# Randolph Community College

# Personal Protective Equipment

# Safety Plan

**November 2018**

## 1. PURPOSE

The goal of this plan is to assist in providing a safe and healthful workplace. Words used in this document such as “must,” “shall,” “required” and “necessary” indicate requirements under OSHA standards.

Procedures indicated by “should,” “may,” “suggested” and “recommended” constitute generally accepted good occupational safety and health practices.

Much of the PPE information in this guide is framed in general terms and is intended to complement relevant regulations and manufacturers’ requirements. For more specific information, refer to the OSHA standards in Title 29, Code of Federal Regulations, Parts 1900–1999. In some instances, the standards referenced in this guide refer to specifications by the American National Standards Institute and the American Society for Testing and Materials.

## 2. SCOPE

All employees exposed to hazards in the work place that could cause injury to any part of the body without the use of PPE shall be included in this program.

The PPE Program consists of the following components:

- Understanding the types of PPE.
- Understand the basics of conducting a “hazard assessment” of the workplace.
- Selecting the appropriate PPE for a variety of circumstances.
- Understanding the proper use and care of PPE.
- Employee Training Requirements

## 3. The Requirement for Personal Protective Equipment

To ensure the greatest possible protection for employees in the workplace, the cooperative efforts of both employers and employees will help in establishing and maintaining a safe and healthful work environment.

3.1 Randolph Community College is responsible for:

- Performing a “hazard assessment” of the workplace to identify and control physical and health hazards.
- Identifying and providing appropriate PPE for employees.
- Training employees in the use and care of the PPE.
- Maintaining PPE, including replacing worn or damaged PPE.
- Periodically reviewing, updating and evaluating the effectiveness of the PPE program.

3.2 Randolph Community College employees are responsible for

- Properly wear PPE.
- Attend training sessions on PPE.
- Care for, clean and maintain PPE.
- Inform a supervisor of the need to repair or replace PPE.

## 4. Eye and Face Protection:

4.1 *Safety glasses* meeting the requirements of ANSI Z87.1 must be worn at all times when there is an eye hazard from exposure to flying particles, liquid chemicals, acids or caustic liquids, or potentially injurious light radiation.

4.2 Safety glasses are required to be worn while working in laboratory, shop, and maintenance areas.
4.3 Activities requiring eye protection include: welding, cutting, burning, using pneumatic impact tools, grinding, buffing, using hand tools, applying or removing insulation, and painting.
4.1 The use of a face shield may also be required depending on the potential hazard. Face shields should never be used as primary eye protection.

**5. Hearing Protection**

5.1 *Hearing protective devices* must be worn when working in areas that require hearing protection based on noise level monitoring or when performing a task that produces high noise levels. Areas where hearing protection is required are marked with appropriate signs.

5.2 See Randolph Community College's Hearing Protection Program.

**6.0 Hand Protection**

6.1 *Appropriate hand protection* shall be worn to protect against chemical contact, severe cuts or lacerations, punctures, or harmful temperature extremes.

6.2 After identifying the hazards, the proper glove should be selected based on the performance and construction characteristics of the glove material.

6.3 Chemical resistant gloves must be rated /compatible for the specific chemical being used. Note: When selecting chemical-resistant gloves, be sure to consult the manufacturer's recommendations, especially if the gloved hand(s) will be immersed in the chemical.

**7.0 Head Protection**

7.1 *Hard hats* shall meet the requirements of ANSI Z89.1.

7.2 Protective Helmets shall be worn by all college personnel prior to entering an area under construction or renovation, or any area where there is a potential for injury to the head from falling objects.

7.3 If a worker may be exposed to an electrical hazard the safety headgear must have an appropriate non-conductive rating.

7.4 Chin straps or other effective means of retention must be used on safety headgear when workers are climbing or working from a height exceeding 3 m (10 ft), or are exposed to high winds or other conditions that may cause loss of the headgear.

7.5 The Director of Facilities has a supply of hard hats if needed.

7.6 The employee's supervisor is responsible for ensuring that their employees abide by this policy.

7.7 Any protective helmet that becomes damaged or has been struck by an object that could compromise the integrity of the helmet shall be removed from service. This includes helmets that exhibit cracks and or obvious damage. Headgear with missing, mismatched, or modified components must also be removed from service.

