

# Reducing the risk of eye injuries



**WorkCover**  
TASMANIA



## **Please note**

This information is for guidance only and is not to be taken as an expression of the law. It should be read in conjunction with the *Workplace Health and Safety Act 1995*, the *Workplace Health and Safety Regulations 1998* and any other relevant legislation. Copies of the legislation can be purchased from Print Applied Technology: call (03) 6233 3289 or freecall 1800 030 940. It is also available on the Internet at [www.thelaw.tas.gov.au](http://www.thelaw.tas.gov.au)

This guide was produced by staff from WorkCover Tasmania and Workplace Standards Tasmania.

We welcome your feedback on this guide. Send to: [wstinfo@justice.tas.gov.au](mailto:wstinfo@justice.tas.gov.au)

## About Eye Injuries

The most common hazards associated with workplace eye injuries include:

- airborne particles such as bits of metal, wood, plastic, glass and dust
- tools and power equipment that emit sparks
- flying objects
- radiation
- chemicals
- infectious substances.

To help you start identifying eye hazards in your workplace, these are some tasks that, without implementing adequate controls, pose a high risk:

- chemical processes
- chipping/chiselling
- cutting
- drilling
- grinding and machining
- hammering
- mowing and slashing
- sanding
- scaling
- spray painting
- welding.

These may be done inside or outside, at ground level or at height.

If you identify hazards in your workplace, you must assess the risk associated with these hazards and implement controls that remove or reduce the risk in your workplace. Some suggestions on the types of controls to consider when conducting your risk assessment are provided on page 3 in *Reducing the risks*. For additional guidance on managing hazards in your workplace, including a sample risk assessment sheet, get your free copy of the guide *Hazard Management: Play it SAFE* (GB081) by calling the Helpline on 1300 366 322 or going to [www.workcover.tas.gov.au](http://www.workcover.tas.gov.au) and searching for “GB081”.

Eye protection may not always work, for various reasons:

- ill-fitting safety glasses may not adequately shield the eyes from airborne particles
- eye protection that’s unsuitable for the job being done or for the work environment can result in eye injuries
- relying on eye protection alone to prevent eye injuries — rather than removing or reducing exposure to the eye hazard — is another problem.

And of course, not wearing eye protection where necessary can result in eye injuries.

These are common mistakes, resulting in discomfort, serious injury and even sight impairment.

<p>In 2006, 512 workers compensation claims were made in Tasmania relating to eye injuries. It is estimated that these claims incurred a cost of approximately \$580,000.</p>
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## About this safety bulletin

This safety bulletin is aimed at both employers and workers. It provides practical guidance on reducing eye hazards in the workplace, and selecting the appropriate type of personal eye protection. It deals specifically with reducing the risks associated with welding, lasers, radiation and hazardous substances.

The following Australian/New Zealand standards should also be referred to:

- AS/NZS 1336:1997—*Recommended Practices for Occupational Eye Protection*
- AS/NZS 1337:1992—*Eye Protectors for Industrial Applications*
- AS/NZS 1338:1992 series—*Filters for Eye Protectors*

and the following British Standards:

- BS EN 207:1999 *Personal eye protection—Filters and eye protectors against laser radiation (laser eye protectors)*
- BS EN 208:1999 *Personal eye protection—Eye protectors for adjustment work on lasers and laser systems (laser adjustment eye protectors).*

For more information on these and any other standard listed in this safety bulletin, go to [www.standards.com.au](http://www.standards.com.au) or call 131 242.

## Responsibilities

Everyone in the workplace has a responsibility to help reduce the risk of eye injuries.

If you're an **employer**, you need to provide:

- a safe working environment — for example, by using extractors to prevent fumes and other airborne particles from entering the work area, by erecting screens around welding bays, and by providing designated walkways
- safe systems of work — for example, by developing and implementing (with your workers' input) an eye safety policy and safe work procedures that reduce the risk of eye injuries. You also need to enforce these, and evaluate their effects on eye safety (to see if further improvements are necessary)
- plant and substances in a safe condition — for example, by ensuring that all equipment (including eye protectors) complies with the relevant codes and standards and is appropriately maintained and tested
- information, instruction, training and supervision — for example, about the specific eye hazards in your workplace, and about your safe work procedures to manage these hazards. Inductions are one way to cover this information. First aid training should also be considered
- facilities such as first aid equipment and eye wash stations for the emergency treatment of eye injuries, and amenities for cleaning and storing eye protectors.

Keep up to date with the latest eye protection information, procedures and equipment.
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If you're a **worker**, you need to:

- follow any reasonable directions (including policies and procedures) given by your employer or manager, that will reduce your risk of eye injury
- ensure your own safety (by using your personal eye protectors) and that of your workmates (by reminding them to use safety screens and eye protection)
- report any eye hazards, accidents and near misses to your employer or manager.

