3.0 Personal Protective Equipment
PERSONAL PROTECTIVE EQUIPMENT (PPE)

A. Eye and Face Protection

Requirements: 29 CFR 1910.133(a), ANSI Z78

Note: Substitute instructor for employer for the purpose of this plan

(a) General requirements. (1) The employer shall ensure that each affected employee uses appropriate eye or face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation. (2) The employer shall ensure that each affected employee uses eye protection that provides side protection when there is a hazard from flying objects. Detachable side protectors (e.g. clip-on or slide-on side shields) meeting the pertinent requirements of this section are acceptable. (3) The employer shall ensure that each affected employee who wears prescription lenses while engaged in operations that involve eye hazards wears eye protection that incorporates the prescription in its design, or wears eye protection that can be worn over the prescription lenses without disturbing the proper position of the prescription lenses or the protective lenses.

Requirements for Chabot Chemistry Laboratories and Stockroom:

1. Eye protection must be made available to all employees or visitors to laboratories where chemicals are used and stored. Protective eye and face equipment must be used where there is a reasonable probability of injury from hazardous chemicals that can be prevented by such equipment.

2. All eye protective devices must be stamped with "Z87" by the manufacturer if they meet ANSI standards. If the eye protection is not marked, it may not be the most effective protection available.

3. The instructor should establish the level of eye protection needed per laboratory activity. Specialized types of eye protection, such as ultraviolet light restricting safety glasses, are available. The following types of eye protection are recommended for use in the laboratory by ANSI:

   a. Safety glasses with side shields offer minimal protection against flying fragments, chips, particles, sand and dirt. When a splash hazard exists, other protective eye equipment should be worn.

   b. Safety goggles (impact goggles) offer adequate protection against flying particles. These should be worn when working with glassware under reduced or elevated pressure.

   c. Chemical splash goggles (acid goggles) have indirect venting for splash-proof sides, which provide adequate protection against splashes. Chemical splash goggles offer the best eye protection from chemical splashes. Impact goggles should not be worn when danger of a splash exists.

   d. Faceshields protect the face and neck from flying particles and splashes. Additional eye protection should always be worn under faceshields. Ultraviolet light face shields should be worn when working over UV light sources.

4. Do not wear contact lenses in the laboratory or other areas where hazardous atmospheres may be present. Contact lenses provide no eye protection and may reduce the effectiveness of emergency eyewash.
5. The recommended eye/face protection usage for various situations is as follows:

<table>
<thead>
<tr>
<th>Situation</th>
<th>Eye/Face Protection Recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Entry into Laboratory or Liquid Chemical Area where a probability of</td>
<td>Safety Glasses (use common sense)</td>
</tr>
<tr>
<td>eye injury exists</td>
<td></td>
</tr>
<tr>
<td>b. Handling Corrosive Chemicals</td>
<td>Splash Goggles</td>
</tr>
<tr>
<td>c. Handling Injurious Chemicals</td>
<td>Splash Goggles</td>
</tr>
<tr>
<td>d. Transferring more than one-liter quantities of</td>
<td>Splash Goggles and Face Shield</td>
</tr>
<tr>
<td>Corrosive or Injurious chemicals</td>
<td></td>
</tr>
</tbody>
</table>

Note: The use of corrosives and injurious chemicals would definitely require eye protection. Liquid corrosive chemicals are those with a pH ≤ 4.0 or a pH ≥ 9.0. Solid chemicals are considered corrosive when in solution; the solution would fall in the above pH range. A highly corrosive chemical has a pH ≤ 2.0 or a pH ≥ 12.5. Injurious chemicals cause tissue destruction at the site of contact. Refer to the MSDS for assistance in determining the injurious nature of chemicals and for recommendations on eye protection.

B. Hand Protection


General requirements: (a) Employers shall select and require employees to use appropriate hand protection when employees’ hands are exposed to hazards such as those from skin absorption of harmful substances; severe cuts or lacerations; severe abrasions; punctures; chemical burns; thermal burns; and harmful temperature extremes.

(b) Selection. Employers shall base the selection of the appropriate hand protection on an evaluation of the performance characteristics of the hand protection relative to the task(s) to be performed, conditions present, duration of use, and the hazards and potential hazards identified.

Requirements for Chabot Chemistry Laboratories and Stockroom:

1. Nitrile gloves will be supplied for use in the laboratories and/or stockroom.

2. When using carcinogenic substances, specifically methylene chloride or chromium (VI) compounds, double nitrile gloves or neoprene gloves will be utilized.

3. The recommended hand protection for various situations is as follows:

<table>
<thead>
<tr>
<th>Situation</th>
<th>Hand Protection Recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Use of general chemicals, oils, greases, petroleum products, acids or</td>
<td>Nitrile gloves</td>
</tr>
<tr>
<td>bases</td>
<td></td>
</tr>
<tr>
<td>b. Use of heat and/or abrasive items</td>
<td>Neoprene gloves</td>
</tr>
<tr>
<td>c. Use of carcinogenic chemicals (specifically methylene chloride or</td>
<td>Double nitrile gloves or Neoprene gloves</td>
</tr>
<tr>
<td>chromium (VI) compounds)</td>
<td></td>
</tr>
<tr>
<td>d. Transfers of chemical containers</td>
<td>Nitrile gloves</td>
</tr>
</tbody>
</table>
C. Body Protection


Skin and body protection involves the use of protective clothing to protect individuals from chemical exposure. Determine clothing needed for the chemical being used, as protective garments are not equally effective for every hazardous chemical. Some chemicals will permeate a garment in a very short time, whereas others will not. The basic and most effective forms of protection are gloves and lab coats.

Requirements for Chabot Chemistry Laboratories and Stockroom:

1. Open-toe shoes, open-heel shoes, or sandals are never allowed when working with injurious or corrosive chemicals. They are not allowed in the laboratories or stockroom area. There is no reference to open heel footwear in the regulations but common sense should be used.

2. Shorts and skirts are not prohibited by regulation but common sense dictates that if working with injurious or corrosive chemicals they would not be appropriate. It is a standard rule that shorts or skirts will not be worn in laboratories or stockroom area, so it isn’t specifically addressed in the regulations.

3. Laboratory coats (coveralls or aprons) should be utilized by employees, even when there is minimal danger of skin contact with any hazardous substance.

4. Laboratory coats may not be taken home to launder. Disposable laboratory coats will be provided to all employees.

5. Laboratory coats can be perspiring but are better than no protection. The lab coat should be removed quickly if a spill occurs.

6. Exposures to strong acids and acid gases, organic chemicals and strong oxidizing agents, carcinogens, and mutagens require the use of specialized protective equipment that prevents skin contamination. Impervious protective equipment must be utilized. Examples include: rubber gloves, aprons, boots, and protective suits.

D. Foot Protection

Requirement: 29 CFR 1910.136(a)

General requirements. The employer shall ensure that each affected employee uses protective footwear when working in areas where there is a danger of foot injuries due to falling or rolling objects, or objects piercing the sole, and where such employee’s feet are exposed to electrical hazards.

Requirements for Chabot Chemistry Laboratories and Stockroom:

1. Open-toe shoes, open-heel shoes, or sandals are never allowed when working with injurious or corrosive chemicals. They are not allowed in the laboratories or stockroom. There is no reference to open heel footwear in the regulations but common sense should be used.

E. Hair

Long hair should be pulled back when working with chemicals.

F. Respirators

Only authorized personnel who have been trained, received medical clearance, and have been properly fit-tested are allowed to use respiratory protection.