7.8 Responsibilities of Employees
(a) Employees are required to wear protective helmets at all times in “hard hat” designated areas.
(b) Employees are required to provide reasonable care and maintenance of their protective helmet.

**8.0 Foot Protection**

8.1 *Foot protection* shall be worn when there is a danger of foot injuries due to falling or rolling objects or objects piercing the sole.

8.2 A worker's footwear must be of a design, construction, and material appropriate to the protection required. Safety footwear shall comply with ANSI Z41.1-1991 "American National Standard for Personal Protection-Protective Footwear".

8.3 Footwear meeting the requirements of safety rating should have the following documentation:

- *Line #1*: ANSI Z41 PT91. This line identifies the ANSI Z41 standard. The letters PT indicates the protective section of the standard. This is followed by the last two digits of the year of the standard with which the footwear meets compliance (1991)
- *Line #2*: FI/75 C/75 MT/75. This line identifies the applicable gender (M or F) for which the footwear is intended. It also identifies the existence of impact resistance (I), the impact resistance rating (75, 50, or 30 foot-pounds). This line can also include a metatarsal protection designation (MT) and rating (75, 50, or 30 foot-pounds).
- *Lines #3 & 4*: Cd 1 EH; PR. This area of the label designates conductive properties (Cd) and type (1 or 2), electrical hazard (EH) and puncture resistance (PR), if applicable.

8.4 Six or eight-inch safety shoes are recommended for employees involved in activities where ankle abrasions are likely. These activities include, but are not limited to, climbing, crawling, construction, and demolition.

**9.0 Respiratory Protection**

9.1 Respiratory protection, if used, must be NIOSH approved, must be appropriate for the hazard and must be maintained, cleaned and stored properly. All persons wearing respirators must be medically approved to do so and fit-tested.

9.2 See Randolph Community Colleges Respiratory Protection Program.

**10. Body Protection**

10.1 In situations where normal work clothing may not afford enough protection, a full body protection garment may be required.

10.2 Garments made of material appropriate to guard against the hazard shall be used.

10.2 During the use of a chain saw the user should wear approved chain saw chaps.

## 11. Enforcement

11.1 Wearing Personal Protective Equipment is mandatory for employees working in areas that require specific levels of PPE. Employees that enter designated areas without appropriate PPE can be subject to disciplinary action.

## Appendix A

The following table from the U.S. Department of Energy (Occupational Safety and Health Technical Reference Manual) rates various gloves as being protective against specific chemicals and will help you select the most appropriate gloves to protect your employees.

The ratings are abbreviated as follows: VG: Very Good; G: Good; F: Fair; P: Poor (not recommended). Chemicals marked with an asterisk (*) are for limited service.

***Chemical Resistance Selection Chart for Protective Gloves***

| Chemical | Neoprene | Latex/Rubber | Butyl | Nitrile |
|---|---|---|---|---|
| Acetaldehyde* | VG | G | VG | G |
| Acetic acid | VG | VG | VG | VG |
| Acetone* | G | VG | VG | P |
| Ammonium hydroxide | VG | VG | VG | VG |
| Amyl acetate* | F | P | F | P |
| Aniline | G | F | F | P |
| Benzaldehyde* | F | F | G | G |
| Benzene* | P | P | P | F |
| Butyl acetate | G | F | F | P |
| Butyl alcohol | VG | VG | VG | VG |
| Carbon disulfide | F | F | F | F |
| Carbon tetrachloride* | F | P | P | G |
| Castor oil | F | P | F | VG |
| Chlorobenzene* | F | P | F | P |
| Chloroform* | G | P | P | F |
| Chloronaphthalene | F | P | F | F |
| Chromic acid (50%) | F | P | F | F |
| Citric acid (10%) | VG | VG | VG | VG |
| Cyclohexanol | G | F | G | VG |
| Dibutyl phthalate* | G | P | G | G |
| Diesel fuel | G | P | P | VG |
| Disobutyl ketone | P | F | G | P |
| Dimethylformamide | F | F | G | G |
| Dioctyl phthalate | G | P | F | VG |
| Dioxane | VG | G | G | G |
| Epoxy resins, dry | VG | VG | VG | VG |
| Ethyl acetate* | G | F | G | F |
| Ethyl alcohol | VG | VG | VG | VG |
| Ethyl ether* | VG | G | VG | G |
| Ethylene dichloride* | F | P | F | P |

