

# LOOKING GOOD AND STAYING SAFE

## WITH EYE PROTECTION

*Annette Clayfield Hoskin\**



In the dark but not too distant past, eye protectors were ugly, clumsy and uncomfortable ... the options for prescription glasses wearers were limited to clumsy over specs that didn't fit and that obstructed vision. Fast forward 20 years and thanks to innovations in technology, we can now purchase a sexy pair of eye protectors that looks as good on the beach as it does at work - while still providing the best protection available.

**E**ye injuries in Australia are all too common with more than 7000 reported in Victoria alone in a recent two-year period (ref Flood 2009). Injuries include superficial foreign bodies, blunt injuries damaging the bones around the eye, burns both thermal and chemical to penetrating objects and nerve damage. It's important to take the time to understand your eye protection needs and wear them to preserve your vision.

As many as 90% of these are preventable with the right measures. Eye protection must be worn in any situations where hazards are present and must ensure clear comfortable vision - not obstructing the things we need to see. We rely on our eyes to make critical, timely judgements and decisions, so ensuring your vision is maintained is vital to your work and your life.

### **Do I need low or medium impact and what's the difference?**

Low-impact eye protectors are intended to provide protection from hazards that result from manual processes, for example, hammering. Low-Impact eye protectors provide limited lateral protection and are intended to protect the wearer from particles travelling at slow speeds. They are tested to withstand an impact of 12 m/s (or approximately 43 km/h).

By contrast, medium-impact eye protectors are intended to provide protection against particles travelling at higher speeds with increased protection from the sides. Activities such as drilling and use of other electric tools require medium-impact protection, tested to 45 m/s or 162 km/h.



Explosive power tools require high-impact protection - this can only be provided by a face-shield.

Eye injuries can still occur when you're wearing eye protection if they are not the right type or if they not fitted properly. It is important that hazards are identified and that eye protection specific to your needs is worn. An optometrist or dispenser can help to ensure you choose the right eye protectors and ensure a good fit that gives you adequate coverage. Table 1 provides an overview of the different types of hazards and the suggested type of eye protection.

### Why you shouldn't take your eye protection off to read

The image of a worker removing their eye protection to read paperwork is scary to anyone who knows when and where eye injuries occur. With our ageing population, presbyopia - the ageing of your eyes that necessitates reading glasses - is a very common issue. It is important when these changes occur that you don't just pick up the ready readers from your local service station but have your eyes tested to make sure there are no health problems with your eyes that need to be treated.

### What if I need prescription glasses - how can I get the same level of protection?

Advances in spectacle lens technology means that you can wear eye protection with your reading/ prescription needs built in. Eye protectors made with your prescription (the power required to help you see) can now be made in a frame and lenses that provide the same protection as a regular eye protector. For those needing a reading prescription only - once they have established they are free from eye disease with an eye examination - the other option that may be appropriate is a bifocal reader in the form of an eye protector.

### Certified vs compliant products, what's the difference?

When buying an eye protector, how can you ensure that it is capable of giving your eyes the right level of protection? The best guarantee is to purchase a product that is certified. Independent product certification ensures that a product meets all the requirements of the standard through a process of product testing, ongoing batch testing and biannual audits of the manufacturers.

By contrast, product compliance indicates that a product has been tested once at some point in time; there is no guarantee that a future product will also comply. The prestigious Standards Australia tick tower is one example of an independent guarantee of product compliance.

Certified products are independently verified and certified, giving employers and employees peace of mind that the product is traceable back to an Australian manufacturer. Many work sites in Australia will now only allow certified products onto their worksites because of the added assurances and therefore liability cover that these products carry.

### What about UV protection from the sun?

Outdoor workers need to make sure their eye protectors gives them adequate protection from the sun's harmful UV rays. Properties inherent in the lens can help to ensure ultraviolet (UV) light - the part of the sun's rays that causes damage to your eyes - is blocked while maintaining impact protection. It is also important to choose a frame that gives maximum protection from the side to help reduced reflected light entering the eye. Look for lenses marked with an 'O', which indicates outdoor and/or '1', '2' or '3' to indicate their UV and glare protection (see Table 2).

