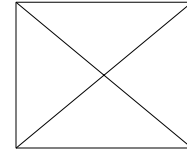


Workplace Eye Safety



Why is eye safety at work important?

Eye injuries in the workplace are very common. More than 2,000 people injure their eyes at work each day. About 1 in 10 injuries require one or more missed workdays to recover from. Of the total amount of work-related injuries, 10-20 % will cause temporary or permanent vision loss.

Experts believe that the right eye protection could have lessened the severity or even prevented 90% of eye injuries in accidents.

What are the common causes of eye injuries?

Common causes for eye injuries are:

- Flying objects (bits of metal, glass)
- Tools
- Particles
- Chemicals
- Harmful radiation
- Any combination of these or other hazards

What is my best defense against an eye injury?

There are three things you can do to help prevent an eye injury

- Know the eye safety dangers at work-complete an eye hazard assessment
- Eliminate hazards before starting work. Use machine guarding, work screens, or other engineering controls)
- Use proper eye protection.

When should I protect my eyes at work?

You should wear safety eyewear whenever there is a chance of eye injury. Anyone working in or passing through areas that pose eye hazards should wear protective eyewear.

What type of safety eyewear is available to me?

Safety eyewear protection includes:

- Non-prescription and prescription safety glasses
- Goggles

- Face shields
- Welding helmets
- Full-face respirators

What type of safety eye protection should I wear?

The type of safety eye protection you should wear depends on the hazards in your workplace. If you are working in an area that has particles, flying objects, or dust, you must at least wear safety glasses with side protection (side shields). If you are working with chemicals, you should wear goggles. If you are working near hazardous radiation (welding, lasers, or fiber optics) you must use special-purpose safety glasses, goggles, face shields, or helmets designed for that task.

What is the difference between glass, plastic, and polycarbonate safety lenses?

All three types of safety lenses meet or exceed the requirements for protecting your eyes.

Glass lenses

- Are not easily scratched
- Can be used around harsh chemicals
- Can be made in your corrective prescription
- Are sometimes heavy and uncomfortable

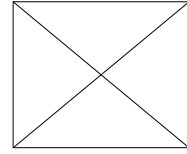
Plastic lenses

- Are lighter weight
- Protect against welding splatter
- Are not likely to fog
- Are not as scratch-resistant as glass

Polycarbonate lenses

- Are lightweight
- Protect against welding splatter
- Are not likely to fog
- Are stronger than glass and plastic
- Are more impact resistant than glass or plastic
- Are not as scratch resistant as glass

First Aid for Eye Emergencies



Knowing what to do for an eye emergency can save valuable time and possibly prevent vision loss. Here are some instructions for basic eye injury first aid.

Be Prepared

- Wear eye protection for all hazardous activities and sports-at school, home, and on the job.
- Stock a first aid kit with a rigid eye shield and commercial eyewash before an eye injury happens.
- **DO NOT** assume that any eye injury is harmless. When in doubt, see a doctor immediately.

Chemical Burns to the Eye

In all cases of eye contact with chemicals:

- Immediately flush the eye with water or any other drinkable liquid. Hold the eye under a faucet or shower, or pour water into the eye using a clean container. Keep the eye open and as wide as possible while flushing. Continue flushing for at least 15 minutes.
- **DO NOT** use an eyecup.
- If a contact lens is in the eye, begin flushing over the lens immediately. This may wash away the lens.
- **DO NOT** bandage the eye.
- Seek immediate medical treatment after flushing.

Specks in the Eye

- **DO NOT** rub the eye
- Try to let tears wash the speck out or use an eyewash.
- Try lifting the upper eyelid outward and down over the lower lid.
- If the speck does not wash out, keep the eye closed, bandage it lightly, and see a doctor.

Blows to the Eye

- Apply a cold compress without putting pressure on the eye. Crushed ice in a plastic bag can be taped to the forehead to rest gently on the injured eye.
- In cases of pain, reduced vision, or discoloration (black eye), seek emergency medical care. Any of these symptoms could mean internal eye damage.

Cuts and Punctures of the Eye or Eyelid

- **DO NOT** wash out the eye with water or any other liquid.
- **DO NOT** try to remove an object that is stuck in the eye.
- Cover the eye with a rigid shield without applying pressure. The bottom half of a paper cup can be used.
- See a doctor at once.

