

Prepare for Chemical Exposures with Emergency Wash Stations

By Jerry Schwarz

Personal Protective Equipment such as gloves, goggles, and face shields are the first line of defense against many types of exposures, but accidental exposures still happen.

If a person in your facility can be exposed to materials that cause injury, then appropriate facilities for the flushing of the eyes and or body should be provided for immediate decontamination. The 10 to 15 seconds after initial exposure to a hazard are the most critical, especially if the substance is corrosive.

The American National Standards Institute (ANSI) Standard Z358.1 serves as a guide for the correct design, installation, use and maintenance of emergency equipment.

This standard recommends that the affected body part be flushed immediately and thoroughly for at least 15 minutes using a large supply of clean water/flushing fluid under low pressure to dilute the contaminants. In many cases water isn't capable of neutralizing them. If the irritation persists, the flushing procedure should be repeated, and medical attention should be given as soon as possible.

Accessibility is key when trying to determine the location of the emergency equipment. Generally speaking the equipment needs to be located so it can be reached within 10 seconds walking time. Keep in mind that the person traveling may be injured or impaired and may have limited vision.

Equipment should be installed at the same floor level as the hazard, no stairs or ramps should hamper access. Pathways should be clear and free of any obstructions. The location must be marked by highly

visible signage, which displays an easily identifiable symbol, so as to eliminate any language barriers.

The area should also be well lit. In areas where more than one worker might be exposed to hazardous equipment at the same time may require more than one emergency shower, and eye/face wash.

Some environments may require special considerations. In areas where the only possible place to install emergency safety showers is in a hallway or a corridor, it is recommended that eye wash/face wash drench hose units be located by sinks.

By using a combination of eye/face wash and emergency showers, the person exposed can receive both immediate and or long term drenching. Where needed a visual or audible alarm can be used to alert other workers, when the emergency shower is activated. This allows other workers to be alerted to the needs of the injured party and assist them in getting into the emergency shower if their sight is impaired.

Clothes that have come in contact with hazardous materials may need to be removed from the injured person. A privacy curtain, and extra overalls and foot covers should be stored next to the emergency equipment in cases such as this.

The flushing fluid is defined as any potable water, buffered saline solution or medically acceptable solution. Drinking water or potable water is defined as “water of sufficiently high quality that it can be consumed or used with low risk of immediate or long term harm” (Wikipedia). Potable water may not be the best flushing solution as it may contain rust and scale from the inside of pipes, as well as chemicals such as chlorine.

Water lines should be flushed periodically to remove contaminants. The temperature of the water must be “tepid” (i.e. moderately warm or lukewarm), unless a chemical reaction could be accelerated by the warm water.

In cases where plumbed water is not accessible, a self-contained personal wash station can be implemented. Personal wash stations cannot take the place of plumbed emergency eyewash stations, however they can be used in combination with an ANSI-compliant, 15-minute supply station.

Personal wash stations use a buffered saline solution that must be monitored and changed by the expiration date, otherwise the fluid, can become contaminated and possibly cause serious damage to the eyes it is flushing.

Consideration must be given to the disposal of the waste water/flushing fluid. If a drain is not nearby, self-contained wash stations can leave a pool of waste water that can become a slip hazard. Also take into consideration any electrical equipment in the area, and determine if it will come in contact with the flushing fluid or waste water, which could cause other potentially hazardous situations.

Many pre-plumbed units are designed to connect directly to drain piping. After the emergency shower has been used, the waste water may contain contaminants that cannot go into a sanitary sewer. In these cases the drain should be piped to an acid waste disposal system or a neutralizing tank.

Training of workers:

You should designate one person in the work area and make them responsible for regularly inspecting, maintaining and or activating the

emergency equipment, according to the manufactures instructions. The same person should be responsible for a signed and dated inspection log of the equipment.

All workers need to be instructed in the location, and proper use of the equipment before an emergency occurs. As a part of the training give new workers a hands-on run through of how to use the equipment, and give other employees a yearly review of the procedure.

Keep a set of written instructions posted next to the emergency eye wash/face wash station.

Keep copies of the Material Safety Data Sheets (MSDS) for all Hazardous materials on the premises. All hazardous materials need to be positively identified. When working with chemicals, dust, corrosives or any hazardous materials that may require the use of emergency equipment, remember that preparation plays a very large role, in worker safety.

Being prepared is not a onetime consideration, but an ongoing pursuit.

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References follow:

- OSH Answers Emergency Showers and Eyewash Stations:
www.ccohs.ca/oshanswers/safety_haz/emer_showers.html
- Guardian ANSI Z358.1-2004 Compliance Checklist
<http://www.gesafety.com/ansi/ansi.shtml>
- Wikipedia
http://en.wikipedia.org/wiki/Drinking_water