

TerranearPMC Safety Share

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Week of August 20, 2018 – Safety Glasses for Work and Play

Safety Glasses have come along way. I suppose some of us may recall when safety glasses came in only one style: Nerd. That's because they made even the coolest looking guy look like a geek. It was sometime in the 1990's when manufacturers began introducing fashionable styles causing the American work force take notice. Indeed, the designs were so trendy and chic that people began wearing them outside of the work environment.

According to one of the nation's oldest voluntary health organizations, *Prevent Blindness America*, each year more than 700,000 Americans injure their eyes at work, and another 125,000 injure their eyes at home. More than 40,000 American children and adults suffer eye injuries during sports. At the same time, thousands of eye injuries go unreported. Yet experts say proper protective eyewear could prevent up to 90 percent of all eye injuries.

OSHA has established safety standards for eye protection and can be found in the U.S. Code of Federal Regulations, 29 1910.133 (Eye and Face Protection – for General Industry) and 29 CFR 1926.102 (also titled, Eye and Face Protection – for Construction). In these standards, OSHA references the performance specifications established by the American National Standards Institute (ANSI); a private, non-profit organization that develops quality and safety standards for a wide variety of products including safety shoes, hard hats and even first aid kits.

For safety glasses, ANSI has developed testing protocol to ensure safety eyewear will offer proper protection during specific events.

ANSI has established two classifications of safety lens criteria: basic impact and high impact. The "drop ball" test determines the basic impact safety classification for lenses. In this test, a one-inch diameter steel ball is dropped onto the lens from a height of 50 inches. To pass, the lens must not crack, chip or break. All glass safety lenses must undergo this test. For plastic safety lenses, however, only a statistical sample of a large batch of lenses needs to be tested. In high impact testing, a high velocity test is performed by shooting a quarter-inch diameter steel ball at the lens at a speed of 150 feet per second. To pass, the lens must not crack, chip or break, and it must not become dislodged from the lens holder. Consumers can identify if a lens has passed the high velocity test described above by observing a "+" mark. This indicates a lens' approval at high impact. This mark may be applied to any prescription lens of the same or greater thickness (at the thinnest point of the lens), made of the same material by the same manufacturer and with the same coating(s) applied.

Other lens markings that appear on safety lenses are "V" (indicating the lens is photochromic) and "S" (indicating the lens has a special tint). In some cases, a number may also be marked on a shaded safety lens to indicate how much light transmittance is reduced by the tint. This is typical for eye protection designed for welding and other hot work applications. For instance, the process known as "shielded metal arc welding" requires a shading number of anywhere from 7 – 11 (these numbers do not indicate any specific meaning other than being a dimensionless classification).

Safety glasses may have prescription lenses or non-prescription (also called "plano") lenses. Regardless of their size or the durability of the frame and lenses, regular prescription eyeglasses **do not** qualify as safety glasses unless they meet the testing criteria described above.



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Non-prescription safety eyewear with non-removable lenses must be permanently marked with the manufacturer's trademark and "Z87" (basic impact) or "Z87+" (high impact) on either the front of the frame or on one temple. Prescription safety frames must be permanently marked with the manufacturer's trademark and "Z87-2" on the front of the frame and on both temples (although glasses other than prescription can have this "Z-87-2" for their frames).

OK; that covers the basics. Of course, when you need a pair of safety glasses at work, your S&H professional can be a valuable resource. But what about at home?

If you don't require prescription lenses, or you wear contact lenses, you can purchase non-prescription safety eyewear from most hardware, building supply and sporting goods stores. These safety glasses usually are made of lightweight polycarbonate for comfort and are available in attractive wrap-style frames. For the greatest protection value, remember that the "Z87+" signifies the high impact rating. Some models are even available with a bifocal reading segment in the bottom half of the lens (helpful for many of us in the "over 40" category). For mowing lawns and using a power trimmer or other power tools, make sure that the frame is rated (Z87-2) and that the glasses have side shields to protect you from flying particles or larger objects.

And how about Sports? What needs to be considered during such recreational use? The same recommendations for safety glasses for home use apply here. Also, consider purchasing an elastic band that attaches to the back of your temples, to keep your safety glasses securely on your head during active sports.

For hunting and sport shooting, always choose safety lenses that have a high impact rating. Consider a wrap-style frame with a non-shiny, matte finish and lenses with anti-reflective coating to eliminate distracting reflections. Safety frames with camouflage patterns are also available for hunting. If you need prescription safety glasses, make sure they have side shields for added eye protection.

For certain activities that require acute vision (maybe golfing?), consider adding a sport-specific tint. Amber or yellow tints, for example, can enhance contrast for shooting.

Fish hooks are a major cause of sports-related eye injuries, so for fishing choose a wrap-style frame and safety lenses with a polarized tint, to cut glare from the surface of the water. Eliminating the glare will not only let you see into the water more easily, but it will also make your eyes feel more comfortable.

Also, consider photochromic lenses for optimum vision and comfort in changing outdoor lighting conditions. An optician or other eye care professional can advise you as to which tints are best for your particular activities.

If you enjoy paintball, be aware that players without proper eye and head protection can sustain devastating injuries from paintball pellets fired from paintball guns. Head shields for paintball should combine eye and ear protection, and the shield should have a high impact safety rating. This is because some guns are capable of propelling paint pellets at speeds over 180 mph.

The most important rule for paintball is never take your head shield off while you're in the playing area, even when a game has not yet begun!

R-E-S-P-E-C-T - Aretha Franklin

