

**Eye Safety Program**  
**Revision 1**  
**September 2019**

## **1.0 Why These Guidelines Are Vital To Your Safety**

1.1 Every day an estimated one thousand eye injuries occur to workers in this country. The cost of these injuries -- both financially and personally -- is enormous.

### **1.2 The Financial Costs**

1.2.A Three-hundred million dollars per year is lost on medical expenses, workers' compensation and lost production time. The most alarming statistic is that in three of five injury cases, the worker was not wearing eye protection.

### **1.3 The Personal Costs**

1.3.A Then there are the dramatic personal costs of eye injuries. Eye injuries can include:

- 1.3.A.1 blindness
- 1.3.A.2 loss of sight in one eye
- 1.3.A.3 reduced sight in one or both eyes
- 1.3.A.4 cuts and bruises to eyes
- 1.3.A.5 These injuries can result in:
  - inability to do your work
  - loss of income
  - emotional stress
  - reduced ability to drive a car
  - less enjoyment of life
  - increased medical bills

1.4 It makes sense to do everything in your power to prevent eye injuries. Avoid thinking that accidents will never happen to you. Instead, protect your sight by taking the proper precautions and thinking safety first.

## **2.0 How the Eyes Work**

### **2.1 The Cornea: It's Clear to See**

2.1.A Look sideways into a mirror, and you will notice a clear covering that bulges out at the front part of your eyeball. This clear tissue is called the cornea. The cornea's job is to bend light rays as they enter your eye.

### **2.2 The Iris: The Color in Your Eye**

2.2.A Beneath the cornea lies the iris, which is the colored part of your eye. The iris works like the shade on a window. It controls the amount of light entering your eye by making the opening around the pupil larger or smaller. In dim light the hole is large. In bright light the hole gets smaller, to protect the sensitive nerves at the back of the eye.

## 2.3 The Lens: Getting Things in Focus

2.3.A Behind the iris is the lens. Its purpose is the same as the lens on a camera -- to focus the light to make a clear sharp picture or image.

## 2.4 The Retina: Allowing You to See

2.4.A Finally, at the back of your eye is the retina. This highly-sensitive membrane receives the images formed by the lens and allows you to see. The retina is connected to the brain by the optic nerve.

## 2.5 No Second Chances

2.5.A These separate but equally important parts work together to give us the ability to see. If one or more of these parts are damaged, your sight could be greatly affected. That's why it is important to follow these guidelines. Once your sight is damaged, there are no second chances.

## 3.0 Eye Safety Basics

3.1 You can protect your eyes by following a few commonsense rules.

### 3.2 Recognize Hazards

3.2.A Recognize and respect potential hazards to your eyes.

### 3.3 Cover Your Eyes

3.3.A Wear the appropriate protective eye wear.

### 3.4 Clean it Up

3.4.A Be sure your eye wear fits right, is clean and in good condition.

### 3.5 Act Wisely

3.5.A Know what to do in case of an accident or emergency.

3.6 Each of these topics is covered in detail on the following pages.

## 4.0 Eye Hazards

4.1 The most common workplace eye hazards include:

4.1.A flying particles

4.1.B harmful light rays

4.1.C dusts and mists

4.1.D chemical fumes and splashes

4.1.E sparks

## 4.2. Flying Objects

4.2.A. According to government statistics, almost 70 percent of all eye injuries in the workplace result from flying or falling objects striking the eye. Objects smaller than a pinhead caused three-fifths of these injuries. Jobs where flying particles are common include:

- 4.2.A.1 chiseling
- 4.2.A.2 grinding
- 4.2.A.3 hammering
- 4.2.A.4 metalworking
- 4.2.A.5 woodworking
- 4.2.A.6 spot welding

4.2.B If a flying object becomes embedded in your eye, contact the proper medical personnel immediately. Cover your eye with a plastic shield or inverted cup, keeping pressure on the eye and keeping eye movement to a minimum.

## 4.3. Dusts, Fumes & Mists

4.3.A Dusts, fumes and mists are created by jobs such as painting, woodworking and scaling. Although not as common as flying particles, these hazards are serious because often they are too small to see. As with flying particles, dusts, fumes and mists can cause cuts and lacerations, bruises, foreign bodies embedded in the eye and general irritation.

## 4.4. Hazardous Chemicals

4.4.A Contact with hazardous chemicals and splashing metals is responsible for one-fifth of all eye injuries in the workplace. Splashing metal occurs during babbitting, hot metal casting, and metal baths.

4.4.B Chemical splashes may occur any time a worker uses a caustic substance. When working near these types of hazards, you should always know the location of the closest eyewash station.

4.4.C The amount of damage suffered from a chemical splash depends on how long the chemical is in contact with your eye. Thoroughly flush your eyes for 15 minutes to completely dilute the chemical.

## 4.5 Ultra-violet and Infrared Light

4.5.A Ultra-violet and infrared light are at opposite ends of the color spectrum, but are equally dangerous to your eyes. Many welding and cutting procedures emit these dangerous light rays. The most common injuries suffered from these types of hazards are retinal burns and flash burns. Like all eye hazards, most high intensity light injuries are preventable when the proper protection is worn.

## 4.6 Know your Workplace Hazards

4.6.A A variety of hazards may be found in the workplace. You should know which are present at your facility.

