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What's in sunglasses?

How should retailers select the perfect sport protection eyewear for customers, especially those interested in different outdoor and indoor sporting codes?

And how do you pinpoint the perfect value-for-money product for the specialist – like a professional cyclist or a member of the elitist Sunshine Tour of Golf club? Should a cricketer opt for the same product that adds value to the life of a squash player?

Lenses

There are various types of lens coatings and protection that you can get for eyewear.

Carbo glass coating is an industrial strength, protective coating that is applied to both sides of the lens, ensuring it provides superior scratch resistance.

Anti-reflective coating is a scientifically engineered coating applied to the back of the lens. It helps to eliminate annoying back glare and ensures crystal clear optics. Ultra-light weight and virtually shatterproof polycarbonate lenses provide safety and ultra-comfort. A premium grade plastic resin lens is twenty times more impact resistant than glass and premium grade plastic resin lenses are three times lighter than glass.

Polarized lenses are beneficial to any sunglasses wearer – especially for people who spend a lot of time outdoors or do watersport. They cut out glare (the horizontal light from sun rays reflecting off a shiny surface such as water, snow, metal or a tar road), which causes distorted vision that results in squinting, headaches and eye fatigue. Glare also reduces colour and depth perception and causes eye strain.

To check if lenses are polarized, line two pairs up so that you can see through the lenses. Turn one of the pairs ninety degrees to the other. If you cannot see through the lenses, they are polarized.

Polarization works to organize the light, so that you can see images clearer without annoying glare. Optically precise polarization film is embedded in the lens and will not wear off or wear out.

A clear polycarbonate lens that offers protection is ideal for indoor sports, such as

Our cut-out-and-keep series to assist retailers with product knowledge

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squash, where it is compulsory for juniors and doubles players to wear squash eyewear.

De-centred lenses are a big selling feature. This type of lens corrects the inherent visual distortions in curved lenses and restores the optical axis to the visual axis. Other benefits include extending the wearing time of the sunglasses and providing clear, sharp vision, while reducing eye strain, fatigue and headaches.

Interchangeable lenses allows the wearer

to swap lenses to correspond to the lighting condition you are riding or running in. Alternatively, a photochromic lens is designed for varying light conditions.

Ultraviolet (UV) light is a form of electromagnetic radiation present in sunlight, and is harmful to our eyes. It is classified in three categories according to wavelength: UVA is responsible for premature ageing; UVB is responsible for sunburn; UVC are the cancer causing rays. UVC is the shortest and potentially the most damaging wave length.

- Ideally a sunglass should protect against all three types of UV rays, but very few brands actually do this. Similarly, very few brands can prove that they cut out 100% of all UV rays, which is of great concern to consumers when it comes to optimal eye protection.
- The ideal UV protection level prevents UV rays from entering and damaging not only the surface of the eye but the internal structures as well.
- UV damage builds up over time. You generally don't feel UV rays, so there is no natural warning that damage is occurring. While cloud cover reduces UV, it doesn't completely block it so your eyes can be exposed to harmful rays even on overcast days.
- UVA penetrates deep into the eye and may injure the macula, the small area of the retina responsible for the centre field of visual focus.
- Photokeratitis, also known as corneal sunburn, is a result of intense exposure to UVB. It is most common among individuals that spend long hours without proper eye protection on beaches and ski slopes.
- Research has shown that UV radiation increases the likelihood of certain cataracts, conditions in which vision is clouded because the eye lens loses transparency. According to the World Health Organization, this is the leading cause of blindness.

Impact of lens colour

What impact does the different lens colours have on the wearer's sight?

As a function of the lens colour, the colour vision of the wearer can be slightly modified to enhance contrast (blue blocking lenses) or to make a certain colour more promi- **To p36**

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ment (yellow tennis ball) or to differentiate certain colours versus a given background (white golf ball on green fairway)

- Grey lenses allow the wearer to see true colours
- Brown, copper or purple lenses enhance certain colours
- Brown is also good for site fishing in rivers and streams
- Smokey lenses are perfect for big bodies of water like the sea, dams or wet roads
- Yellow lenses are for outdoor activities during low light conditions (dusk and dawn).

Yellow lenses are not recommended for night driving – even though many people use them for that purpose. In order for a yellow lens to be safe for night driving, a light transfection rate of 75% is needed (this is the amount of light being allowed through the lens).

In short, the yellow lens will improve your vision in terms of lights from oncoming traffic being cut out to an extent, but

your immediate vision will be distorted and thus is not safe for night driving.

Blue blocking: Blue light waves make objects appear blue. They are very short and scatter easily and a great deal of the glare we experience from sunlight comes from the blue light waves.

- Blue blocking relates to a lens absorbing part of the blue light in the spectrum. Blue light cannot be cut out completely, as this would be dangerous because traffic light recognition would be impaired.
- By cutting out some of the blue reflective light though, certain colours are enhanced. For example, greens are greener and reds are redder. Therefore, this is especially beneficial to golfers as contours on a golf course are enhanced.
- Blue blockers do not act like regular sunglasses. They appear tinted, but they do not reduce overall light or make the world look darker. Since we can't see

UV light, we also can't see the lens filter used to protect us from UV rays. Conversely, since we can see blue light, we can also see blue blockers, the lens filters that block blue rays. Brown or copper lenses generally cut out blue light.