An Eye Saved

As the result of a private contractor safety glasses program, an employee began encouraging his eighteen year-old son, who installs siding on houses, to wear safety glasses while working. The son finally relented, when aluminum dust started getting in his eyes. About one week later, he was applying siding with an air powered staple gun. When the son fired a staple, it hit a metal plate behind the siding, ricocheted back towards his face and one leg of the staple penetrated the safety glasses' lens, see the figure below. **The staple hit with such force that the frames were cracked and the son received bruising on the eyebrow and cheekbone.**



The safety glasses definitely saved his eyesight and possibly even his life!

EYE PROTECTION IN THE WORKPLACE

Every day an estimated **1,000** eye injuries occur in American workplaces. **The financial cost of these injuries is enormous--more than \$300 million per year** in lost production time, medical expenses, and workers compensation. No dollar figure can adequately reflect the personal toll these accidents take on the injured workers.

The Occupational Safety and Health Administration (OSHA) and the 25 states and territories operating their own job safety and health programs are determined to help reduce eye injuries. In concert with efforts by concerned voluntary groups, OSHA has begun a nationwide information campaign to improve workplace eye protection.

Take a moment to think about possible eye hazards at your workplace. A 1980 survey by the Labor Department's Bureau of Labor Statistics (BLS) of about 1,000 minor eye injuries reveals how and why many on-the-job accidents occur.

WHAT CONTRIBUTES TO EYE INJURIES AT WORK?

- Not wearing eye protection. BLS reports that nearly three out of every five workers injured were not wearing eye protection at the time of the accident.

- Wearing the wrong kind of eye protection for the job. About 40 of the injured workers were wearing some form of eye protection when the accident occurred. These workers were most likely to be wearing eyeglasses with no side shields, though injuries among employees wearing full-cup or flat-fold side shields occurred, as well.

WHAT CAUSES EYE INJURIES?

- **Flying particles.** BLS found that almost **70%** of the accidents studied resulted from flying or falling objects or sparks striking the eye. Injured workers estimated that nearly three-fifths of the objects were smaller than a pin head. Most of the particles were said to be traveling faster than a hand-thrown object when the accident occurred.
- Contact with chemicals caused one-fifth of the injuries. Other accidents were caused by objects swinging from a fixed or attached position, like tree limbs, ropes, chains, or tools which were pulled into the eye while the worker was using them.

WHERE DO ACCIDENTS OCCUR MOST OFTEN?

Craft work; industrial equipment operation. Potential eye hazards can be found in nearly every industry, but BLS reported that more than 40% of injuries studied occurred among craft workers, like mechanics, repairers, carpenters, and plumbers. Over a third of the injured workers were operatives, such as assemblers, sanders, and grinding machine operators. Laborers suffered about one-fifth of the eye injuries. Almost half the injured workers were employed in manufacturing; slightly more than 20% were in construction.

HOW CAN EYE INJURIES BE PREVENTED?

Always wear effective eye protection. OSHA standards require that employers provide workers with suitable eye protection. To be effective, the eyewear must be of the appropriate type for the hazard encountered and properly fitted. For example, the BLS survey showed that 94% of the injuries to workers wearing eye protection resulted from objects or chemicals going around or under the protector. Eye protective devices should allow for air to circulate between the eye and the lens. Only 13 workers injured while wearing eye protection reported breakage.

Nearly one-fifth of the injured workers with eye protection wore face shields or welding helmets. However, only six percent of the workers injured while wearing eye protection wore goggles, which generally offer better protection for the eyes. Best protection is afforded when goggles are worn with face shields.

Better training and education. BLS reported that most workers were hurt while doing their regular jobs. Workers injured while not wearing protective eyewear most often said they believed it was not required by the situation. Even though the vast majority of employers furnished eye protection at no cost to employees, **about 40% of the workers received no [eye safety training](#) on where and what kind of eyewear should be used.**

Maintenance: Eye protection devices must be properly maintained. Scratched and dirty devices reduce vision, cause glare and may contribute to accidents.

WHERE CAN I GET MORE INFORMATION?

- The [OSHA website](#) or your nearest OSHA area office. Safety and health experts are available to explain mandatory requirements for effective eye protection and answer questions. They can also refer you to an on-site consultation service available in nearly every state through which you

can get free, penalty-free advice for eliminating possible eye hazards, designing a training program, or other safety and health matters.

o Don't know where the nearest federal or state office is? Call an OSHA Regional Office at the U.S. Department of Labor in Boston, New York, Philadelphia, Atlanta, Chicago, Dallas, Kansas City, Denver, San Francisco, or Seattle.

