Contact Lenses at Work – Fact Sheet



WHAT ARE CONTACT LENSES?

Contact lenses are small, thin discs made of a transparent material. The outer surfaces are custom-shaped to correct or improve vision and the inner side is carefully formed to fit the surface of the cornea (the clear, front covering of the eye including the iris and pupil). Today, the lenses are typically soft (flexible) but hard (rigid) are still available.

Contact lenses can be a safe and effective way to correct vision for most people. However, people who wear them must follow the directions of their eye specialist – this care includes how long the lenses can be worn continuously, how they should be cleaned and stored, and the good hygiene practices to follow when wearing or handling the lenses.

Many people wear contact lenses because they prefer them to eye glasses – contact lenses do not slip down your nose or fog up in the wintertime. A few people, however, must wear contact lenses to have adequate vision (for example, after cataract surgery, or for medical conditions such as keratoconus – a deformity of the cornea).

Contact lenses can cause some problems that do not produce any symptoms that the contact lens wearer may not notice. For this reason, contact lens wearers should have regular checkups with a specialist who prescribes and fits contact lenses.

What is the controversy about wearing contact lenses at work?

Put as simply as possible, the problem is that, according to some people, contact lenses may complicate eye safety.

The arguments against wearing contact lenses in the work environment are based on the following:

- Dusts or chemicals can be trapped behind the lens and cause irritation or damage to the cornea or both.
- Gases and vapours can cause irritation and excessive eye watering.
- Chemical splash may be more injurious when contact lenses are worn. This increased risk is related to the removal of the lenses. If removal is delayed, first aid treatment may not be as effective and, in turn, the eye’s exposure time to the chemical may be increased.

However, the opposite may be true as well. Contact lenses may prevent some substances from reaching the eye, and thus minimize or even prevent an injury. Both situations have been documented.

As a result, a wide range of opinions about the safety of contact lenses in the workplace has formed. More complete information is hard to find since occupational injury reporting systems do not typically include information about contact lens use.

The critical point to remember is that contact lenses are not intended to be used as protective devices. They are not a substitute for personal protective equipment (PPE) – if eye and face protection is required for certain work operations then all workers, including contact lens wearers, should wear the proper protective devices. Safe work conditions for all workers are only possible when basic occupational health and safety practices and procedures are followed.

Are there situations where it may be hazardous to wear contact lenses?

While these conditions may be hazardous to both contact lenses wearers and to people who do not, contact lens wearers should be aware that certain conditions may make it necessary to avoid wearing their lenses. Each situation should be carefully investigated. These situations may include:

- Exposure to chemical fumes and vapours.
- Areas where potential for chemical splash exists.
- Areas where particulate matter or dust is in the atmosphere.
- Exposure to extremes of infrared rays.
- Intense heat.
- Dry atmosphere.
- Flying particles.

Areas where caustic substances are handled, particularly those used or stored under pressure.

In workplaces with ultra-violet and infrared radiation sources, users of contact lenses require protection just as persons not wearing contact lenses do. Contact lens types absorb infrared radiation. This effect is potentially more harmful to the soft lens wearer as it could alter the water balance of the contact lens.

Are some hazards specific to soft contact lens wearers?

Soft lenses are made from a type of plastic that contains a large proportion of water. The soft lense adheres more tightly to the cornea and does not have as much fluid motion as the hard contact lens. For these reasons, some researchers think the soft lens offers some, but not total, protection against entrapment of foreign substances between the contact lens and the cornea.

The major risks for soft contact lens wearers are from chemical splashes and from hot, dry environments. Because of the high-water content of the soft contact lens, some chemicals can pass through the lens and be held against the cornea by the lens itself.

Hot, dry environments can lead to problems because they can cause the tear layer (upon which the lens ‘sits’) to dehydrate. This situation results in eye

discomfort.

Are some hazards specific for hard contact lens wearers?

Hard lenses are made from an impervious material. Increased risk may result if foreign substances, such as dust or small metal fragments, become trapped behind the contact lens. Since the hard contact lens floats on the tear film in front of the cornea (not in a fixed position), there may be an abrading action between the contact lens and the foreign substance that may result in injury to the cornea. Also, chemicals may become trapped behind the contact lens and held in place against the cornea. In dirty, dusty environments, the wearing of hard lenses may be more hazardous than soft contact lenses.

What are some other possible concerns when wearing contact lenses?

A contact lens wearer working alone or in a remote area may be at greater risk if hurt with an eye injury. The immediate removal of contact lenses may be important and the injured wearer may be unable to do this. Also, equipment (e.g., eyewash stations) and qualified staff may not be immediately available which, in turn, increases the risk of further damage.

Dislodgement or sudden loss of a contact lens is another problem. The first complication creates sudden changes in vision quality due to decreased visual acuity and blurring. These pose obvious dangers if dislodgement should occur at a moment when sight is essential for safety. The same problems could occur for wearers of glasses though contact lenses may be easier to lose and are more difficult to re-position.

