



Memorandum

DATE: December 30, 2008
TO: OH&S Webinar Participants (12-10-08)
FROM: Margo Mee
SUBJECT: Questions and Answers from the webinar

We'd like to thank everyone who participated in the webinar on the 10th, there were a lot of great questions but unfortunately time did not allow us to answer all of them online. Below is a listing of all the questions presented along with answers. If you should have additional questions or need further clarification, please do not hesitate to contact me at margo@hawsco.com and I will route your question appropriately.

1. What about remote sites that have lead acid batteries, which site personnel service, yet there is no water, and 2 hours from the nearest emergency care?
 - a. You have a few options here. You need to determine the hazard, meaning are we concerned about the eyes, or the whole body. Drenching the eyes is a bit easier as we have multiple portable units. Please go to <http://www.hawsco.com/category.asp?categoryid=14> to see our portable options. If the concern is the whole body then we are talking about a complete different line. Email Casey Hayes at casey@hawsco.com for additional info.
2. How do you determine which nozzle is best suited for your operation? The eye wash or the eye & face wash?
 - a. It depends on your hazard, if you are working with chemicals or liquids an eye/face wash is necessary. Eyewashes are generally used for particulates and dust.
3. Are eye magnets safe for non-medical providers to use for removal of non-ferrous metallic particles from around the eye..lashes, lids?
 - a. Magnets are not unsafe. However, they are just not as effective as simply flushing the eyes with copious amounts of pure water. Any particles imbedded into the surface of the cornea should be removed by a trained medical practitioner. Having said that, manipulating foreign objects by any means other than gentle irrigation is not recommended.
4. How can Legionella be controlled in a tempered water loop for emergency plumbing equipment?
 - a. As mentioned in the webinar, Legionella is in all water. There are several factors beyond the temperature that must be considered. One is the immune system of the shower user. If it is weak then Legionnaires disease can occur. Being a smoker or elderly also pose issues. What we believe is important to know is that LD can be cured with antibiotics a lot easier than getting skin grafts from the chemical spill.
5. Does a dual drench hose meet OSHA's requirement for eyewashes? But if the drench hose is a 1 step process where you just turn it on and it is also hands free, does this meet OSHA's requirement?
 - a. OSHA enforces the ANSI Standard which states that a drench hose with dual heads will work as an eyewash as long as it also meets the specification of an ANSI approved eyewash.
6. You said new buildings need to conform to ANSI standards regarding tepid showers, what about renovating labs?
 - a. If your new lab design is to meet the current plumbing codes, then yes tepid water is required.

7. Is a safety shower required in a very small quantity chemical research lab or will a drench hose be fine?
 - a. You should reference the MSDS to determine the proper way of drenching the chemical off the body.
8. Which agency requires the weekly tests vs. monthly tests?
 - a. ANSI Z358.1 2004 stipulates WEEKLY not monthly testing of emergency units, this can be found in section 4.6.2.
9. Is it true that eyewash/shower check is weekly and not monthly? Where is this in the standard?
 - a. See answer to question #8.
10. Can a shower have a spring loaded shut off valve?
 - a. As mentioned in the webinar, spring loaded valves are not approved.
11. Has anyone participating in this webinar received an OSHA citation for not following the ANSI Standard?
 - a. We unfortunately do not see the OSHA citations, though we receive many orders requesting a quick turnaround to satisfy an OSHA inspector.
12. What are your thoughts on sink mounted drench hose/eyewashes that are mounted at the rear of the sink?
 - a. Eyewashes connected to drench hoses can be approved equipment if it meets the performance requirements in the ANSI standard.
13. What are the basic criteria that should be met for an OSHA compliant installation?
 - a. There are no OSHA compliant installations, however there are ANSI requirements. Reference the Z358.1 guide on www.axionmsr.com for these points.
14. If lab does not contain corrosives is any washing facility needed?
 - a. If there are potential hazards in the lab that can cause eye or skin damage, then safety equipment is required.
15. Can a shower have a manual shut off valve?
 - a. Manual shut off valves are acceptable as long as they are easy to locate and readily accessible.
16. Should eyewash and shower units be used for battery changing stations or is an eyewash alone sufficient? What distance should the unit be from the battery changing station?
 - a. This really is a question you need to answer independently by evaluating the potential hazard. If there is a potential for only the eyes to get splashed, then an eyewash is fine. If there is a concern that the entire body can get splashed, then a full combo unit is needed.
17. What about drains for showers? 15 minutes of 20-40 GPM is a lot of water on the ground and, in labs with expensive equipment, you can do millions in property damage. We want to cleanse victims, but can we also protect property? Are drains not permitted?
 - a. The ANSI Z358 does not address the requirement for drains. You need to refer to the plumbing code used in your state. We do know that the UPC and IPC say drains are not required. We believe this is because the water is mixed with the washed off chemical. The best thing to do here is to get the city where you are to answer this.
18. What are the requirements for a floor drain in a lab setting for safety showers?
 - a. See answer to question #17 above.
19. What is the requirement to process the wastewater from the shower or the eyewash?
 - a. See answer to question #17.
20. Can you update the old style eyewash with this new technology? Approx how expensive?
 - a. Yes, you can easily change out older Haws units to the new Axion eye/face wash head by ordering the SP65 which is under \$125 a piece. The Axion showerhead is less than \$90.

