Personal Protective Equipment (PPE): Hazard Assessment

A hazard assessment is a process of identifying hazards, evaluating the risks presented by those hazards and managing the risks of the hazards. The hazard assessment will tell you about the hazard and what type of PPE you need. A hazard assessment must happen before PPE selection.

Types of Hazards and PPE

Common hazards include electric shock, sharp objects, falling objects, flying sparks, chemicals and noise. PPE used to protect against these hazards may include gloves, safety glasses, shoes, earplugs, hard hats, respirators, coveralls, vests and full-body suits.

Many people evaluate and prioritize risk with a risk matrix. See Appendix A below.

PPE and Other Controls

Engineering controls are structures or devices that physically protect workers from hazards or reduce workers' exposure to them. Common examples include machine guards, exhaust or wetting systems, and ergonomic workstations.

Administrative controls involve changing how and when workers do their jobs. Common examples include job rotation schedules or adding relief workers.

Always use PPE for activities as a supplement to other controls, not as the only control. PPE is the last barrier that protects you from hazards when other controls are not completely effective.



IMPORTANT: Be sure to look for safety signs, warnings and labels around your work area. These are important reminders about a hazard and the PPE requirements that will help keep you safe.

PPE Selection

Selecting the proper PPE should take into account a variety of factors including:

- Type of hazard present (e.g., electricity, sharp parts, noise or chemical exposure)
- Body part
- Route of potential harm to workers (e.g., electric shock or burn, inhalation, skin absorption, injection, or eye or skin contact)
- Performance of the PPE materials, seams and construction in providing a barrier to these hazards

In hazardous waste operations and emergency response, there are four levels of protection that combine multiple pieces of PPE to create a level of protection based on the associated potential exposure.

- Level A: provides the greatest level of skin, respiratory and eye protection
- Level B: provides the highest level of respiratory protection but a lesser level of skin protection
- Level C: is used when the concentration and type of airborne substances are known and the criteria for using air-purifying respirators are met
- Level D: provides the minimum protection required

Check the manufacturer's label or marking on your PPE to make sure it will protect you from the potential hazard. If you feel that you aren't completely protected, stop work and talk to your supervisor.

Fit Test

PPE shouldn't move around or fall off while you work and shouldn't be too tight or constricting. To get a good fit:

- Choose a size that fits snugly but not too tight
- Adjust and secure any straps, fittings and headbands
- Check for a good seal when fitting respirators, goggles and hearing protection

PPE Inspection

If your PPE is worn out or damaged, it will not protect you when you need it. Inspect your PPE before and after each use. If it's unsafe to use, either permanently replace it or find a replacement while it's being repaired. Inform your supervisor and follow your employer's procedures to mark it "out of service." Some PPE, such as electrical gloves and respirators, require a written inspection/testing program.

Training Requirements

Employers must train workers who are required to wear personal protective equipment on how to do the following:

- Use protective equipment properly
- Know when PPE is necessary
- Know what kind of PPE is necessary
- Understand the limitations of PPE in protecting workers from injury
- Put on, adjust, wear, and take off PPE
- Maintain protective equipment properly including any required testing and recertification

Appendix A

Evaluating and Prioritizing with a Risk Matrix

Many people use a risk matrix to assess risk. The following is a sample risk matrix.

			Likelihood				
			Rare	Unlikely	Moderate	Likely	Certain
			The event may occur in exceptional circumstances.	The event could occur at some time.	The event will probably occur at some time.	The event will occur in most circumstances.	The event is expected to occur in all circumstances.
			Less than once in 2 years	At least once per year	At least once in 6 months	At least once per month	At least once per week
		Level	1	2	3	4	5
Consequence	Negligible No injuries. Low financial loss.	0	0	0	0	0	0
	Minor First-aid treatment. Moderate financial loss.	1	1	2	3	4	5
	Serious Medical treatment required. High financial loss. Moderate environmental implications. Moderate loss of reputation. Moderate business interruption.	2	2	4	6	8	10
	Major Excessive, multiple long-term injuries. Major financial loss. High environmental implications. Major loss of reputation. Major business interruption.	3	3	6	9	12	15
	Fatality Single death.	4	4	8	12	16	20
	Multiple fatalities Multiple deaths and serious long-term injuries.	5	5	10	15	20	25

Risk Rating	Risk Priority	Description			
0	Ν	No Risk: The costs to treat the risk are disproportionately high compared to the negligible consequences.			
1 – 3	L	Low Risk: May require consideration in any future changes to the work area or processes or can be fixed immediately.			
4 – 6	М	Moderate: May require corrective action through planning and budgeting process.			
8 – 12	Н	High: Requires immediate corrective action.			
15 – 25	Е	Extreme: Requires immediate prohibition of the work process and immediate corrective action.			