| Ethylene glycol | VG | VG | VG | VG |
|---|---|---|---|---|
| Formaldehyde | VG | VG | VG | VG |
| Formic acid | VG | VG | VG | VG |
| Freon 11 | G | P | F | G |
| Freon 12 | G | P | F | G |
| Freon 21 | G | P | F | G |
| Freon 22 | G | P | F | G |
| Furfural* | G | G | G | G |
| Gasoline, leaded | G | P | F | VG |
| Gasoline, unleaded | G | P | F | VG |
| Glycerin | VG | VG | VG | VG |
| **Chemical** | **Neoprene** | **Latex/Rubber** | **Butyl** | **Nitrile** |
| Hexane | F | P | P | G |
| Hydrazine (65%) | F | G | G | G |
| Hydrochloric acid | VG | G | G | G |
| Hydrofluoric acid (48%) | VG | G | G | G |
| Hydrogen peroxide (30%) | G | G | G | G |
| Hydroquinone | G | G | G | F |
| Isooctane | F | P | P | VG |
| Kerosene | VG | F | F | VG |
| Ketones | G | VG | VG | P |
| Lacquer thinners | G | F | F | P |
| Lactic acid (85%) | VG | VG | VG | VG |
| Lauric acid (36%) | VG | F | VG | VG |
| Lineolic acid | VG | P | F | G |
| Linseed oil | VG | P | F | VG |
| Maleic acid | VG | VG | VG | VG |
| Methyl alcohol | VG | VG | VG | VG |
| Methylamine | F | F | G | G |
| Methyl bromide | G | F | G | F |
| Methyl chloride* | P | P | P | P |
| Methyl ethyl ketone* | G | G | VG | P |
| Methyl isobutyl ketone* | F | F | VG | P |
| Methyl methacrylate | G | G | VG | F |
| Monoethanolamine | VG | G | VG | VG |
| Moxpholine | VG | VG | VG | G |
| Naphthalene | G | F | F | G |
| Napthas, aliphatic | VG | F | F | VG |
| Napthas, aromatic | G | P | P | G |
| Nitric acid* | G | F | F | F |
| Nitric acid, red and white fuming | P | P | P | P |
| Nitromethane (95.5%)* | F | P | F | F |
| Nitropropane (95.5%) | F | P | F | F |
| Octyl alcohol | VG | VG | VG | VG |
| Oleic acid | VG | F | G | VG |
| Oxalic acid | VG | VG | VG | VG |
| Palmitic acid | VG | VG | VG | VG |
| Perchloric acid (60%) | VG | F | G | G |
| Perchloroethylene | F | P | P | G |

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|---|---|---|---|---|
| Petroleum distillates (naphtha) | G | P | P | VG |
| Phenol | VG | F | G | F |
| Phosphoric acid | VG | G | VG | VG |
| Potassium hydroxide | VG | VG | VG | VG |
| Propyl acetate | G | F | G | F |
| Propyl alcohol | VG | VG | VG | VG |
| Propyl alcohol (iso) | VG | VG | VG | VG |
| Sodium hydroxide | VG | VG | VG | VG |
| Styrene | P | P | P | F |
| Styrene (100%) | P | P | P | F |
| Sulfuric acid | G | G | G | G |
| **Chemical** | **Neoprene** | **Latex/Rubber** | **Butyl** | **Nitrile** |
| Tannic acid (65%) | VG | VG | VG | VG |
| Tetrahydrofuran | P | F | F | F |
| Toluene* | F | P | P | F |
| Toluene diisocyanate (TDI) | F | G | G | F |
| Trichloroethylene* | F | F | P | G |
| Triethanolamine (85%) | VG | G | G | VG |
| Tung oil | VG | P | F | VG |
| Turpentine | G | F | F | VG |
| Xylene* | P | P | P | F |

Note: When selecting chemical-resistant gloves, be sure to consult the manufacturer's recommendations, especially if the gloved hand(s) will be immersed in the chemical.