

# EMERGENCY SHOWERS AND EYEWASH STATIONS



## EMERGENCY SHOWERS AND EYEWASH STATIONS

Thousands of New Brunswickers work near hazardous substances every day. Although safety practices have improved over the years, incidents involving chemical splashes and spills still occur. Knowing what to do in these kinds of situations is critical to minimize the effects of accidental contact and exposures. Having the proper emergency equipment at the workplace is not only necessary, it's the law.

Section 11, *General Regulation 91-191*, under the *Occupational Health and Safety (OHS) Act* requires New Brunswick employers to install special equipment called emergency eyewash and shower stations, when there is a risk that a worker's eyes or skin may come in contact with harmful substances. These units are used to quickly flush out any contaminant on the skin or in the eyes, minimizing the risk of serious and irreversible damage.

There are many kinds of emergency eyewashes and showers. This booklet provides guidance on the selection of equipment that best meets the needs of your workplace.

## EMERGENCY EYEWASHES : WHAT THEY ARE AND HOW THEY WORK

An eyewash station consists of a catch basin with two water nozzles to allow for both eyes to be rinsed simultaneously.

The system is usually activated by a lever or a pedal and is equipped with a valve that allows water to run continuously until it is turned off. This ensures the unit will not shut off prematurely and allows the injured worker to use both hands to keep the eyelids open.

The ANSI standard calls for at least 1.5 litres of water per minute to be flushed through the eyewash unit at 206.8 Kpa (30 psi). The water is to be supplied to both eyes at a low enough velocity to avoid eye injury.



Most eyewash stations are directly connected to the water system in the workplace. However, there are other approved self-contained eyewash units that are gravity-fed or pressurized.

These eyewashes are useful in work areas where there is no plumbing. The eyewashes are acceptable only if their tanks are large enough to meet the ANSI standard of at least 15 minutes or longer flushing time, depending on the hazardous substance being flushed.

The standard references other kinds of eyewashes that do not meet the above criteria, but can be used to supplement approved eyewash stations. One example is a hand-held squeeze bottle called a personal eyewash.

This is used to provide immediate flushing to support plumbed and self-contained equipment, but must NOT be used to replace them.

The flushing fluid used in self-contained units and personal eyewash bottles must meet and be maintained according to the manufacturer's recommendations.

## SETTING THE STANDARD

WorkSafeNB has adopted the American National Standards Institute's (ANSI) Z358.1-2009 American National Standard for Emergency Eyewash and Shower Equipment. This standard describes the specifications and requirements for emergency eyewashes and showers in New Brunswick. ANSI has published a more recent standard Z358.1-2014 that may also be consulted for more current information.



## EMERGENCY SHOWERS

An emergency shower is a specially designed showerhead that provides an overhead flow of water to the entire body. It is usually activated with a handle that hangs from the unit itself. The valve must remain open without the use of the operator's hands until intentionally closed.

The valve must be simple to operate and go from an off to an on position in one second or less. Some models come equipped with an attached eyewash. The ANSI standard requires that emergency showers be capable of delivering flushing fluid at a minimum of 75.7 liters per minute (20 gpm) for a minimum of 15 minutes. If shut off valves are installed in the supply line for maintenance purposes, provisions must be made to prevent unauthorized shut off.

## LOCATION

The best location for an emergency shower or eyewash depends on the space configuration of your workplace.

Emergency eyewash and shower equipment should be available for immediate use, but in no instance should it take an individual longer than 10 seconds to reach the nearest facility.

The greater the danger of contamination, the closer the emergency shower and eyewash should be to the work area. Workplaces can use the risk assessment tool in Tables 1 and 2 as a guide to choosing equipment and location.

## HOW LONG SHOULD THE FLUSHING LAST?

Medical and industrial experience has shown that the eyes and skin should be flushed for at least 15 minutes. Certain chemicals may require longer flushing times. Consult your Safety Data Sheet (SDS) for the appropriate times. The sooner the flushing starts, the better the chances are for eye and skin recovery. ANSI standard Z358.1 requires that the flushing start within 10 seconds of the hazardous material exposure to minimize tissue damage.

If the injured worker is taken directly to the hospital for first aid without flushing at the worksite, the hazardous substance may have time to cause permanent eye or skin damage.



## RISK ASSESSMENT

The employer should ensure the selection and location of emergency washing facilities is based upon a risk assessment. Tables 1 and 2 can be used as a guide in the assessment process.

