

### Policy

- UK requires that appropriate eye protection be provided to and worn by employees that are exposed to eye hazards.
- The minimum acceptable form of eye protection is safety glasses that meet the requirements specified in the most recent ANSI Z87.1-2010 standard.
- It is the responsibility of supervisors and teaching lab coordinators to ensure employees and students wear appropriate eyewear when necessary.

### Contact Lenses/Prescription Glasses

- EH&S does not recommend that contact lenses be worn in the laboratory without proper eye protection for the following reasons:
  - They can create a visual problem if suddenly displaced.
  - Contact lenses are difficult to remove should chemicals get into the eyes and they tend to prevent the removal of contaminants by natural eye fluids.
  - Soft contact lenses present special hazards. They discolor when they come into contact with many laboratory chemicals and can absorb chemicals and chemical vapors, causing extensive corneal damage before the wearer is aware of the problem.
- Normal prescription glasses do not provide adequate protection from injury to the eyes and do not meet ANSI standards.

### Types of Eye & Face Protection



- *Safety Glasses* – Protective eyeglasses with impact-resistant lenses and safety frames constructed of metal or plastic.

- *Goggles* – tight-fitting eye protection that completely covers the eyes, eye sockets, and the facial area immediately surrounding the eyes. Provides protection from impact, dust, and splashes.



- *Face Shields* – Headgear providing a transparent sheet of plastic covering the entire face. They protect against nuisance dusts and potential splashes of sprays of hazardous liquids but will not provide adequate protection against impact hazards.

- *Welding Shields* – Constructed of vulcanized fiber or fiberglass and fitted with a filtered lens, welding shields protect eyes from burns caused by infrared, ultraviolet, or intense radiant light; they also protect both the eyes and face from flying sparks, metal spatter and slag chips produced during welding, brazing, soldering and cutting operations.

- *Laser Safety Goggles* – Provides protection from laser radiation.



### Hazards to Consider



- Impact – flying fragments, objects, chips, particles, sand, dirt, etc
- Heat – hot sparks, splash from molten metals, and high temperature exposure
- Chemicals – splashes and irritating mists
- Dust – woodworking, buffing, general dusty conditions
- Light and/or Radiation (i.e. welding) – optical radiation, poor vision

## Selection of Eye and Face PPE

- Safety eyewear should be selected according to:
  - The identified eye injury hazard(s)
  - Performance of the eyewear versus applicable ANSI standards
  - Availability
  - Employee preference among available choices

The following chart suggests recommended Eye/Face Personal Protective Equipment (PPE) based on common workplace activities and hazards:

Activity	Eye/Face Hazards	Eye/Face Protection
Chemical handling, laboratory operations	Chemical splash or spill, acid burns, fumes, glass breakage	Chemical goggles or safety glasses with side protection. Use a face shield plus chemical goggles for severe exposure. <sup>(1)(2)</sup>
Hot work	Sparks, optical radiation, flash burns	Safety glasses with shaded lenses or welding shield. Use the face shield or welding helmet in addition to safety glasses for severe exposure. <sup>(1)(3)</sup>
Grinding, sawing	Flying particles, dust	Impact goggles or safety glasses with side shields. Use a face shield plus impact goggles or safety glasses for severe exposure. <sup>(1)(2)</sup>
Laser operations	Reflected or direct laser beam impact	See <a href="#">Laser Safety Eyewear Selection Chart</a> <sup>(4)</sup>
Machining	Flying particles, mists, vapors	Safety glasses with side shields or goggles. <sup>(2)</sup>
Pesticide/fertilizer applications with hand sprayer	Chemical splash or spill, airborne chemicals	Chemical goggles. Or safety glasses. Use face shield plus safety glasses/goggles for severe exposure. <sup>(1)</sup>

(1) Faceshields and welding shields must be worn in combination with safety glasses or goggles.

(2) Safety glasses that provide side protection must be worn when working if there is a potential for objects to fly in workers' eyes and face or when working with biological, chemical, or radioactive materials.

(3) Welding goggles, shields, or helmets should be equipped with a shade that provides the appropriate level of protection as referenced in the OSHA [Filter Lenses for Protection Against Radiant Energy Table](#).

(4) Lasers: Due to the variety of wavelengths emitted by lasers, no set of eyewear can offer the user complete protection unless it is opaque. It is the responsibility of each laser user to be informed via SOPs and supervisors of the relevant laser wavelengths in use and the corresponding protection offered by the eyewear. Consult the [Laser Safety – Manual](#) for more information.

## Comfort and Fit

- Protective eyewear should fit well; safety glasses and goggles should fit with the bridge properly supported on your nose and the center of the lens in front of your eye with the frame being as close to the face as possible.
- Ensure goggles and glasses do not interfere with the seal of a tight-fitting respirator.

## Maintenance/Storage

- Before each use, eye and face protection equipment should be inspected for damage (i.e. cracks, severe scratches, distortion). If deficiencies are noted, the equipment should be cleaned, repaired or replaced before use.
- Eye and face protection devices that have been subject to an impact should not be used and are required to be discarded.
- When one protector is being used by more than one person, it is recommended that it be cleaned and disinfected prior to use by another person.
- Disinfect eyewear if it was contaminated by a hazardous chemical.
- Store clean eyewear in a closed container protected from dust, moisture or damage.

## Additional Resources

- [OSHA 29 CFR 1910 Subpart I Appendix B](#)
- [OSHA 29 CFR 1910.133](#)
- [ANSI Z87.1-2010 – Practice for Occupational and Educational Eye and Face Protection](#)