Lens colour vs UV protection: Does a darker lens provide higher UV protection? No. There is no correlation between lens darkness and UV protection. The former is related to the dye used to colour the lens, the latter to UV absorbers added to the material to absorb UV.

- For the same amount of UV absorber, a dark lens will tend to transmit less UV because it is transmitting less light overall.
- For the same lens darkness, if the concentration of UV absorbers in the lens is lower, it will absorb less UV. A darker lens provides better comfort to the person wearing it when there is more sunshine.

Frames

Wrap-around frames are the most ideal shape for sports eyewear as they cut out the most light and offer the most protection. If the frames do not wrap-around enough, light can enter between the frame and eyes and can cause reflecting on the lenses inside the frame.

Wrap-arounds also shields the eyes from the wind and keeps dirt out of the eyes.

Just ensure that there is no distortion on the lenses that is caused by curving.

Half or semi-rimless frames are great for cyclists who need to keep an eye on the equipment mounted on the bike frame or golfers who need to keep an eye on the flight of the ball. The bottom frame tends to impede vision.

Rubber nose pads and temples stops the sunglass from sliding when the face is sweaty.

Weight: A heavy frame leads to headaches and tend to be uncomfortable. Nylon is a very effective material to use for frames as it ensures that the frames are extremely strong, yet lightweight and flexible.

For proper **ventilation**, the frame must have air holes at the top.

International standards

There are three major sunglass standards – Australian, European and US – which are popularly known mostly as a reference for sunglass protection from UV radiation.

The standards do, however, also include further requirements. A worldwide ISO standard does not yet exist.

- The Australian Standard for sunglasses and fashion spectacles is AS/NZS 1067:2003.

The five ratings for transmittance (filter) under this standard are based on the amount of absorbed light, 0 to 4, with "0" providing some protection from UV radiation and sun glare, and "4" indicating a high level of protection, but not to be worn when driving.

Australia introduced the world's first national standards for sunglasses in 1971.

They were subsequently updated and expanded.

The 2003-update made the Australian standard relatively similar to the European standard.

This step opened the European market to Australian-made sunglasses, but the standard also maintained requirements considered specific to Australia's climate.

- The European standard EN 1836:2005 has four transmittance ratings: "0" for insufficient UV protection, "2" for sufficient UHV protection, "6" for good UHV protection and "7" for "full" UHVV protection, meaning that no more than 5% of the 380 nanometer rays are transmitted.

Products which fulfill the standard receive a CE mark (Conformité Européenne, which means European Conformity). The CE Mark on a product means that the manufacturer ensures that the product conforms with the essential requirements of the applicable CE directives.

- The US standard is ANSI Z80.3-2001, which includes three transmittance categories.

According to the ANSI Z80.3-2001 standard, the lens should have a UVB (280-315 nanometer) transmittance of no more than 1% and a UVA (315-380 nanometer) transmittance of no more than 0.3 times the visual light transmittance.



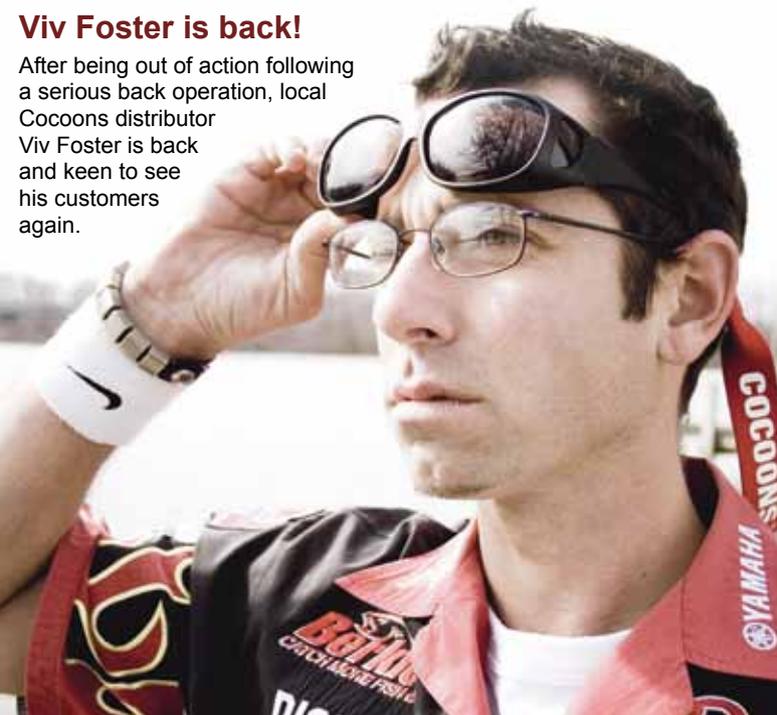
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