Personal Protective Equipment

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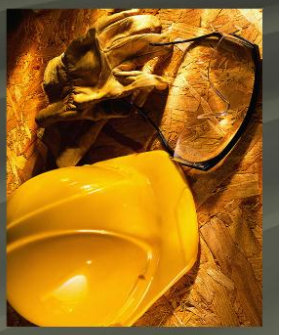
The Importance of Personal Protective Equipment

- Discuss the importance of utilizing Personal Protective Equipment (PPE)
- Explain the Occupational Safety and Health Administration's (OSHA) requirements for access to and utilization of personal protective equipment
- Explore the functions and use of common articles of PPE, including: gloves, eye protection, head protection, hearing protection and respiratory protection



The Importance of Personal Protective Equipment

- The use of Personal Protective Equipment or PPE, is a required part of every workday.
- PPE is designed to protect employees from serious workplace injuries or illnesses when:
  - engineering;
  - administrative controls; and
  - workplace practices

  can not be managed to address a hazard.

The Importance of Personal Protective Equipment

- Engineering Controls: involve taking actions to physically change the environment.
- Administrative Controls: involve changing how or when employees do their jobs.
- Work Practices: involve training workers on how to perform tasks in ways that reduce their exposure to hazards.

The Importance of Personal Protective Equipment

- It is critical that the PPE you use for your job functions is current and has kept pace with changing technology.
- It's equally important for PPE to fit properly because a proper fit makes the item more comfortable to wear and increases its effectiveness.

The Importance of Personal Protective Equipment

- To make sure that all employees have access to personal protective equipment, the Occupational Safety & Health Administration (OSHA), published a final ruling on April 6, 1994.

OSHA Personal Protective Equipment Standard

- Gloves
- Eye Protection
- Face Protection
- Head Protection
- Hearing
- Respiratory Protection

Gloves

- Designed to protect hands from numerous hazards including:
  - Lacerations
  - Burns
  - Punctures
- Employees working in fields ranging from construction to dentistry use gloves to protect themselves.

Gloves

- No glove can protect you from all hazards, so they must be carefully selected for your particular job.
- Rubber gloves are used to protect hands against caustics, acids and other chemicals.
- Latex gloves are commonly used in the healthcare and food industries.

Gloves

- If you handle chemicals, check the chemical's Material Safety Data Sheet or MSDS to see if there's a particular kind of glove suggested.
- All cuts on your hands should be covered before you put your gloves on.
- This minimizes the likelihood of any contaminants entering your body if the gloves become punctured.
- Consider using gauntlet-style gloves to protect your wrists from liquids slipping down the wrist and into the glove.

Gloves

- Metal Mesh Gloves: are used where there's a high probability of getting cut or scratched.
- Non-Conductive Insulated Gloves: are used for electrical work.
- Heat Resistant Gloves: are used to protect against heat or flames.
- Lead Lined Gloves: minimize the employee's exposure to radiation.

Gloves

Gloves

- Gloves should also be checked for cracks and holes, especially between the tips and fingers.
- Worn or damaged gloves should be replaced promptly
- All gloves should be kept clean and dry
- For work tasks that involve handling liquids or icy material, it's a good idea to have a spare set available for use while the other pair dries.

Eye Protection

- The most commonly used type of PPE is eye protection, or safety glasses.
- Depending on the hazard, safety glasses can also have side shields or eye cup shields.
- Goggles, face shields, and welding helmets are other types of commonly used eye protection.

Eye Protection

- Both face shields and welding helmets are designed to be worn over safety glasses.
- These are designed to shield your face from airborne particles like wood or metal shavings, molten metal, and liquid hazards.

Eye Protection

- Airborne particulates also pose the dangerous threat of striking your eyes by entering peripherally, or from the ear side of your head.
- In cases like this, your eye protection must have side safety shields as well.
- Clip-on or slide-on side shields are allowed as long as they meet the requirements of the OSHA standard.

Eye Protection

- If you are required to wear prescription glasses, prescription safety glasses can be obtained.
- Please note that your employer is not required to pay for prescription safety glasses as long as comparable over-the-glasses safety glasses are available.
- No matter what type of safety glasses you wear, scratched or heavily worn lenses are grounds for immediate replacement of the safety glasses.