## 5.0 Wear the Right Protective Eye Wear Types of Eye Wear

5.1 Protective eye wear includes:

- 5.1.A spectacles
- 5.1.B goggles
- 5.1.C face shields
- 5.1.D welding helmets

5.2 In any hazardous environment where eye injuries are possible, you are required to wear eye and/or face protection. Remember that personal protection is a supplement, not an alternative to machine guards, engineering controls and safe work practices.

5.3. Primary and Secondary Eye Protection

5.3.A Eye protection falls into two categories:

5.3.A.1 Primary protectors.

Primary protectors include spectacles, commonly referred to as safety glasses and goggles.

5.3.A.2 Secondary protectors

Face shields and welding helmets are considered secondary protectors and must be worn with the appropriate primary protector.

5.4 Depending on the hazards associated with your specific tasks, your supervisor will provide you with the type of protection that best fits the job. The type of protection required is determined by a hazard assessment of the job.

## 6.0 Primary Protection

6.1 Safety glasses are the most common type of eye protection. They are designed to provide primary hazard protection.

6.2 Don't confuse safety glasses with regular prescription glasses. Safety spectacles are made of a tough, slow burning material designed to withstand severe impact while keeping the lenses intact.

6.3 In many industries, side shields and brow bars are required, as well. They offer further protection and are highly recommended.

6.4 Goggles

6.4.A Goggles are designed to completely surround your eyes and shield them from hazards. They are available in two styles: eyecups that cover the eye socket completely and cover goggles which may be worn over spectacles. Goggles are usually ventilated, either directly or indirectly, to minimize fogging.

- 6.4.B Direct ventilation goggles are equipped with a series of holes on the tops and sides. They are effective against flying particles, but are not designed to block fine dusts and chemical splash. Indirect ventilation goggles offer more protection against splashes.

## **7.0 Secondary Protection**

### **7.1 Face shields**

- 7.1.A Wear face shields to guard your entire face from flying particles and chemical splashes. Since face shields are considered secondary protection, you must always use them with safety spectacles or goggles.

### **7.2 Welding Helmets**

- 7.2.A Welding helmets are designed to shield both your eyes and your face from optical radiation and impact. Helmets can be mounted on hard hats in either a stationary or lift front style. They are also offered in hand shield style. Like face shields, welding helmets are secondary forms of protection; you must wear them with either safety glasses or goggles.

## **8.0 Eye Wear Must Fit Right and Work Right**

- 8.1 Before eyewear can be worn it must be put through a series of tests to ensure it works properly.
- 8.2 For example, a pair of industrial safety glasses must be able to sustain inches. It must also be able to withstand impact from a steel ball traveling at 150 feet per second.
- 8.3 These tests are designed to stimulate real-life situations you may encounter in your work environment. They do not, however, remove all responsibilities from you, the final user.

## **9.0 Keep it Clean**

- 9.1 Keep your protective eyewear clean and in good condition. Use the lens cleaning stations located throughout your facility to clean your lenses frequently.
- 9.2 Before each use, check your safety glasses for chips or cracks, which can decrease the structural integrity of the glasses.

## **10.0 Be Prepared for Accidents and Emergencies Know the Location of Eyewash Stations**

- 10.1 The time taken to locate an eyewash station could mean the difference between sight and blindness. If you are assigned to a new area, tour the area so you know where to locate first aid equipment.

- 10.2 What to do for Cuts or Ruptures
  - 10.2.A Cover eye with plastic shield or inverted cup
  - 10.2.B Keep pressure off the eye
  - 10.2.C Keep movement to a minimum
  - 10.2.D Do not squeeze the eyelid to look at the injury
  
- 10.3 Treating Blows to the Eyes
  - 10.3.A Apply a cold compress to reduce pain and swelling.
  - 10.3.B If the eye turns red or there is a decrease in vision, there may be internal damage.
  
- 10.4 Dust or Particles in the Eye
  - 10.4.A Remove the dust or particle by washing it out at the eyewash station.
  - 10.4.B Don't rub the eye; it could cause the substance to scratch the cornea.
  
- 10.5 Chemical Splashes: Act Fast to Avoid Eye Damage
  - 10.5.A Dilute the chemical immediately at the eyewash station. Irrigate for at least 15 minutes and roll the eye as it is being irrigated.
  - 10.5.B Do not rub the eye or use a cup or bandage over the eye.
  - 10.5.C Remember, the severity of the damage to the eye is determined by how long the chemical remains undiluted.

## **11.0 Eye Safety: There Are No Second Chances**

- 11.1 By following several commonsense rules, you can avoid becoming another eye injury statistic. Remember these tips:

### 11.1.A Wear Safety Glasses or Proper Protective Eye Wear

- 11.1.A.1 Even if the job you are doing presents no risks, wear your safety glasses when in the industrial work environment. In three of five injury cases, the worker was not wearing eye protection.
  
- 11.1.B Check and Clean
  - 11.1.B.1 Check and clean your safety glasses and protective equipment before each use. Discard any equipment with cracks or defects.
  
- 11.1.C Be Prepared
  - 11.1.C.1 Know what to do in case of accidents. Know the location of eyewash stations.

## **12.0 Prescription Safety Glasses**

- 12.1 Bristol Community College will purchase prescription ANSI approved safety glasses for each employee that requires his or her use on an annual basis.