**TABLE 1– RISK ASSESSMENT**

RISK LEVEL	DESCRIPTION OF THE WORKPLACE	EXAMPLES
<b>HIGH RISK</b>	Workplaces where corrosive chemicals or other materials are used in a manner, concentration and quantity that presents a risk of irreversible tissue damage to the eyes or skin, or of serious illness resulting from rapid absorption of a toxic substance through the eyes or skin, or where the work activity presents a risk of ignition of the clothing.	Maintenance of ammonia refrigeration equipment or chlorine bleaching or disinfection equipment, handling corrosive materials such as corrosive cleaning products or chemical reagents where there is a high risk of skin or eye contact, filling chemical storage batteries, etc.
<b>MODERATE RISK</b>	Workplaces where chemicals or other materials are used in a manner, concentration and quantity that presents a risk of irritation or other reversible harm to the eyes or skin, or of illness resulting from absorption of a toxic substance through the eyes or skin.	Spraying automotive paints and finishes, operating solvent degreasing equipment, handling irritant materials such as cleaning products or chemical reagents where there is a moderate risk of skin or eye contact, handling dry-cleaning solvents and spotting agents, etc.
<b>LOW RISK</b>	Workplaces where chemicals or other materials are used in a manner and quantity that presents a risk of mild eye or skin irritation.	Using detergents, silicone-based mould- release agents, some hair-dressing solutions, rosin cored solders, welding and grinding, working in dusty areas or with some diluted chemicals, etc.

### HOW YOU CAN HELP

Because an injured worker may panic, helping the worker to the eyewash or shower unit is critical. If only the eyes have been affected, guide the worker to the eyewash station. Tell the worker to hold their eyelids open in the flow of water. If the body was splashed, guide the worker to the emergency shower. Tell the worker to remove any contaminated clothing after turning the shower on.

Make sure the area stays safe for you and the worker. And remember, the worker should seek medical attention immediately after flushing for the required time.

**TABLE 2 – Provision and location of emergency washing equipment**

	HIGH RISK	MODERATE RISK	LOW RISK
<b>EYE EQUIPMENT</b>	Continuous flow eyewash facility with a minimum duration of 15 minutes (or more if required by the nature of the material).	Continuous flow eyewash facility with a minimum duration of 15 minutes.	Effective means to flush the eyes such as sink, drench hose, personal eyewash bottle.
<b>LOCATION</b>	No further than 10 seconds when walking at a normal pace and as close as reasonably possible. It must be located on the same level as the hazard and the pathway must be free of obstructions that may inhibit its immediate use. For high risk corrosive gases such as ammonia or chlorine, the facilities must not be located in the gas storage or use area, but rather immediately adjacent to it.	Be in accessible locations that require no more than 10 seconds to reach. The washing equipment must be located on the same level as the hazard and the pathway must be free of obstructions that may inhibit its immediate use.	Within 10 seconds walking at a normal pace.
<b>SKIN EQUIPMENT</b>	Continuous flow emergency shower facility with a minimum duration of 15 minutes (or more if required by the nature of the material).	Continuous flow emergency shower facility with a minimum duration of 15 minutes (or more if required by the nature of the material).	Emergency flushing equipment.
<b>COMPLIANCE WITH REGULATION</b>	General Regulation 91-191 Subsections 11(1), (2)	General Regulation 91-191 Subsections 11(1), (2)	<i>OHS Act</i> , paragraph 9(1)(a)

## **TEPID FLUSHING FLUID**

Tepid flushing fluid according to ANSI standard Z358.1-2009 is a flushing fluid temperature conducive to promoting a minimum 15 minute irrigation period. A suitable range is 16 - 38°C (60 -100°F). In circumstances where chemical reaction is accelerated by flushing fluid temperature, a facilities safety/health advisor should be consulted for the optimum temperature for each application.

## REMEMBER

- Keep the pathway to the emergency shower and eyewash clear of obstructions. The area must be kept neat and easily accessible.
- Provide highly visible signage where the emergency equipment is located and be sure the area is well-lit.
- Store spare clothing and/or blankets near the emergency shower.
- Leave dust covers supplied with the eyewash in place. They prevent dust and debris from falling inside the eyewash heads and becoming projectiles when the unit is turned on.
- Test the emergency shower and eyewash weekly, and before performing high-risk tasks.
- All workers should be instructed on the location and proper use of all emergency shower and eyewash stations.
- Consider installing a modesty curtain.
- Don't use a residential shower stall as an emergency shower. Residential shower stalls do not meet the ANSI standard for adequate flow of flushing fluid.



Remember, emergency showers and eyewashes are not a substitute for safe work practices. If there is a possibility of a chemical splash, you must use proper handling techniques. Personal protective equipment such as face shields, goggles, gloves, proper footwear and aprons may be required.

For more information, contact WorkSafeNB at 1 800 999-9775 (toll-free) or visit [worksafenb.ca](http://worksafenb.ca). Check out the CCOHS website, [ccohs.ca](http://ccohs.ca), or call 1 800 668-4284 for health and safety information.