Eye Protection

When storing your eye protection, it's imperative that it be placed in a safe, dry area when not in use.

Head Protection

- The OSHA requirement for head protection is very direct:
  - If your work requires you to be in an area where you might be hit on the head with a falling object, a protective helmet is required.
  - This includes areas where employees work below others who are using tools and materials that could fall, or who work beneath conveyor belts or machinery where objects could fall on them.
  - Employees who work near exposed electrical conductors must wear helmets that are specifically designed to reduce electrical shock.

Head Protection

Head Protection

- Protective helmets are available with, or without a brim.
- There are three classes of protective helmets available:
  - **Class A helmets** protect against impact hazards and are used in construction, tunneling, manufacturing and other areas. They offer limited protection against high voltage.
  - **Class B helmets** are designed to protect the head from impact and falling objects. They also offer protection against high voltage and are used by utility workers.
  - **Class C helmets** are usually made of aluminum and protect against impact. *They offer no protection against high voltage* and are often used by workers in oil refineries, chemical plants and manufacturing areas where there is no danger of electrical hazards.

Head Protection

- Adjust the headband so there is adequate clearance between the shell and the headband.
- Then adjust the chin strap if one is provided, and keep it in place so the helmet stays on your head.
- Helmets should also be checked every day for signs of cracks or other damage.
- Never set your helmet on the rear window shelf of your car. Sunlight and extreme heat can affect the materials in your hat and reduce the degree of protection it offers.

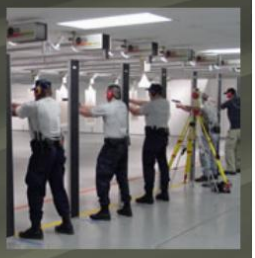
Hearing Protection

- Noise is generally defined as unwanted sound, and is a common problem in industrial settings.
- Sound intensity that exceeds an average of 85dBA over an 8-hour day may cause hearing loss.

dBA TABLE					
TIME	7 a.m. - 7 p.m.	7 a.m. - 7 p.m.	7 a.m. - 7 p.m.	7 p.m. - 7 a.m.	7 p.m. - 7 a.m.
FREQUENCY	L_{25}	L_0	Periodic/ Impulsive	L_0	Periodic/ Impulsive
Park/School, Residential	55	65	50	50	45
Commercial	60	70	55	55	50
Light Industrial	70	80	65	65	60
Industrial	80	90	75	75	70

Hearing Protection

- When the intensity of sound is at or above 140 decibels, a single exposure may cause permanent hearing loss.
- Examples of that sound range include the sound of a jet engine and certain types of gunfire or explosives.
- OSHA requires employers to place all workers who are exposed to 85 decibels of sound for an 8-hour period in a Hearing Conservation Program.



Hearing Protection

Hearing Conservation Program:

- Employer has to monitor the noise level of the work site and identify the workers who are exposed to the excessive noise.
- Employers must also provide hearing tests within six months of an exposure, and every year thereafter.
- The hearing protection must be provided at no cost to the workers who need it.
- Workers must also be trained in the proper use and care of hearing protection.
- Employers are required to keep records of noise levels and employee hearing tests.

Hearing Protection

- Hearing protection works by reducing the sound that enters the ear.
- All hearing protectors have a noise reduction rating, or NRR.
- The higher the number, the better the protection.
- Disposable ear plugs
- Reusable plugs

Hearing Protection

- Whether you use disposable or reusable plugs, wash your hands and inspect both plugs before inserting them into your ears.
- Reusable plugs should be washed daily and stored in a clean case. Plugs that feel hard or appear discolored should be replaced as soon as possible.
- When your earplugs are inserted properly, your voice will sound louder to you.

Hearing Protection

- Headband plugs are another type of hearing protection. These plugs resemble earmuffs.
- The ear muff covers each ear completely to block out noise.
- Check the condition of the cushion with each use and wash them as needed.
- To receive the best hearing protection, the muffs should fit firmly and comfortably over the ears.
- To prolong the use of headband plugs, keep them clean and don't bend or twist the band.