## Reducing the risks

You need to remove or reduce the exposure to eye hazards in your workplace in order to reduce the risk of eye injury.

You should aim to remove the eye hazards from your workplace completely; if this is not possible, work through other alternatives to reduce the risks they pose. This brief list (below) of possible solutions starts with the most effective option. You need to monitor your solution to ensure it is working effectively and adequately, and to ensure it does not introduce new hazards.

- Outsource the hazardous work to a specialised company that is better equipped to manage the hazard.
- Use a different, less hazardous work method, equipment or machinery.
- Change the layout of your workplace to relocate the eye hazard away from people.
- Adapt tools or equipment (for example, to ensure they are adequately guarded for the job being done and to ensure they contain or capture any materials, chips, liquids or other pieces that may be ejected. AS4024.1 – 2006 *Safety of machinery* can offer guidance).
- Erect or place screens around work areas to provide protection for walkways, thoroughfares and the general workplace.
- Install exhaust extraction systems to reduce dust, particles or fumes.
- Make sure lighting levels are appropriate for the work being done. AS/NZS 1680:2006 *Interior and workplace lighting – general principals and recommendations* can offer specific guidance.
- Develop and implement a policy that shows your commitment to an eye safety program. Consult with your workers to do this. See page 8 for a sample policy.
- Develop and implement safe work procedures that remove or reduce workers' exposure to eye hazards. Consult with your workers to do this. Display these in the hazardous work area.
- Provide information, training and supervision to ensure your workers understand and follow these policies and procedures.
- Designate areas where eye protection must be worn. Use signs and floor markings to indicate these areas and the protection to be worn. Ideally, these signs should be posted at the entrance to and inside the hazardous work areas.

## Personal eye protection

Where it's not possible to remove or reduce eye hazards through other means, personal eye protectors must be supplied to workers, contractors and visitors.

The type of eye protection provided should:

- be designed for the particular work task
- correctly fit the wearer
- comply with AS/NZS 1337, AS/NZS 1338 (parts 1–3), and where appropriate, BS EN 207:1999 and BS EN 208:1999.

Monitor your workers, contractors and visitors to ensure they're wearing their eye protection at all times in hazardous work areas. If it isn't being worn, find out why — perhaps it's uncomfortable to wear, or they don't know it's required — and take action to fix this.

Be aware that particles (such as dust and metal shavings) can sometimes stick to eye protectors. When the wearer takes them off or put them back on without cleaning them first, the particles stuck to them can dislodge and enter the eye. This also occurs when wearers don't take their gloves off before removing their eye protectors, and particles on the gloves enter the eye.

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Many eye protectors are designed to protect the wearer from particles or objects that come from in front of the face, not from the sides or behind. This is why it's common for others working near by or even passing by the hazardous work area to be injured — the particles enter their safety glasses through gaps at the sides or from behind.

So it's important that eye protection be worn by others working or passing by the hazardous work area.

### **Selecting eye protectors**

- Determine the hazard. For a combination of hazards, more than one eye protector may be needed; for example, welding goggles and a suitable face shield.
- Consider the working conditions. For example, anti-fog goggles or a suitable anti-fogging compound may be required. Sweat bands may be required for extreme conditions.
- Consider the comfort of the wearer. If it's uncomfortable, workers may not want to wear it. Consult with your workers when selecting eye protectors.

Thermally-tempered glass lenses should not be used beyond 18 months after manufacture; over time, this glass gradually loses its resistance to any impact.

### **Eye protectors and prescription eyewear**

Prescription spectacles (as distinct from prescription eye protectors) offer inadequate protection against flying objects or particles, and therefore could be hazardous. The options for anyone who needs to wear both prescription eyewear and protective eyewear are:

- prescription spectacles worn under eye protectors such as wide vision goggles or clip-ons
- prescription eye protectors
- contact lenses worn under eye protectors.

Wearing contact lenses under eye protectors is acceptable in most industrial situations. However, some industrial situations — for example, where workers are exposed to dust; harmful liquids, gases or vapours; or radiation and arc flashing during welding — could cause damage to contact lenses, therefore making these tasks more hazardous to the wearer. See also *Hazardous substances* on page 7 for first aid information related to contact lenses.

### **Maintaining eye protectors**

Dirty or scratched lenses impair vision and are more likely to be removed or unworn.

Follow the manufacturer's instructions for cleaning eye protectors. Generally, it is fine to clean them this way:

- wash them using non-abrasive soap or detergent and warm water, and with a soft cloth
- rinse with water
- dry with a soft, clean cloth.

Avoid using anything likely to scratch the surface of the lenses.

Provide proper facilities for workers to store, clean, service and replace their eye protectors.

Make sure workers know your arrangements for cleaning, repairing and replacing damaged or faulty eye protectors, and for correcting or adjusting uncomfortable eye protectors.