Can you wear contact lenses with a full-face respirator?

The concern about the use of contact lenses with respirators or personal protective hoods arose because it was believed that dislodgement or sudden loss of a contact lens while wearing a respirator could lead to two potential problems. First, it is impossible to adjust or replace a contact lens while wearing such equipment in a hazardous environment. Secondly, the dislodged contact lens could become trapped in a part of the equipment that prevents its proper functioning.

Most legislation in Canada does not specifically address this question with the exception of British Columbia. In Section 8.38 (Corrective eyewear) of the Occupational Health and Safety Regulation (B.C. Reg. 296/97) part (2) states “The employer may permit the use of contact lenses by a worker who is required to wear a full facepiece respirator if their use is not likely to adversely affect the health or safety of the worker.”

Regulators has dropped the part of their legislation that banned wearing contact lenses with respirators [Standards 29 CFR 1910.134 (g)(1)(ii)]. OSHA reviewed literature and sponsored several studies and reached the conclusion that there was no evidence that the use of contact lenses with respirators caused an increased risk to the wearer’s safety.

It is prudent that a contact lens wearer practice wearing a respirator (with their lenses “in”) to see if any problems occur before the respirator is used on a full-time or emergency basis. The OSHA technical manual states “allows the use of contact lenses with respirators where the wearer has successfully worn such

lenses before”.

Can you wear contact lenses when welding?

Regulators states that contact lenses should not be worn by welders and welding personnel because foreign bodies in the eye can cause excessive irritation. Contact lenses do not provide protection from ultraviolet radiation and flying objects. Welders must wear appropriate eye protection according to the circumstances.

Reports of contact lenses being “welded” to the cornea (or lens of the eye) as a result of exposure to an arc flash have been proven to be incorrect. It is impossible for contact lenses to become “welded” to the cornea.

Note that in Canada, Prince Edward Island’s Occupational Health and Safety Act Regulations (E.C. 180/87) Section 45.11 specifically bans wearing contact lenses while welding.

Are there any laws about wearing contact lenses?

In Canada, legislation varies from jurisdiction to jurisdiction, and between legislation covering various industrial settings. For the most up-to-date information and for guidance, application or interpretation of these laws or guidelines, you should contact your local jurisdiction directly.

Examples of legislative references include:

Alberta

Occupational Health and Safety Code (2009)

Section 230 Contact lenses

230. An employer must ensure that, if wearing contact lenses poses a hazard to the worker’s eyes during work, the worker is advised of the hazards and the alternatives to wearing contact lenses.

British Columbia

Occupational Health and Safety Regulation

Section 8.18 Contact Lenses

8.18 Adequate precautions must be taken if a hazardous substance or condition may adversely affect a worker wearing contact lenses.

Newfoundland and Labrador

Occupational Health and Safety Regulations, 2009

Section 77 Contact lenses

77. Adequate precautions shall be taken where a hazardous substance or condition may adversely affect a worker wearing contact lenses.

Northwest Territories

Occupational Health and Safety Regulations (2015)

97. (4) A worker who is required by these regulations to use an industrial eye protector or face protector shall not wear contact lenses.

Mine Health and Safety Regulations

Section 9.27 Injury to Eyes

9.27 (2) No person shall wear contact lenses while working at a mine except in areas that the manager has designated, in writing, as an area where contact lenses may be worn.

Nunavut

Occupational Health and Safety Regulations (2016)

97. (4) A worker who is required by these regulations to use an industrial eye protector or face protector shall not wear contact lenses.

Mine Health and Safety Regulations

Section 9.27 Injury to Eyes

9.27 (2) No person shall wear contact lenses while working at a mine except in areas that the manager has designated, in writing, as an area where contact lenses may be worn.

Prince Edward Island

Occupational Health and Safety Act General Regulations (2012)

Section 45.9 When an employee intends to wear contact lenses at his place of employment, he shall immediately notify the employer.

Section 45.10 The employer shall ensure that no employee shall wear contact lenses where

(a) gases, vapours or other materials are present which when absorbed by contact lenses may harm the eyes; or

(b) dusts or other materials are present which may harm the eyes or cause distraction which may expose the employee to other injury.

45.11 An employee shall not wear contact lenses while welding.

Yukon

Occupational Health and Safety Regulation (2006)

1.24 The worker as described in 1.22 shall ensure that

(a) the employer is notified when the worker wears contact lenses, has 20/200 vision or less in either eye, or is blind in either eye, and

(c) adequate precautions are taken if a hazardous substance or condition may adversely affect the worker when wearing contact lenses,

Other guidelines or standards that may apply include:

CSA Z94.3.1-16 Guideline for selection, use, and care of eye and face protectors

Part 5 Contact Lenses

Can contact lenses be worn in a hazardous workplace environment?

