Respiratory Protection:** When an operation or activity has a potential of harmful dusts, fumes, gases, vapors, or radionuclides being present in the work environment.

4. **Hearing Protection:** When working in an area designated as a hearing protection area and/or when working near equipment with a noise level of 85 dB or greater.

5. **Hard Hats:** When working at or visiting construction sites, designated hard hat areas, or any other area where tools or objects may fall from above. When working with equipment used for lifting or excavating, or working on high voltages that require rubber gloves.

6. **Safety Shoes:** When an operation or activity has the potential of a foot injury from falling and/or rolling objects, from piercing the sole, or from electrical hazards.

7. **Gloves:** When an operation or activity has the potential to cut, burn, blister or bruise the hands, especially when working with chemicals, high voltages, metal plates, or pipes.

8. **Safety Belts:** When working from an aerial lift, riding in a man-lift or working on any unguarded raised platform or roof.

9. **Safety Harness:** When working in Confined Space Operations.

10. **Disposable Clothing:** When an operation or activity has the potential of an exposure to asbestos, PCB oil, pesticide spray, or any other contaminant.

11. **Protective Clothing:** Whenever engaged in an activity or operation where the normal working attire will not afford suitable protection from injury.

-Rev. 2/97-

II. Eye and Face Protection Selection Chart

Source	Assessment of Hazard	Protection
IMPACT - Chipping, grinding, machining, masonry work, woodworking, sawing, drilling, chiseling, powered fastening, riveting, and sanding.	Flying fragments, objects, large chips, particles of sand, dirt, etc.	Spectacles with side protection, goggles, face shields. See notes (1), (3), (5), (6), (10). For severe exposure, use faceshield.
HEAT - Furnace operations, pouring, casting, hot dipping, and welding.	Hot sparks..... Splash from molten metals.. High temperature exposure..	Face shields, goggles, spectacles with side protection, For severe exposure use faceshield. See notes (1), (2), and (3). Face shields worn over goggles. See notes (1), (2), and (3). Screen face shields, reflective face shields. See notes (1), (2), and (3).
CHEMICALS - All chemical handling.	Splash..... Irritating mists.....	Goggles, eyecup and cover types. For severe exposure, use face shield. See notes (3), (11). Special purpose goggles.
DUST - Woodworking, buffing, general dusty conditions.	Nuisance dust	Goggles, eyecup and cover types. See note (8).
LIGHT RADIATION - Welding: Electric arc Welding: Gas Cutting, Torch brazing, Torch soldering	 Optical radiation..... Optical radiation..... Optical radiation.....	 Welding helmets or welding shields. Typical shades: 10-14. See notes (9), (12). Welding goggles or welding face shield. Typical shades: gas welding 4-8, cutting 3-6, brazing 3-4. See note (9). Spectacles or welding face shield. Typical shades 1.5-3. See notes (3), (9).

Notes to Eye and Face Protection Selection Chart:

(1) Care should be taken to recognize the possibility of multiple and simultaneous exposure to a variety of hazards. Adequate protection against the highest level of each of the hazards should be provided. Protective devices do not provide unlimited protection.

(2) Operations involving heat may also involve light radiation. Protection from both hazards must be provided.

-Rev. 2/97-

(3) Face shields should only be worn over primary eye protection (spectacles or goggles).

(4) Filter lenses must meet the requirements for shade designations in 29 CFR 1910.133(a)(5). Tinted and shaded lenses are not filter lenses unless they are marked or identified as such.

(5) Persons whose vision requires the use of prescription (Rx) lenses must wear either protective devices fitted with prescription (Rx) lenses or protective devices designed to be worn over regular prescription (Rx) eyewear.

(6) Wearers of contact lenses must also wear appropriate eye and face protection devices in a hazardous environment. It should be recognized that dusty and/or chemical environments may represent an additional hazard to contact lens wearers.

(7) Caution should be exercised in the use of metal frame protective devices in electrical hazard areas.

(8) Atmospheric conditions and the restricted ventilation of the protector can cause lenses to fog. Frequent cleansing may be necessary.

(9) Welding helmets of face shields should be used only over primary eye protection (spectacles or goggles).

(10) Non-side shield spectacles are available for frontal protection only, but are not acceptable eye protection for the sources and operations listed for "impact".

(11) Ventilation should be adequate, but well protected from splash entry. Eye and face protection should be designed and used so that it provides both adequate ventilation and protects the wearer from splash entry.

(12) Protection from light radiation is directly related to filter lens density. See note (4). Select the darkest shade that allows task performance.

-Rev. 2/97-

III. Selection Guidelines for Head Protection

All head protection (helmets) is designed to provide protection from impact and penetration hazards caused by falling objects. Head protection is also available which provides protection from electric shock and burn. When selecting head protection, knowledge of potential electrical hazards is important. Class A helmets, in addition to impact and penetration resistance, provide electrical protection from low voltage conductors (they are proof tested to 2,200 volts). Class B helmets, in addition to impact and penetration resistance, provide electrical protection from high voltage conductors (they are proof tested to 20,000 volts). Class C helmets provide impact and penetration resistance (they are usually made of aluminum which conducts electricity), and should not be used around electrical hazards.

Where falling object hazards are present, helmets must be worn. Some examples include: working below other workers who are using tools and materials which could fall; working around or under conveyor belts which are carrying parts or materials; working below machinery or processes which might cause material or objects to fall; and working on exposed energized conductors. Some examples of occupations for which head protection should be routinely considered are: carpenters, electricians, mechanics and repairers, plumbers and pipe fitters.

IV. Selection Guidelines for Foot Protection

Safety shoes and boots which meet the ANSI Z41-1991 Standard provide both impact and compression protection. Where necessary, safety shoes can be obtained which provide puncture protection. In some work situations, metatarsal protection should be provided, and in other special situations, electrical conductive or insulating safety shoes would be appropriate.

Safety shoes or boots with impact protection would be required for 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 would be required for work activities involving skid trucks (manual material handling carts) around bulk rolls and around heavy pipes, all of which could potentially roll over an employee's feet. Safety shoes or boots with puncture protection would be required where sharp objects such as nails, wire, tacks, screws, large staples, etc, could be stepped on by employees, causing a foot injury.

Some occupations for which foot protection should be routinely considered are: shipping and receiving clerks, stock clerks, carpenters, electricians, machinists, mechanics and repairers, plumbers and pipe fitters, gardeners and groundskeepers.

V. Selection Guidelines for Hand Protection

Gloves are often relied upon to prevent cuts, abrasions, burns, and skin contact with chemicals that are capable of causing local or systemic effects following dermal exposure. There are no gloves available that provide protection against all potential hand hazards, and commonly available glove materials provide only limited protection against many chemicals. Therefore, it is important to select the most appropriate glove for a particular application and to determine how long it can be worn, and whether it can be reused.

-Rev. 2/97-