Inspect and clean eye protectors at regular intervals, after use, and before they are re-issued to another person.

### **Replacing eye protectors**

Eye protectors and lenses should be replaced:

- every two years, or
- when normal use, accidental damage or age leads to their deterioration, or
- if they no longer comply with the relevant Australian Standard.

In particular, lenses that have been damaged must be replaced, as the protection they provide will be reduced and vision may be impaired.

## **First aid**

First aid should be given immediately to minimise the risk of partial or complete loss of sight. In a number of cases, it will be necessary to seek medical aid as quickly as possible.

Some general principles for managing eye injuries are:

- follow the DRABCD Action Plan
- support the injured person's head to keep it as still as possible
- tell the person to try not to move their eyes
- tell the person not to rub their eyes
- in the case of cuts, punctures or embedded objects, do not wash the eye or try to remove objects
- in the event of burns to the eye (from chemicals, heat, welding flash or other ultraviolet light), wash the eye with cold running water for at least 20 minutes (make sure to wash under eyelids: turn the upper eye lids back). In the event of chemicals coming into contact with the eye, call the Poisons Information Centre on 13 11 26 or a doctor
- cover the eye with a sterile pad or clean dressing if possible (never put direct pressure on the eyeball or disturb objects which may be protruding from the eye)
- take the person to hospital or a doctor, or call an ambulance on 000.

## **Welding**

When working out ways to minimise exposure to the eye hazards associated with welding, employers need to consider (as well as the suggestions listed under *Reducing the risks* on page 3):

- the type of welding being done
- how long workers (including those passing by) are exposed to the welding process
- their physical distance from the welding process.

You need to protect workers' eyes from both invisible and visible radiation. Where it is not possible to remove or reduce these eye hazards by other means, employers may need to provide (as well as those items suggested under *Reducing the risks* on page 3) the following personal protective equipment:

- goggles or safety spectacles with opaque side shields
- helmets
- hand-held shields (with appropriate filters for the task and hazard).

The Australian / New Zealand Standards referred to on page 2 provide guidance on the type of eye protection and shade of filter to be used when performing different processes. Welding rods also have a material safety data sheets (MSDS) which may give you further direction.

You need to protect others who are not welding, but who are in or passing by the welding area (including visitors to the workplace) and who may be exposed to stray radiation or other eye hazards associated with welding. Where it is not possible to remove or reduce these eye hazards by other means, employers may need to provide:

- physical barriers such as screened enclosures or where this is not possible, mobile screens made, painted or treated with some form of light-absorbing substance
- eye protectors.

Eye protection must also be worn while removing slag after welding.

Arc welding should be done in screened enclosures or, where this is not possible, behind mobile screens made, painted or treated with some form of light-absorbing substance.

Welding presents other risks to health and safety, too.

Skin protection may also be required during welding work. In general, if a shade 6 or higher filter is required for eye protection, then protection would be needed for exposed areas of skin. Welding hoods, helmets and hand shields provide protection to the forehead and neck area. Further protection is needed for the hands and forearms, such as welding gloves; fire-retardant clothing that covers the arms and forearms; and using broad spectrum sunscreen that covers the full range of UV rays.

Air extraction systems to reduce fumes may also be required.

## Lasers

If you use laser products in your workplace, refer to the manufacturer's instructions and the following standards for specific safety precautions for the type of laser you use:

- AS/NZS 2211:2004 and 2006 series *Safety of laser products*
- AS 2397—1993 *Safe use of lasers in the building and construction industry*.

Installing full enclosure or partial screening, and providing electrical cut-off interlocks on removable screens and access panels, are the preferred ways to reduce the risk of eye injuries associated with laser use.

Completely protecting your eyes from laser radiation may make it difficult or impossible to then see the laser beam. For some work tasks, it's necessary to see the beam in order to make adjustments or track its path. BS EN 207 specifies the requirements for laser eye protectors and BS EN 208 specifies the requirements for laser adjustment eye protectors.

## Radiation

### Solar radiation

Workers working outside need eye protectors that guard against solar ultraviolet radiation. These may be tinted or untinted. If workers need protection against discomfort glare, the tinted variety should be used.

Make sure the tinting doesn't interfere with the wearer's ability to perceive colours and therefore recognise warning lights, flags or other colour-coded safety objects.

Sunglasses (even those complying with AS/NZS 1067: 2003 *Sunglasses and fashion spectacles*) are not necessarily appropriate for workplace eye protection.

## Computer monitors and TV screens

By ensuring your workers take regular rest breaks, by having appropriate workplace and lighting design, and by ensuring screen settings are appropriate, you will reduce the risk of eye strain. However, spectacle wearers may find an anti-glare coating for their lenses reduces glare and discomfort.