- The National Society to Prevent Blindness. This voluntary health organization is dedicated to preserving sight and has developed excellent information and training materials for preventing eye injuries at work. Its 26 affiliates nationwide may also provide consultation in developing effective eye safety programs. For more information and a publications catalog, write the National Society to Prevent Blindness, 79 Madison Ave., New York, NY 10016-7896.

EYE PROTECTION WORKS!

BLS reported that more than **50%** of workers injured while wearing eye protection thought the eyewear had minimized their injuries. But nearly half the workers also felt that another type of protection could have better prevented or reduced the injuries they suffered.

It is estimated that 90% of eye injuries can be prevented through the use of [proper protective eyewear](#). That is our goal and, by working together, OSHA, employers, workers, and health organizations can make it happen.

This is one of a series of fact sheets highlighting U.S. Department of Labor programs. It is intended as a general description only and does not carry the force of legal opinion. This information will be made available to sensory impaired individuals upon request. Voice phone: (202) 523-8151. TDD message referral phone: 1-800-326-2577.

U.S. Department of Labor
Program Highlights
Fact Sheet No. OSHA 92-03

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CHOOSING AND USING EYE PROTECTION

Safety Glasses And Goggles

Safety Glasses

Safety Goggles

Shields and Helmets

Using Protective Eyewear

Safety Glasses And Goggles

No matter where we work, flying particles, dusts, fumes, vapors or harmful rays are apt to expose us to potential eye injury. Fortunately, we can protect against these hazards by using the appropriate protective eyewear for our jobs and by following our companies' established safety guidelines. The following is a guide to the most common types of protective eyewear and the specific hazards they can guard against.

Safety Glasses

Standard safety glasses look very much like normal glasses, but are designed to protect you against flying particles. Safety glasses have lenses that are impact resistant and frames that are far stronger than regular eyeglasses. Safety glasses must meet the standards of the American National Standards Institute (ANSI). (Safety glasses are also available in prescription form for those persons who need corrective lenses.) Standard safety glasses can be equipped with side shields, cups, or tinted lenses to offer additional protection.

Safety Goggles

Like standard safety glasses, goggles are impact resistant and are available in tinted lenses. Goggles provide a secure shield around the entire eye area to protect against hazards coming from many directions. Safety goggles may have regular or indirect ventilation. (Goggles with indirect ventilation may be required if you are exposed to splash hazards.)

Shields and Helmets

Face shields and helmets are not in themselves protective eyewear. But, they are frequently used in conjunction with eye protectors. Full-face shields are often used when you are exposed to chemicals or heat or glare hazards. Helmets are used when welding or working with molten materials.

Using Protective Eyewear

You can guard against eye injury by making sure that you are wearing the appropriate protective eyewear for the particular eye hazards you face. It's important to remember that regular glasses alone do not offer protection from eye hazards. Follow your company's established safety procedures, and never hesitate to ask your supervisor if you have any questions about what you can do to protect your sight for life.

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It's come a long way

Protective eyewear has evolved dramatically over the years. In the 1960s, standard safety glasses were worn mainly in industry and made of tempered glass with unattractive frame styles.

But since then, a merge between safety glasses and sunglasses has made eyewear more protective and fashionable. There's a much wider selection of colors and styles to choose from. In fact, many sports and industry safety glasses are made with anything from sports team logos to zebra stripes on the frames. And instead of tempered glass, the majority of lenses today are made of impact-resistant polycarbonate.

In terms of research to improve protective eyewear, Dr. Williams noted that the process is ongoing: "A lot of work has been done over the years to perfect the features of protective eyewear. What we have today is quite good. The task now is to educate people on how important it is to wear eye protection. **People don't realize that an eye can be destroyed in a fraction of a second.**"

Where to find protection

You can purchase most protective eyewear from e-tailers like ABCSafetyGlasses.com for about \$5-\$10 a pair and considerably less on higher quantity orders. Buy glasses that are made of an impact-resistant polycarbonate, or that are labeled as meeting ANSI (American National Standards Institute) requirements. Some types of sunglasses can be used as protective eyewear, as long as they have impact-resistant polycarbonate lenses.