Hearing Protection

- When selecting the hearing protection that is right for you, try different types to find the one that is most comfortable to wear.
- Remember—hearing protectors only work if they're worn!
- Keep in mind that the higher the number on the noise reduction rating, the better the hearing protection.

Respiratory Protection

- One of the basic elements of good health is breathing clean air.
- In industrial settings where dust, fumes, mists, gases and vapors are present, this can be a challenge.
- In addition to these dangerous exposures, some respiratory hazards lack of oxygen is even more dangerous because they're hard to detect.
- Personal protective equipment designed to safeguard the lungs is called respiratory protection, or simply—respirators.

Respiratory Protection

- Air Purifying Devices: filter dangerous substances from the air
  - Disposable dust mask
  - Half or full face masks with mechanical or chemical filters
  - Gas masks
  - Powered air purifying masks
- The most commonly used air purifying respirator is the disposable mask that covers the mouth and nose.
- Disposable masks are commonly worn by painters, woodcutters and others.
- For a good fit, simply pinch the metal nose clip.
- For masks with straps, simply adjust the strap for a comfortable and secure fit.

Respiratory Protection

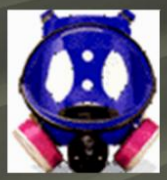
- If your disposable mask becomes clogged or hampers your breathing, throw it away and get a new one.
- A clogged mask offers limited protection and makes breathing difficult.

Respiratory Protection

- Half masks are another type of air purifying device that cover the nose, mouth, and chin, and comes with a detachable cartridge to filter out gases and vapors as you inhale.
- Since each cartridge is designed for a specific gas or vapor, it's important to use the correct one.
- The hazard and the concentration for which the mask is designed are listed on the cartridge label.
- A pre-filter to trap dusts, fumes and mists can also be attached to the cartridge.

Respiratory Protection

- Half masks that have a face piece added are known as full face masks.
- These masks provide the same respiratory protection as the half masks, with the difference being that they shield the eyes and face as well.
- Full face masks are especially useful in work settings where there's a potential for eye injuries from splashes or flying particles in addition to the respiratory hazard.



Respiratory Protection

- As with all respirators, a proper fit means protection.
- Conducting a fit test before using half masks and full face masks helps to determine if the respirator fits properly.
- The first test is called a positive fit test:
  - Place your palms over the exhalation valve and exhale into the mask.
  - You should feel pressure in the face piece.
- The second test is called a negative fit test:
  - Place your palms over the cartridge openings and inhale for about ten seconds.
  - As you do this, you should feel the mask pull inward.

Respiratory Protection

- Both half masks and full face masks should be kept clean and regularly inspected for cracks and dents.
- Always store these masks in a clean, dry place.
- Check with your supervisor for cleaning instructions and the frequency that the cartridges should be replaced.

Respiratory Protection

- Air Supplying Respirator:
  - Required when there isn't enough oxygen in the area, in extreme temperatures, or where high concentrations of dusts, mists, gases or fumes are present.
  - Safe breathing air is supplied to the mask from a tank or other source, which meets the Grade D breathing air standard.
  - Air lined respirators, self contained breathing apparatus (SCBA), and a combination of SCBA and air line.

Respiratory Protection

- Air Lined Respirator:
  - Connect the mask to a tank of compressed air by a hose.
- Self Contained Respirators:
  - Allow you to carry a supply of clean air in a tank on your back.
  - Generally the air supply lasts from 30-60 minutes, but is dependent upon your size and the type of work that you are doing.

Respiratory Protection

- All employees that work in areas requiring the use of a respirator must be properly trained in the proper care and cleaning of these devices.
- Approved respiratory devices carry a TC number to prove that the device was tested and certified by the National Institute of Occupational Safety and Health (NIOSH).

Conclusion

- Prior to beginning each work day, be sure you know what personal protective equipment is necessary to safely do your job.
- Know how to properly wear and use your required personal protective equipment, and always take care of it after use.
- Check with your supervisor if you are unsure about what PPE to use and how to wear it.