

## **Workplace eye safety is as simple as 1 – 2 – 3**

*Awareness, compliance and the right safety products can work together to prevent on-the-job eye injury*

By Erica Osley, Uvex by Sperian and  
Christine L. Mello, Fend-all® Products, Sperian

Each day, about 2,000 U.S. workers suffer a job-related eye injury requiring medical treatment, according to The National Institute for Occupational Safety and Health (NIOSH). In addition, roughly one third of these injuries require treatment in hospital emergency rooms, with 100 injuries resulting in one or more days of lost work.

Whether you consider the number of injuries per day, the associated healthcare costs or the hours of lost productivity, the numbers associated with job-related eye injuries can be overwhelming. But what's even more revealing, according to Prevent Blindness America, the nation's leading volunteer eye health and safety organization, as many as 90 percent of these injuries — 1,800 per day — could have been prevented had the workers been wearing the proper eye protection.

It is every employer's responsibility to assess eye safety hazards in the workplace and take measures to ensure employee safety through compliance with government regulations for eyewear and emergency eyewash stations in the event that an accident does occur. This means companies themselves are responsible for understanding the Occupational Safety and Health Administration (OSHA) and American National Standards Institute (ANSI) regulations and recommendations, and for ensuring that managers and employees have the know-how and resources to act in accordance with industry safety standards.

Safety managers must understand the unique safety requirements for their workplace environment — whether it's chemical, dust, UV radiation or other hazards. Once any hazards are identified, it is critical to determine which products best suit the needs of employees who work in this environment each day. This includes providing protective eyewear to ensure the highest level of protection against injury, and installing emergency eyewash stations in the event that an accident occurs.

Preventing eye injuries can help workers avoid vision damage or loss, and it can help companies avoid productivity losses as well as legal and financial hardship. Given the enormous upside potential of prevention, here's something else to consider: approximately 50 percent of employers do not comply with OSHA requirements.

### **The Story Behind the Numbers**

Non-compliance with protective eyewear and emergency eyewash safety standards is a serious issue in today's workplace, resulting in worker injury and hours of lost productivity. In fact, according to the U.S. Bureau of Labor Statistics, eye injuries lead to 37,000 missed days of work and more than \$300 million per year in related costs. Adding legal fees, judgments and the cost of training replacement workers brings that number to more than \$900 million. Companies must take responsibility to learn the requirements, install the proper equipment and train facility managers and employees

adequately. Taking the proper steps to ensure compliance before an accident happens is the first step in protecting employees' eye health.

### **Choosing the Right Eye Protection for the Job**

It is critical that companies establish effective safety policies based upon regulatory requirements and the specific eye protection needs of the workplace environment. First, a plant supervisor or safety specialist should conduct an analysis and hazard assessment of the work areas, job applications, access routes and the equipment itself. There should also be an examination of any past eye accident/injury reports. Vision testing should also be a part of a company's safety program, as uncorrected vision is a contributing factor to injuries.

The eye protection chosen for specific work environments depends upon the nature and degree of the potential hazard, the circumstances of exposure and other personal and workplace factors. The ANSI Z87.1-2003 standard contains a selection chart to help companies choose recommended eye and face protection for particular job applications. This eye and face protection is generally of three different types: safety eyewear, goggles or faceshields. Safety spectacles are the most common form of protection. Safety eyewear is designed with side protection and can resist an impact up to 150 feet per second. Second, there are goggles, which form a protective seal around both eyes. There are two basic types of goggles; impact and chemical. Chemical goggles have hooded or indirect ventilation paths protecting the worker from chemical splashes. Impact goggles have direct ventilation holes and protect against direct impact or large particles. In addition, there are faceshields which are used in welding, grinding or sanding applications. However, faceshields are considered secondary protection and must be worn in conjunction with protective eyewear or goggles.

Impact and splash protection, as mentioned above, are probably the first kind of hazards that come to mind when evaluating safety eyewear, but they are not the only consideration. Protection from types of invisible radiation should also be considered. Where workers are exposed to harmful glare, ultraviolet or infrared radiation, tinted lenses or special filters are essential for protection. Tinted lenses also enhance visual perception by counteracting light distortion and preventing eye fatigue.

Once the types of eyewear and lens tint have been selected, there are still a few additional factors to consider. The eyewear chosen must meet the ANSI Z87 standard in the United States or the CSA Z94.3 standard in Canada. It should provide the appropriate amount of coverage and should fit each individual worker properly and comfortably. By selecting adjustable eyewear, employers can ensure greater on-the-job comfort for workers who are more likely to keep comfortable eyewear on longer. Similarly, it's also important for protective eyewear to provide some level of style to increase worker acceptance.

