

Emergency Eyewash

Honeywell



WORLD LEADERS IN EMERGENCY EYE CARE

The Importance of Eye Flushing Systems

Why is a sterile eyewash solution better?

- Sterile solution offers unmatched safety.
- When compared to tap water, sterile solution offers the best protection from contaminants and bacteria that could lead to secondary trauma to an injured eye.
- Sterile solution reduces the risk of potential liability if eye injury from flushing with contaminated water occurs.

Are Sterile Solutions Available Today?

Yes. The new Fendall 2000™ from Honeywell offers a sterile delivery system designed exclusively for its new sterile Eyesaline® solution.

To minimize the chance of contaminants entering the eye from other sources, the new Fendall 2000 sterile delivery system features hermetically sealed nozzles, hoses and nozzle covers that are protected until used, in order to minimize the possibility of contamination.

In addition to its modular, compact and durable design, the new system uses only one sterile Eyesaline cartridge that is 100 percent safe and lasts for two years. It also features an alarm that sounds upon activation or deactivation, and a nozzle that is easy to install for added assurance that the unit is properly assembled. Drug information, lot numbers and expiration dates are also visible through a clear window for easy inspection and to ensure that the sterile Eyesaline is replaced when required. Company contact information is also clearly marked. For added comfort, proper use and improved compliance, the Fendall 2000 system also includes such ergonomic features as an arm and head rest.

With an integrated waste water containment system, the Fendall 2000 eyewash station captures its own solution during the 15-minute flush, thus preventing dangerous spills and the need for cleanup when installing the new cartridge. In addition to a one-year product warranty, the Fendall 2000 station is SEI certified to meet the ANSI Z358.1 standard and is supported by a dedicated team with the technical expertise necessary to answer user questions.

Sterile Eyesaline offers significant advantages over tap water and even the first generation of sealed cartridges produced with purified water. It is buffered to the same pH as the human eye, which is especially important in the case of chemical splashes, when the eye's pH is disrupted. Because it utilizes a physiologically correct saline solution that is similar to human tears, it can be used for a full 15 minutes without irritation to the eye. Sterile Eyesaline solution maintains its stable pH during all stages of use, including storage and flushing.

Current Occupational Safety and Health Administration (OSHA) guidelines relating to workplace eye safety state, “Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use.” (OSHA regulation 29 CFR 1910.151(c)).

It is important for employers to know that in addition to the aforementioned standard, OSHA frequently refers employers to ANSI standard Z358.1.

What is ANSI?

ANSI stands for the American National Standards Institute, a private, non-profit organization that administers and coordinates the U.S. voluntary standardization and conformity assessment system. ANSI does not assess or certify products or services. It “serves as a neutral forum for the development of policies on standards and serves as a watchdog for standards development and conformity assessment programs and processes.” As noted above, OSHA refers to ANSI standard Z358.1 to guide employers in establishing and maintaining work practices relating to eye safety.

What does the ANSI Z358.1 standard require?

Like OSHA, ANSI standard Z358.1 requires that the first step following chemical contact of any kind with the eye(s) — including caustics, acids, solvents and other hazardous materials — is immediate flushing of the eye(s) with water.

Speed is of the Essence. ANSI Z358.1 states that eyewash stations must be accessible within 10 seconds or less of an accident.

Duration is Critical. ANSI Z358.1 requires that eyewash stations be able to provide flushing fluid uniformly over a period of 15 minutes.

Temperature is Important. The ANSI Z358.1 standard was updated in 2009 and requires that eyewash stations deliver tepid flushing solution. Tepid temperature is no less than 60° F and no greater than 100° F. Water that is too cold may prevent the patient from completing the full 15-minute cycle and also is capable of causing hypothermia. Water temperatures over 100° F have been proven harmful to the eyes and can enhance chemical reaction with the eyes and skin.

In addition to the above requirements, ANSI Z358.1 also calls for each eyewash station to be easily identified with the use of a highly visible sign. Eyewash equipment should be certified annually by a third party to ensure compliance with ANSI standards.

Tap water introduces contaminants into the injured eye. Plumbed eyewash stations can develop rust and scale in their supply lines. Though tap water is suitable for drinking, it does contain various irritants and contaminants including the free-living amoeba, Acanthamoebae. In fact, a December 2005 survey by the Environmental Working Group (EWG), a nonprofit environmental research and advocacy group based in Washington, DC, found 141 unregulated chemicals and an additional 119 for which the Environmental Protection Agency (EPA) has set health-based limits. Most common among the chemicals found were disinfection by-products, nitrates, chloroform, barium, arsenic and copper. Flushing these harmful elements into an already damaged eye can cause serious secondary injury and possible vision loss.

Plumbed eyewash stations are expensive to install and impractical to move. When plant layouts are modified or production facilities expanded, plumbed eyewash stations may need to be added or relocated to maintain adequate coverage for hazardous areas. Such actions represent a significant cost and time factor.

Plumbed units warrant frequent maintenance. According to the ANSI standard, plumbed eyewash units should be activated weekly to flush out dangerous contaminants and microorganisms. In large plants, maintenance of multiple eyewash units can represent a substantial labor and cost commitment.

Self-contained Portable Systems

Developed in the 1970s, self-contained, tank-style eyewash devices were designed for portability and easy access, and represented a significant improvement over plumbed units. Not only were they far less costly than plumbed devices, they were also designed to dispense a buffered saline solution that approximates the pH of the human eye at ambient temperatures (typically 60-100° F).

However, despite the significant improvements self-contained units brought to the workplace, some important operating and maintenance concerns remain.

Many self-contained units are filled with ordinary tap water. As previously discussed, tap water presents certain risks for flushing the eyes. Even though self-contained units have fewer contamination problems than plumbed units, and can be filled with a buffered saline solution, many users fill the reservoir with common tap water. Studies have detected Acanthamoebae, Pseudomonas and other harmful bacteria, viruses and fungi in the stagnant water of improperly maintained units. Filling self-contained units with tap water only increases the likelihood of contaminants in the water supply.