21. How much does it cost to upgrade existing units?
 - a. See answer to question #20 above.
22. What is the average retro fit cost to the consumer as well as time to retrofit.
 - a. See answer to question #20 for cost info. Retrofit time is minimal as all you need to do is unscrew the old to install the new.
23. Do you recommend using faucet-mounted eyewashes where plumbed units are not available due to cost?
 - a. We do not. These units can be unsafe if they are connected to a faucet that has both a hot and cold lever. The user is coming to the sink with chemicals burning their eyes and might turn on the hot side causing further damage. We have units that connect to the side or back of the sink that are much safer. Look at Haws models 7610 and 7611 at www.hawesco.com.
24. Can you use eyewash heads that are attached to a standard sink faucet as an OSHA eyewash?
 - a. See question/answer #23 above.
25. Are sink-mounted units acceptable for small quantity users (corrosives)?
 - a. See question/answer #23 above.
26. Dr. Wolff, what are your thoughts on ph balanced flushing solutions vs. plumbed water and the potential damage that it could cause to an already injured eye?
 - a. As I wrote in a recent article, my personal preference for industrial and commercial applications is the use of pure plumbed-in water. It is readily available in sufficient volume to assure the required 15 minute irrigation and doesn't require a "re-load" process between uses of the equipment. From an effectiveness perspective, pure plumbed-in water will quickly work to normalize the ph level in the eye and begin the healing process. Using sterile saline solution is not a problem, just a bit excessive and almost always limited as to its total on-hand available volume at any given time. Accidents don't always happen one at a time to allow for replenishing the first response equipment.
27. What are your thoughts on sterile flushing solutions?
 - a. See answer to question #26.
28. Are chilled water eyewash/shower stations acceptable if the MSDS specifies this?
 - a. If the MSDS calls for a temperature outside the ANSI range, then we believe the MSDS should be followed.
29. What residual water pressure is required for the Axion products? I've had projects where booster pumps were required due to 30 psig residual pressure requirement.
 - a. All safety equipment must have a minimum of 30psi while flowing. We design many packages with booster pumps because many places have pressures lower than 30psi.
30. In agriculture, it is very difficult to find businesses that are even fully aware of requirements for eyewashes/showers, much less of the ANSI Standard. Any comments about the lack of awareness and what can be done about it.
 - a. This is a struggle we deal with on a daily basis, as your comments are not centralized to agriculture. We would suggest that you contact OSHA to get their opinion and at least get it in writing. Once the customer is made aware of this then the liability is on them to comply. If you are still having issues, drop Casey an email at casey@hawesco.com.
31. I understand the Uniform Plumbing Code references compliance with the ANSI Standard for Safety Z358.1. Is this true? Do you have a copy of where this is stated?
 - a. We have the 2003 and 2006 copies of the UPC. It says safety equipment shall conform to the Z358 Standard. Email Casey at casey@hawesco.com for a printout.