### **Be Prepared with Emergency Eyewash Stations**

When an accident does occur, the difference between a very serious injury and one that can be mitigated often comes down to a matter of seconds. Lack of first aid eyewash or emergency shower facilities ranked fifth on OSHA's 25 most-cited general industry violations in 2005. Though reasons for this type of violation may vary, employers' lack

of understanding is often a major factor; sometimes it's simply a case of not knowing that a facility requires emergency eyewash stations.

As a rule, laboratories or companies must have eyewash stations if work environments require paint, solvents, battery charging stations, hazardous chemical storage, tool parts washers or chemical pumping/mixing areas. If employees are using chemical-resistant gloves, cartridge- or air-supplied respirators, chemical-resistant goggles or flammable storage containers, eyewash protection is most likely required as well.

Although OSHA sets the overall requirement that employers provide eyewash stations, it refers to ANSI to guide employers in establishing and maintaining work practices relating to eye safety. Specifically, ANSI standard Z358.1 requires that eyewash stations:

- Be located in areas where caustic or hazardous substances are present
- Be placed in accessible locations that require no more than **10 seconds** to reach
- Be located on the same level as the hazard
- Be free of obstructions that might inhibit immediate access
- Be in a visible area identified with a sign
- Be positioned with the flushing fluid nozzles no less than 33 inches and no greater than 45 inches from the surface on which the user stands
- Flush both eyes simultaneously
- Deliver a 15-minute continuous flow of tepid flushing fluid
- Have an on-off value, pull strap or door that is capable of activation in one second or less and activates in one single motion

### **Eyewash Stations: Know Your Options**

Non-compliance not only comes with the risk of injury and lost productivity, but there can also be direct monetary costs as well. According to OSHA, employers found in violation of a standard or rule may be assessed a civil penalty ranging from \$5,000 to \$70,000 for each violation. In order to meet compliance standards, there are two styles of emergency eyewash stations available that companies can use — plumbed and portable units — each with different features and implications for eye health.

**Plumbed eyewash systems** are permanently connected to a source of tap water. Their greatest attribute is the ability to deliver plentiful amounts of flushing fluid. Of course, it is better to flush with tap water than not to flush at all, but medically it is not the optimal solution. Not only does tap water not match the pH of the eye, but it could also contain contaminants and microorganisms — both of which could further irritate and injure the eye, and potentially lead to serious complications such as corneal cell damage. Additionally, untempered tap water may be too cold or too hot, making it uncomfortable to rinse the eyes continuously for the required 15 minutes. Also, because these stations must be connected to fixed plumbing, they are expensive to install and impractical to move. They also require weekly flushing maintenance.

**Portable stations** can be further classified as tank-style or sealed-fluid cartridge devices. Portable, tank-style eyewash units contain their own flushing fluid and do not require fixed plumbing. The solution in the tank-style unit can be either a mixture of water and preservatives, or water plus a buffered saline to help ensure safe flushing. They must be cleaned and refilled in accordance with the manufacturer's instructions; however, this

only needs to be done every six months. Also, because these stations are not connected to fixed plumbing, they can be moved, easily enabling companies to adapt quickly to changing work environments or locations.

**Portable, sealed-fluid cartridge devices** represent a major step forward in workplace eye injury treatment. Sealed cartridges overcome most of the shortcomings of the self-contained portable systems. Leading units feature factory-sealed cartridges containing a purified, buffered saline solution that remains free of bacteria or contamination for 24 months. This two-year shelf life is determined by the date of manufacture, and is more than four times longer than any other primary, portable eyewash station. The units can only be refilled with a sealed-fluid cartridge, thus avoiding the contaminants found in tap water.

For specifics on OSHA and ASNI requirements, companies should refer to OSHA Standard 1910.151, titled Medical Services and First Aid, and the ANSI Z358.1 Standard for Emergency Shower and Emergency Eyewash Equipment.

### **Make Informed Safety Decisions**

For the worker who experiences an eye injury, there is no price on the loss of vision or associated pain and suffering. Where legal and financial exposure is concerned, litigation, healthcare and settlement costs can take more than a hefty toll on a company's wellbeing.

Non-compliance with OSHA regulations for workplace safety is a violation of the law. Companies must do their research to learn the pros and cons of the types of protective eyewear products and emergency eyewash stations that are available. It is critical that employers take the time to assess eye safety hazards in their facilities, determine the necessary protective equipment, and provide employees with the products and training needed to ensure a safe workplace.

A safe work environment should be a top priority for all employers. By working with OSHA and ANSI and by relying on the information, guidelines and resources each agency provides, employers can be more proactive in ensuring the safety of their workplace and avoiding costly eye injuries. If in doubt, consulting services are available to companies that wish to conduct a certified safety audit, and many manufacturers have sales personnel trained to help with an audit. With all the information, resources and products available, eye safety in the workplace really can be as easy as 1-2-3.

*\*As published in Occupational Health and Safety*