Be aware that contact lenses themselves do not provide eye protection in industrial environments.

In any environment where industrial eye protection is required, contact lenses should not be worn, except under special medical circumstances (e.g., in consultation with a qualified medical professional). If an individual's medical circumstances require that contact lenses be worn in such environments, eye protection must also be used.

Canadian Biosafety Standard, Second Edition (2015)

4.61 Contact of the face or mucous membranes with items contaminated or potentially contaminated with pathogens or toxins to be prohibited.

Appendix – Explanatory Notes: 4.6.1 – Prohibiting activities such as eating, drinking, applying cosmetics, inserting ear buds, or inserting/removing contact lenses reduces the risk of personnel exposure through the contact of mucous membranes of the eyes, nose, ears and mouth with contaminated or potentially contaminated items.

How do I identify eye hazards for contact lens wearers?

To ensure the safe use of contact lenses in the work environment, occupational health and safety principles must be applied to identify and control any possible hazards.

The most common hazards to contact lens wearers have been discussed. Quantification of hazards is difficult and a variety of complex approaches have been developed. However, the most useful way of evaluating the risk is to classify it as either acceptable or not acceptable.

If the risks of wearing contact lenses in a particular environment are found to be within acceptable limits, then the only course of action needed is ongoing monitoring of the situation.

If the risks are found to be unacceptable, then further action is required to eliminate existing hazards or to reduce hazards to acceptable levels.

Should I try to eliminate or reduce hazards by using engineering controls?

In any workplace, priority should be to eliminate or control hazards at their source, or control along the path between the source and the worker. When legislation is not specific about implementing particular control measures and procedures, employers still are obliged to take every reasonable precaution to ensure that the workplace is safe.

Many methods are available, and those most applicable to the specific situation should be used. This approach may require the purchase of new equipment,

substitution with a non-hazardous substance, isolation of the hazard, addition of safety features to existing equipment, or redesign of the work process. Examples include ventilation; wet or other methods for control of dusty operations; machine guarding; and barriers or screens.

Do I need to know about selection and provision of Personal Protective Equipment (PPE)?

Yes. When the hazard cannot be adequately controlled, personal protective equipment (PPE) may be required. When contact lenses are worn (and where a hazard exists), extra precautions are required to reduce the potential for injury. As previously stated, contact lenses are not protective devices. PPE for contact lens wearers includes splash or dust resistant goggles, and safety glasses. Other workers not wearing contact lenses would wear the same PPE when exposed to the same hazards.

A combination of types of PPE may be necessary if more than one type of hazard exists. For example, where the potential hazards are chemical splashes and flying objects, chemical splash goggles used in combination with safety glasses may be required.

What should I know about administrative controls?

Administrative controls may be used in addition to engineering controls. Administrative controls limit workers' exposures by scheduling reduced work times in contaminant areas or by implementing other such work rules. These control measures have many limitations because the hazard is not removed. Administrative controls are not generally favoured because they can be difficult to implement, maintain and are not reliable.

Where all methods of eliminating and reducing hazards have been explored, and where the PPE cannot adequately protect the contact lens wearer, or where the worker is unable to wear the PPE prescribed, administrative options exist. For example, in some cases, the contact lenses should not be used and eye glasses should be worn used instead. In rare cases, the worker may be offered alternate work.

Who has "responsibility" for users of contact lenses?

The employer and the worker have responsibilities to ensure the safe use of contact lenses. Where contact lenses are worn, the following steps should be followed.

Employer

- Ensure that proper health and safety practices and procedures are followed.
- Provide training and education about eye hazards – particularly those specific to contact lens use – and training on the proper use of eye wash stations and procedures for rinsing the eyes.
- Clearly identify contact lens wearers. The information should be in the employee's medical file and, at least, the first aiders should know who wears contact lenses. It is important that workers wearing contact lenses be clearly identified (especially for first aid). To assist the set-up and maintenance of an eye protection program, identification methods such as the Medic-Alert insignia may be helpful.

- Have personnel available who are knowledgeable in the removal of contact lenses in case of an emergency. If removal of the contact lenses is necessary, personnel should be available to provide assistance. Removal may be critical to prevent further injury. In some situations, an ophthalmologist or optometrist may be required to remove contact lenses.
- Provide access to a clean place for regular maintenance and periodic cleaning of PPE and contact lenses (for example, removal of dust particles).

Worker

- Take special care to keep contact lenses clean. Follow the advice of your eye care specialist.
- Discuss your work environment and any possible hazards with your eye care specialist.
- Make sure that fellow employees and the employer know that you are wearing contact lenses.
- Be alert for changes to the work process and changes to environmental conditions that may be hazardous to you.
- Keep eye glasses available for unforeseen circumstances.
- Wear personal protective equipment whenever required.
- Learn about eye hazards and encourage your employer and joint health and safety committee members to do the same.

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