Eye Injuries in the Workplace: 6 Things You Need to Know

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Eye injuries take place every day, at a rate of more than 2,000 per day, including an estimated 1,000 daily workplace eye injuries. That’s why it’s so important to learn everything you can about eye injuries and how to prevent them. We’ve answered six of the most important eye injury questions here.

1. **What contributes to eye injuries at work?**
   Not wearing eye protection. Reports indicate that nearly three out of every five workers injured were not wearing eye protection at the time of the accident. Another factor is wearing the wrong kind of eye protection for the job. About 40 percent of the injured workers were most likely to be wearing protective eyeglasses with no side shields, though injuries among employees wearing full-cup or flat-fold side shields occurred as well.

2. **What causes eye injuries?**
   - Flying particles (grinding dust, nails, pieces of wire, concrete and more)
   - Falling or shifting debris, building materials and glass
   - Chemical splash (acids, bases, fuels, solvents, lime, wet or dry cement powder)
   - Liquids or gases under pressure. Spray cans are an increasing source of chemical eye injury that is compounded by pressure. Whether containing caustics or irritants, spray cans must be carefully used
   - Blood borne pathogens (hepatitis or HIV) from blood, bodily fluids, and human remains
   - Welding fumes
   - Harmful radiation
   - Any combination of these or various other hazards

3. **Where do accidents occur most often?**
   Craft work and industrial equipment operation primarily. However, potential eye hazards can be found in nearly every industry. Keep in mind that it is not always the person generating the flying particles who incurs the eye injury. In many cases, fellow employees suffer eye injuries from particles flying from the machinery/tools being used.

4. **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, surveys show that 94 percent 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.

   Better training and education are also key. Most often, workers are 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 percent of the workers received no information on where and what kind of eyewear should be used.

### Did You Know?
- Of the total number of work-related eye injuries, 10-20 percent results in temporary or permanent vision loss.
- The financial cost of workplace eye injuries is more than $300 million per year in lost production time, medical expenses, and worker compensation.
- Contact with chemicals causes about one-fifth of workplace eye injuries.

5. **What type of safety eyewear is available?**
   - **Non-prescription safety glasses.** Safety glasses with side protection provide minimum protection and are for general working conditions where there may be minor dust, chips or flying particles. Side protection includes side shields and wraparound-style safety glasses. Polycarbonate lenses are lightweight and provide the best impact protection, but generally
are not as scratch-resistant as glass unless treated with a hard coating. Anti-fog coatings can be helpful in higher humidity environments. OSHA’s eye and face protection standard, 29 CFR 1910.133, requires that eye and face protection be American National Standards Institute (ANSI) Z87.1-certified. ANSI Z87.1 compliant glasses are marked on the lens or frame.

- **Prescription safety glasses.** Workers who wear non-safety prescription glasses should wear tight-fitting goggles over the glasses, over the glass safety glasses or specialty safety glasses with RX inserts. Because contact lenses may present a significant corneal abrasion risk when working in dusty areas, contact lens wearers should wear un-vented goggles.

- **Goggles.** Goggles provide higher impact, dust and chemical splash protection than safety glasses. Goggles for splash or fine dust protection should have indirect venting. Use direct-vented goggles for less fogging when working with large particles. Safety goggles designed similar to ski-type goggles have high air flow to minimize fogging while providing better particle and splash protection than standard glasses. Safety glass users should graduate to goggles when there is more than an occasional particle hazard. The choice, in many cases, comes down to the assessment of the severity of the hazard.

- **Hybrid safety glasses or goggles.** Safety glasses with foam or rubber around the lenses provide better protection from dust and flying particles than conventional safety glasses. Wraparound safety glasses that convert to goggles with a soft plastic or rubber face seal may offer better peripheral vision than conventional goggles. It is important to avoid hybrids or wraparounds when more impact protection is needed than safety glasses provide. In those cases, use goggles.

- **Face shields.** When protecting the eyes, don’t forget to guard against injuries to the face. For highest impact protection, face shields protect the full face from spraying, chipping, grinding, and critical chemicals or blood borne hazards. Never wear face shields, which provide secondary protection, without primary eye protection (safety glasses or goggles). Wear safety glasses or goggles under face shields to provide protection when the shield is lifted. Primary protection helps prevent particles that get under the shield from lodging in the eyes.

**Specialty protection.** Use other types of protection, such as filtered helmets or goggles, for tasks such as working with lasers. Use ANSI Z136-certified eye protection for laser light hazards.

**Full face respirators.** While full-face respirators provide the best general dust, chemical and smoke protection, they will not necessarily be Z87.1-compliant for impact protection or seal properly over glasses. Use prescription inserts compatible with a respirator. Respirators should be professionally fitted.

6. **What materials are safety eyewear products made from?**

Lens materials can be made of glass, plastic or polycarbonate.

**Glass:**
- Not easily scratched
- Can be used around harsh chemicals
- Can be made into corrective prescriptions
- Are sometimes heavy and uncomfortable

**Plastic:**
- Lighter weight than glass
- Protect welding splatter
- Are not likely to fog, even uncoated
- Are not as scratch-resistant as glass

**Polycarbonate:**
- Extremely light weight
- Protect against welding splatter
- Not likely to fog
- Stronger than glass or plastic
- More impact resistant than glass and plastic
- Not as scratch-resistant as glass