32. Would the Axion MSR be suitable for outside units of a sodium hypochlorite injection station? (NOTE: The unit would be located outdoors)
- The Axion head can be used in outdoor environments where there is no concern of freezing because we have put UV inhibitors in the plastic to protect from sun exposure; however, we do not recommend it in environments where exposure to sodium hypochlorite (bleach) is possible due to its abs construction. A unit that combines PVC/metal will be a better option such as our 8336 PVC unit modified with an appropriate eye/face wash.
33. Regarding outside units, what existing controls do you offer to prevent mold/mildew?
- We have impregnated the Axion head with an anti-microbial to prevent mold and mildew growth.
34. Are we able to use heat tracers with a battery? Remote area no power...
- This question will need additional research. Email Casey at casey@hawsco.com for more information.
35. What changes will there be in the new 2009 version of Z358.1?
- They are looking at moving the temperature range to the definitions and out of the appendix. They are also looking at eyewash flows. There are also issues with the gauge and how to measure the flow. Casey can describe this in more detail if you like. Email him at casey@hawsco.com
36. What is the distance and time factor for reaching an eye wash or shower after an exposure?
- ANSI Z358 states that emergency equipment should be located 10 seconds from a hazard (approx. 55 feet as noted in the appendix).
37. Where are the ideal locations for the eyewash and showers in a manufacturing facility with night sanitation and minimal use of chemicals during the day?
- All safety equipment should be located no farther than 10 seconds from the potential hazard, and be on the same level with no obstructions between the hazard and the safety equipment.
38. If we do not have a tempered water system do we have to retrofit our systems that have over 30 units, spread out over a large area and several floors?
- If your shower equipment is on a dedicated line then we can design you a system that supplies all the showers on one unit or one unit per floor. Email Casey at casey@hawsco.com, and you can work on this together.
39. Where should an eyewash be located in relation to the exit? Can an eyewash be placed on a sink that also is used for chemical disposal such as in a hospital laboratory?
- We are not sure we understand your question as it pertains to the exit, but the eyewash should be located no more than 10 seconds away from the hazard. If you have to go through a door to get to the eyewash, then the door must open in the direction the person is traveling and not have handles that require the use of hands to open. I do not see why the eyewash could not be installed on the same sink. You should consult with the hospital to ensure they are OK with water going down the same lines.
40. Does ANSI require in-line strainers, or are they just recommended?
- There is no mention of inline strainers in the ANSI standard. It is simply recommended.
41. Will this new administration change make any difference in emergency eye wash standards in the future? Does "Dr." Casey Hayes see a change of more "teeth" into the tempered water standard in the future?
- We don't know if Obama will have any influence on eye wash equipment. We have not seen or heard anything regarding the new administration.
42. Do any portable shower units meet the ANSI standard?
- Yes, many portable units meet the ANSI Standard.
43. Is the use of a portable shower unit approved in-lieu of a plumbed?
- Yes, a portable can be used even if there is a potable supply. We would say a plumbed in system is better as you can flush with more water.

44. Do the portable eyewash gravity fed stations meet the ANSI Standard as for how many gallons per minute they must flow?
- Portable gravity fed units do comply with ANSI as long as they provide a controlled flow to both eyes at a minimum of .4gpm for a full 15 minutes.
45. Do you recommend both a mixing valve and a flow control valve on your units?
- Well first, all of our shower and eyewash heads come with a flow regulator. If you are looking at doing tempered water then a mixing valve is preferred. Realize that you will require a significant amount of hot water to temper a shower for 15 minutes.
46. What does that 118,000 workplace death figure encompass?
- It encompasses all forms and causes of mortality while in the workplace.
47. Name a tool that is used to measure the gpm at an eyewash station.
- A good old fashion bucket and stop watch is mostly used. If you have a bowl, then you need to somehow disconnect the waste line to fill up the bucket.
48. With eyewashes can the bowl be removed?
- I have never seen this done, but on Haws units you can by taking the eyewash assembly off, then removing the bowl and finally putting the eyewash assembly back on.
49. What is involved in the "annual" test?
- The annual test would include evaluating the main points within the standard to ensure your equipment meets all the specifications. See the ANSI checklist on www.axionmsr.com for the checkpoints.
50. Field drench showers attached to plumbing being utilized as eyewash stations. Where do I look to show folks these do not meet the requirements?
- We are not sure what you mean by field showers being used as eyewash stations. If you are saying that someone is expected to look up into a shower flow to wash the eyes, then that is a new one. For a place to look, I would suggest getting a copy of the Z358 standard. If we are still not understanding, then email Casey at casey@hawsco.com.
51. Do eyewash stations need to be on a separate dedicated water line?
- It is not necessary that eyewashes be on a dedicated line. You do need to ensure that if any other plumbing device is utilized when the eyewash is needed that you have enough capacity to keep the eyewash running.
52. Your download section does not list the ANSI Standard Z358.1.
- Check back now, it is listed.
53. Will you be doing studies regarding the different outcomes from your product and others, during actual emergencies?
- We have competitive showers installed in our lab to do comparative tests. These tests are not done with actual emergencies, but we do comparative analysis on all models.
54. Acanthamoeba were mentioned in 1986 in articles in the AIHA journal where are we with this today? Acanthamoeba can cause blindness. Can Acanthamoeba survive chlorination in water supplies?
- Dr. Wolff has no more current information about the status of work on Acanthamoeba at this time.
55. Where can one find information regarding the Stanford and UCLA studies?
- Specific studies were not done by either institution. However, both were contacted to discuss the procedures and protocols used and taught with respect to irrigating eyes. In both cases, we were advised that the standard protocol for irrigation is from the inner canthus outward, specifically to move foreign materials away from the lacrimal puncta.

