

## EYE PROTECTION A BASIC UNDERSTANDING OF THE OSHA STANDARD

There are 2.4 million eye injuries annually in America. With the use of eye protection, at least 90% of them could be prevented. Personal protective equipment (PPE) for the eyes and face is designed to prevent or lessen the severity of injuries to workers.

### Provisions for Eye Protection

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.

### Common Causes of Eye Injuries

- Flying objects
- Tools
- Particles
- Chemicals
- Harmful radiation
- Any combination of these or other hazards

### Safety Eyewear Protection Includes:

- Non-prescription and prescription safety glasses
- Goggles
- Face shields
- Full-face respirators

The safety eyewear must have “Z87+” marked on the frame and in some cases the lens.

### Potential Eye Hazard Examples

- Hammering, grinding, sanding, and masonry work that may produce particles
- Mineral wool or fiberglass insulation installation may lead to particle contact with the eyes
- Handling liquid chemicals may lead to splashes in the eye
- Wet or powdered cement in the eye can cause a chemical burn



- Welding leads to exposure to arcs and flashes (intense UV radiation) for welders, helpers, and bystanders
- Dusty or windy conditions can lead to particles in the eye
- Eye injuries can result from simply passing through an area where work is being performed

### Types of Eye Protection

#### Safety Glasses



This is the most common form of protective eyewear. These look like normal glasses, except they have an industrial design and are produced from stronger materials. Designed to protect eyes against impact from small objects in accordance with ANSI Standards. Safety glasses shall have side shields to protect the eyes from material entering from behind the lens. Prescription glasses are not a substitute for safety glasses unless they meet ANSI Standards (normal prescription glasses are rated ‘impact resistant’, which is less stringent than ANSI Standard requirements). Prescription safety glasses shall have identification on the lens or frames to be acceptable as safety eye wear.

#### Goggles



Protective goggles form a protective seal around both eyes where the material is tight or flush to the face. Appropriately fitted, indirectly-vented goggles\* with a manufacturer’s anti-fog coating provide the most reliable practical eye protection from splashes, sprays, and respiratory droplets. Newer styles of goggles may provide better indirect airflow properties to reduce fogging, as well as better peripheral vision and more size options for fitting goggles to different workers.

Many styles of goggles fit adequately over prescription glasses with minimal gaps. However, to be efficacious, goggles must fit snugly, particularly from the corners of the eye across the brow. While highly effective as

eye protection, goggles do not provide splash or spray protection to other parts of the face.

### Face Shields

A face shield can provide additional protection to other facial areas that safety glasses or goggles cannot. Face shields are considered to be a secondary protector and must always be worn over protective safety glasses or goggles. To provide better face and eye protection from splashes and sprays, a face shield should have crown and chin protection and wrap around the face to the point of the ear, which reduces the likelihood that a splash could go around the edge of the shield and reach the eyes. Disposable face shields for medical personnel made of light weight films that are attached to a surgical mask or fit loosely around the face should not be relied upon as optimal protection. Cartridge respirators not only have the ability to filter the air before you breathe, but can also be used as eye protection. They will protect the eyes and all parts of the face.



### Eye Wash

An important part of eye protection is the availability of emergency eye wash stations. Portable squeeze bottle eye washes shall be available where employees are exposed to particles or non-corrosive liquids. In locations where caustic chemicals are used, an eye wash station designed for 15 minute continuous operation shall be available, and in all cases, is the preferred method of eye wash where practical.

### THINGS YOU SHOULD DO IN THE WORKPLACE:

- A hazard assessment should determine the risk of exposure to eye and face hazards, including those which may be encountered in an emergency.
- Guard against eye injury by wearing appropriate protective eyewear.
- Refer to the selection chart to choose the appropriate protection.
- Ensure emergency eye wash stations are available in your workplace where employees may be exposed to particles or non-corrosive liquids or chemicals.
- Protect your eyes around other coworker's or subcontractor's work zones.

### THINGS YOU SHOULD NOT DO IN THE WORKPLACE:

- Do Not wear prescription glasses or sunglasses that are not suitable or rated for impact
- Do Not rely on contact lenses (prescription or otherwise) as adequate protection. Contact lenses can be used in the workplace but ONLY when worn with other appropriate eye protection.

### 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 sand, dirt, etc	Spectacles with side protection, goggles, face shields. For severe exposure, use faceshield.
HEAT - Furnace operations, pouring, casting, hot dipping, and welding	Hot sparks	Faceshields, goggles, spectacles with side protection. For severe exposure use faceshield.
	Splash from molten metals	Faceshields worn over goggles.
	High temperature exposure	Screen face shields, reflective face shields.
CHEMICALS - Acid and chemicals handling, degreasing plating	Splash	Goggles, eyecup and cover types. For severe exposure, use face shield.
	Irritating mists	Special-purpose goggles.
DUST - Woodworking, buffing, general dusty conditions	Nuisance dust	Goggles, eyecup and cover types.
LIGHT and/or RADIATION -		
Welding: Electric arc	Optical radiation	Welding helmets or welding shields. Typical shades: 10-14.
Welding: Gas	Optical radiation	Welding goggles or welding face shield. Typical shades: gas welding 4-8, cutting 3-6, brazing 3-4.
Cutting, Torch brazing, Torch soldering	Optical radiation	Spectacles or welding face-shield. Typical shades, 1.5-3.
Glare	Poor vision	Spectacles with shaded or special-purpose lenses, as suitable.



- Never work around work activities such as welding (UV radiation) or other hazardous work without the proper eyewear.

- Do Not rely solely on a face shield as adequate protection. A face shield provides adequate protection only when used in combination with the right protective safety glasses or goggles.

## REVIEW QUESTIONS

- 1) The use of eye protection is at the discretion of the employer/employee
  - a) True
  - b) False – The employer shall ensure that each affected employee uses eye or face protection.
- 2) Goggles or safety glasses need to be worn over contact lenses of any kind.
  - a) True - Contact lenses can be used in the workplace but ONLY when work with other appropriate eye protection.
  - b) False
- 3) What are the different types of eye protection?
  - a) Safety glasses or Goggles
  - b) Face shields
  - c) All of the above

Talk Given By: \_\_\_\_\_ Date: \_\_\_\_\_  
 Company: \_\_\_\_\_ Location: \_\_\_\_\_

**Printed Name**

**Signature**

Printed Name	Signature

Under the Occupational Safety and Health Act, employers are responsible for providing a safe and healthy workplace and workers have rights. OSHA can help answer questions or concerns from employers and workers Contact your regional or area OSHA office or call 1-800-321-OSHA (6742). OSHA also provides help to employers. [Add link on “help to employers” to new Employer Portal page.] OSHA’s On-site Consultation Program offers free and confidential advice to small and medium-sized businesses, with priority given to high-hazard worksites.

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