

## A Series on Safety

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As an employer in the United States, you have the legal responsibility to provide a safe workplace. The specific requirements that apply to your company or laboratory are not as simple as black and white. While the Occupational Safety and Health Administration (OSHA) does have requirements, the uniqueness of the hazards to each workplace situation leave the ball in your court to determine your hazards and use the OSHA requirements to protect your employees.

The most difficult parts of developing a safety program are identifying hazards (as not all of them are obvious) and creating buy-in from employees in order to make the policies effective. In future articles I will begin to identify some of the common hazards that exist in the construction materials testing industry. I will provide related OSHA requirements that you have to consider relating to these hazards and give the best approach to keeping you and your staff safe.

Some of the topics that I plan to cover include:

- Loud Equipment – Where hearing protection is required.
- Respirable Silica – Are your aggregates causing damage to your lungs?
- Chemical Hazards – Do you know how dangerous the chemicals used in testing are for your health?
- Equipment Hazards – Do you have Confined Spaces or equipment that should follow lockout/tagout procedures?
- Heat Stress Protection
- Eye and Foot Protection
- Pinch Guarding Your Equipment
- Plus more!



### Safety Eyewear – OSHA's Approach

For this first article, I'd like to go over protective eyewear requirements. This is a great example of an issue that seems like it should be really easy to decipher. The further we investigate the requirements, the more gray areas appear.

OSHA requires employers to provide eye and face protection whenever necessary to protect against potential hazards. There are many different ways to determine your specific requirements. The best way is to conduct a workplace hazard assessment is to determine where employees might require eye and face protection.

Personal protective equipment (PPE) for the eyes and face is designed to prevent or lessen the severity of injuries to workers. The employer must assess the workplace and determine if hazards that necessitate the use of eye and face protection are present or are likely to be present before assigning PPE to workers. [[29 CFR 1910.132\(d\)](#)]

A hazard assessment should determine the risk of exposure to eye and face hazards including those employees may encounter in an emergency. Employers should be aware of the possibility of multiple and simultaneous hazard exposures and prepare to protect against the highest level of each hazard. [[29 CFR 1910 Subpart I App B](#)]

To select PPE for the workplace, see the [Hazard Assessment](#) module on OSHA's website. The following OSHA standards provide mandatory requirements and compliance assistance for employers when selecting proper eye and face protection:

- 29 CFR 1910.132, General requirements
- 29 CFR 1910.133, General Industry
- 29 CFR 1915.153, Maritime
- 29 CFR 1926.102, Construction

Once you've deemed safety eyewear necessary, you will also have to consider the requirements for training, retraining, maintenance, purchasing, types, prescriptions, etc.

## Choosing the Proper Safety Eyewear

When it comes to choosing your safety eyewear, OSHA has provided some clear guidance for the criteria of what to look for.

Eye and face protection must comply with the American National Standards Institute, ANSI Z87.1-1989 standard if purchased after July 5, 1994. [[29 CFR 1910.133\(b\)\(1\)](#), [29 CFR 1915.153\(b\)](#) and [29 CFR 1926.102\(a\)\(2\)](#)]

- Eye and face PPE shall be distinctly marked to facilitate identification of the manufacturer. [[29 CFR 1910.133\(a\)\(4\)](#)]
- All protective devices must meet the following minimum requirements. Protectors shall:
  - Provide adequate protection against the particular hazards for which they are designed.
  - Be of safe design and construction for the work to be performed.
  - Be reasonably comfortable when worn under the designated conditions.
  - Fit snugly and not unduly interfere with the movements of the wearer.
  - Be durable.
  - Be capable of being disinfected.
  - Be easily cleanable.
  - Be distinctly marked to facilitate identification only of the manufacturer.

Employers should also consider comfort and fit when selecting safety eyewear. Poorly fitting eye and face protection will not offer the necessary protection. [[29 CFR 1926.102\(a\)\(6\)\(iii\)](#)]

- Fitting of goggles and safety spectacles should be done by someone skilled in the procedure.
  - Only qualified optical personnel should fit prescription safety spectacles.
- Devices with adjustable features should be fitted on an individual basis to provide a comfortable fit that maintains the device in the proper position.
- Eye protection from dust and chemical splash should form a protective seal when fitted properly.
- Welding helmets and face shields must be properly fitted to ensure they will not fall off during work operations.

## Safety Eyewear Training Requirements

Since training and retraining are the largest areas of the requirements, I'll go into some detail here.

Employers must provide training for each employee who must use PPE in the workplace. [[29 CFR 1910.132\(f\)](#)]

- Employers shall train each employee in the following:
  - When PPE is necessary.
  - What PPE is necessary.
  - How to properly put on, remove, adjust, and wear PPE.
  - Limitations of the PPE.
  - Proper care, maintenance, useful life, and disposal of the PPE.
- A knowledgeable designated person should conduct all training.
- A trainer should present all required training in a manner employees can understand.
- Each affected employee shall demonstrate an understanding of the training specified and the ability to properly use PPE before they can perform work requiring PPE.
- Employers who allow employees to wear eye and face protection on a voluntary basis (when not required by OSHA or the employer), must implement limited provisions of a PPE program.
- When the employer has reason to believe that any affected employee who has already been trained does not have the understanding and skill required, the employer shall retrain that employee. Circumstances where OSHA requires retraining include, but are not limited to, situations where:
  - Changes in the workplace render previous training obsolete.
  - Changes in the types of PPE used render previous training obsolete.
  - Inadequacies in an affected employee's knowledge or use of assigned PPE indicate that the employee has not retained the requisite understanding or skill.



### Some Other Things for Consideration

- OSHA prohibits the use of equipment with structural or optical defects. [[29 CFR 1926.102\(a\)\(4\)](#)]
- Employers must ensure that employees who wear prescription lenses, or contacts, use PPE that incorporates their prescription. Employees may also wear eye protection over prescription lenses. [[29 CFR 1910.133\(a\)\(3\)](#), [29 CFR 1915.153\(a\)\(3\)](#) and [29 CFR 1926.102\(a\)\(3\)](#)]
- Dust and chemicals present additional hazards to contacts wearers. OSHA recommends that workers have an extra pair of contacts or eyeglasses in case of contact failure or loss.
- Employers must train employees in the proper care, maintenance, useful life, and disposal of PPE. [[29 CFR 1910.132\(f\)\(1\)\(v\)](#)]

I hope you'll stick with me as we seek to improve safety in an industry this is behind others in protecting the employees involved.