## Hazardous substances

If you handle hazardous substances in your workplace, you must make sure you get a material safety data sheet (MSDS) for every hazardous substance you have, either before it enters your workplace or with its first supply. MSDS can be obtained from your supplier of the substance. MSDS may be updated by manufacturers or importers, so regularly ask your supplier for the latest version.

An MSDS contains information about the personal protective equipment that must be worn when using the substance, including the type of eye protection. This may be chemical goggles, or a full face shield (face shields may be required and used for supplementary protection, but they should never be used for the primary protection of eyes).

An MSDS will also outline what to do if the substance comes into contact with the eye. For example:

- immediately hold the eyelids apart and flush the eye continuously with running water
- ensure the eye is completely irrigated by keeping the eyelids apart and away from eye, and by moving the eyelids by occasionally lifting the upper and lower lids
- continue flushing until advised to stop by the Poisons Information Centre (call 13 11 26) or a doctor, or for at least 15 minutes
- take the person to hospital or a doctor without delay.

An MSDS will also detail how the substance must be stored

Make sure the MSDS is readily available to workers and anyone else who might be exposed to the substance.

You must also keep a register of the substances used, kept or produced in your workplace. As with your MSDS, make sure the register is readily available to workers and anyone else who might be exposed to the substance.

Where there is airborne exposure to a chemical, you must control exposure so that the relevant national exposure standard for that substance is not exceeded.

For additional guidance on managing hazardous substances in your workplace, get your free copy of the guide *Play it SAFE with Chemicals* (GB084) by calling the Helpline on 1300 366 322 or going to [www.workcover.tas.gov.au](http://www.workcover.tas.gov.au) and searching for “GB084”.

Contact lenses may pose a special hazard; for example, soft contact lenses may absorb and concentrate irritants.

Medical and first-aid personnel should be trained to remove contact lens, and suitable equipment should be readily available. In the event of chemical exposure, eye irrigation should begin immediately, and the contact lens removed as soon as practicable.

Contact lenses should also be removed at the first signs of eye redness or irritation: in a clean environment only and after workers have washed their hands thoroughly.

Your existing safety policies or procedures for each task should cover any restrictions on contact lens use. This should include a review of lens absorption and adsorption for the class of chemicals in use, and an account of possible injuries.

## Sample policy

### **PERSONAL PROTECTIVE EQUIPMENT – EYE SAFETY**

*(Your company or business name)* shall, as far as is reasonably practicable, remove or reduce eye hazards that pose a risk to the health, safety and welfare of our workers, contractors, authorised visitors, and anyone else who may be affected by our operations.

Personal eye protectors shall only be used where:

- it is not otherwise practicable to remove or control the hazard effectively; or
- it provides an additional protection to other existing control methods.

*(Your company or business name)* shall supply appropriate and hazard-specific eye protectors, which comply with current Australian Standards, for everyone where the risk of eye injury exists.

Everyone supplied with eye protectors shall use them as required by *(your company or business name)* and shall immediately inform *(the relevant manager or supervisor)* of any defects or deficiencies that they become aware of, so the eye protection can be replaced.

*(Your company or business name)* is committed to consulting with our workers to ensure that this policy operates effectively and that eye safety issues are regularly reviewed.

#### **Management's responsibilities**

Management will, in consultation with workers:

- identify hazards in the workplace by looking at injury records
- assess the type of work being done in the workplace and other areas workers are engaged in
- if required, designate areas of high risk as “designated eye protection areas” where eye protection equipment must be worn
- provide and post signs advising of all designated eye protection areas
- attempt to remove recognised hazards at their source
- provide screens where appropriate
- install exhaust extraction systems to remove dust and other particles
- provide appropriate eye protectors to all workers, contractors and visitors where required
- ensure adequate training is provided in selecting, using and caring for eye protectors
- ensure eye protectors are adequate for the job
- ensure eye protectors correctly fit each worker
- ensure eye protectors are suitable for workers who wear prescription eyewear
- provide effective emergency first aid equipment and access to medical treatment
- provide facilities for cleaning eye protectors
- ensure lighting levels are appropriate for the work being done
- continuously monitor the work environment and review the hazards
- ensure total compliance with this policy.

### **Worker's responsibilities**

Workers are required to:

- comply with the safety procedures and directions agreed between management and workers
- wear the appropriate eye protectors prescribed when working or passing through designated eye protection areas
- ensure anyone else who may be affected by our operations complies with this policy (for example, other workers, contractors, visitors)
- maintain personal eye protectors in a safe working condition
- avoid harming the eyes of others by actions or lack of action.

In addition, workers must not wilfully interfere with or misuse items or facilities that are provided for workplace health and safety.

Policy authorised by: .....

Date of issue: .....

Date of next review: .....

**1300 366 322** [www.workcover.tas.gov.au](http://www.workcover.tas.gov.au)

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