56. ANSI Z358.1-2004 has a minimum flow rate of 20 gallons per minute for safety drench showers. There is a German standard (DIN-12899) which has a much lower flow rate (7.9 gpm). What are the bases for the flow rates in ANSI and the German standard? Why such a dramatic difference?
- This a tough question. The flow rates for the ANSI standard we believe were derived from information in military books. We are told that the flow rates from the German standards were picked because that is what the German manufacturers were already producing. We do know that the new European standards have a shower head flow minimum flow rate of 16gpm. Again, this was based on the flow rates already used in the EU.
57. Could you address records for the weekly inspections? I try to keep them on each eyewash, but they get wet.
- There are waterproof test tags out there that will enable you to document your testing without a mess. Haws model SP170 provides 25 waterproof tags.
58. Is an eyewash required in areas where the sole material in use is patient blood?
- This question is really outside our responsibility. You should consult a medical professional to determine if eyewash equipment is needed when dealing with patient blood.
59. How can I obtain a free copy of the ANSI guideline? Is there a "definition" of an injurious corrosive chemical or a threshold amount of chemicals in a laboratory?...We have some labs in older buildings that are not plumbed with eye washes or safety showers though do use chemicals for histology work, xylene, formalin.
- The full Z358 Standard can be purchased from the International Safety Equipment Association. Our guideline which was shown on the webinar is available at www.axionmsr.com. In regards to the definition of an injurious corrosive, we would recommend looking at the MSDS sheets to determine the proper way of washing off the chemicals.
60. What do you recommend to clean eyewash basins and how often do they need to be cleaned?
- The key thing to look for is proper drainage of the water to ensure no residual standing water. Otherwise, soap and water should be enough to keep the surfaces clean.
61. Is the water generated from a safety shower or eyewash considered industrial wastewater?
- We have never come across this question, and really do not know the answer. The ANSI Z358 does not address the requirement for drains. You need to refer to the plumbing code used in your state. We do know that the UPC and IPC say drains are not required. We believe this is because the water is mixed with the washed off chemical. The best thing to do here is to get the city where you are located.
62. Are there any mobile units that can be used in an Agriculture setting when using Pesticides?
- Are you looking for portable eyewash or shower equipment? This is important to know. Please contact us for discussion.
63. How do you help employers keep the units from freezing?
- There are several ways to keep the equipment from freezing. We can either heat trace the piping or bury the valves. We also recirculate warm water up to the showers for even further protection.
64. What is the best way to protect the bowl of eyewashes from dirt? Are bowl covers acceptable?
- A dust cover for the entire bowl is the best way to protect a unit, if it does not come standard on the unit, it can be purchased as an option. The dust cover must open with the push of the push flag during activation.
65. If your equipment was installed prior to 2004 does it need to be upgraded for tempered water?
- We try not to look at this by date or grandfathering clauses, but look at it from the best way to ensure proper drenching. If the water is too cold will the victim stay under the water for the full 15 minutes? With tempered water, we have a much better chance of a full drench. We believe that if the water is below 60F then a tempering system is needed. We can design systems that use one tempering system for multiple showers. It is a great way to keep cost and maintenance down.

66. What about the route to a shower/eye wash. What is allowed? Doors, 75 ft or closer to the shower.
- a. The safety equipment needs to be installed no more than 10 seconds from the hazard. It must be installed on the same level as the hazard and the path of travel shall be free of obstructions that may inhibit the immediate use of the equipment. If doors are between the hazard and the shower then the doors should open in the direction of travel and should not have handles that require the use of the hands.