Transition or photochromic lenses provide a range of tints in one lens, changing transmittance (amount of light let through the lens) depending on the lighting levels. These lenses provide a practical option for workers moving from outdoors to indoors. For example a lens labelled '1-3' indicates that the lens transitions from being lightly tinted to darker tinted in full sun.

Table 1: Eye protection recommended for different hazards and activities.  
(NB: The table is based on AS1336 recommended practices for occupational eye protection)

Typical process resulting in hazard	Resulting hazard	Suitable eye protectors
Manual chipping, riveting, hammering, brick cutting	Flying fragment, objects low velocity and/ or low mass	Low impact (NB: Medium impact and high impact will give greater protection)
Machine cutting of materials, grinding, machining metals, wood working	Flying particles, objects medium velocity and/ or medium mass	Medium impact (marked I)
Use of explosive power tools	High-velocity particles	High impact face shields (marked V)
Chemical processes, spray painting aerosols	Gases, vapours	Gas resistant (marked G)
Hot bitumen, pickling baths, metal cleaning, plating, handling corrosives	Liquid splashes	Splash resistant (marked C)
Welding, cutting brazing, furnace work	Non-ionising radiation	Marking in accordance with AS/NZS 1338 Part 1, 2 or 3 as appropriate
Metal casting, molten slag, molten metal, hot solids	Splashing metals	Molten metal resistant (marked M)
Outdoor work	Sun glare and glare from visible radiation	Low impact or medium impact (marked I or F), tinted or outdoor untinted (marked O)
Dental treatment	Flying particles, liquid droplets	Low impact with side shields

Table 2: UV and glare protection. (NB: The table is based on the requirements of AS1337.1.)

Lens Category	UV and glare protection	Lens marking
Outdoor untinted	Maximum UV protection with no glare protection (clear lens)	0
Category 1	Lightly tinted with minimal glare protection, UV protection	1
Category 2	Moderate tint and glare protection with UV protection	2
Category 3	Tint with good glare protection and maximum UV protection	3

Polarised lenses provide excellent glare protection and maximum UV protection and are usually category 3 lenses. While polarised lenses provide a great option to many work environments with excellent UV and glare protection, care should be taken that the lenses don't detract from the visibility of display panels. Some screens, due to the partial polarisation that results from plastics being under stress, can make the screen less easy to read when viewed with a polarised lens.

### Replacing eye protectors - when and why?

Eye protectors, like any piece of safety equipment, have a limited life. If the lenses become scratched or the eye protectors impacted or fallen on, they should be replaced. It is good practice to have your eyes tested at least every two years and to check your prescription eye protectors with your optometrist to make sure that your eye protection is fit for purpose. Many of the materials used in the manufacture of eye protectors can be affected by common chemicals, including substances like sunscreen, that can weaken the materials. Clean and check your protectors regularly to make sure they're still able to protect your eyes. If in doubt, speak to the manufacturer or your supplier who can advise if they are still suitable.

Today, eye protectors are available in a great range of frame and lens options, giving wearers maximum protection from the hazards at work and when undertaking recreational activities. Choosing the best eye protection for the hazards that are faced at work and/or at home is critical to maintaining your vision. Make sure the eye protection is properly fitted and at the same time, why not make them good looking!

For more information about the standards or to check if a product is certified, visit the Standards Australia website [www.standards.org.au](http://www.standards.org.au).

*\*Annette Clayfield Hoskin is an optometrist with more than 20 years' experience in the field of eye protection, product development, compliance and quality control. She is Research Fellow at the Lions Eye Institute Centre for Ophthalmology and Visual Science at UWA. Since 2011, Annette has also worked as Optometry Development Consultant to Eyres Optics, a WA-based manufacturer of eye protection. Annette is the OAA's representative on Australian Standards Committees for Eye Protection Spectacles (with the support of Eyres Optics).*

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