

Protect Eyes from Ultraviolet (UV) Radiation All Day, Every Day



Research has found unexpected risks to the eyes from ultraviolet (UV) radiation. Innovative technology from Essilor can help reduce those at risk and protect eyes from UV 365 days a year.

Eyecare professionals know that the cornea, crystalline lens, and even the retina can be damaged by long-term UV exposure, which has been implicated in a variety of severe ocular conditions, including pterygium, climatic droplet keratopathy, cortical cataract, and possibly age-related macular degeneration. Scientific studies have found additional UV dangers that were previously unknown.

Fortunately, Essilor scientists have found an effective way to counter these hazards, and patients can now buy lenses that give them the most complete protection from UV 365 days a year. What we need going forward is greater public awareness of the dangers of UV and more widespread adoption of lenses with most complete UV protection.

Indirect Risks

One thing we have learned is that UV risk to the eyes isn't greatest when the sun's energy is strongest. Because they are set into the orbit and protected by the upper lid, the eyes are shielded from direct sunlight when the sun is high in the sky, which is when it causes most damage to the skin. For the eyes, the risk is greatest when the sun is a bit lower in the sky—in mid-morning and mid-afternoon—times when people are less likely to wear sunglasses.¹ Thus, the need for UV protection is not limited to sunglasses: people need UV protection in every pair of lenses they wear outside.

Direct UV exposure is not the only danger. Indirect UV (that is scattered by clouds and reflected from the ground and other surfaces) actually accounts for nearly half of an individual's annual UV dose.² This UV is a particular threat to spectacle wearers because UV coming from the side and behind the wearer can be reflected into the eye by the back surface of the spectacle lens. Although most higher-quality lens materials do a good job of blocking UV *transmission* (ie, stopping UV from passing through the lens), they can still reflect a significant amount of UV from the back surface of the lens directly into the eye.

The public is fully aware of the risks associated with skin exposure to UV, but the ocular hazards—and how to protect against

them—are much less known. The dangers of back surface UV reflection, for example, are not well known. Eyecare professionals have a key role to play in creating awareness of the importance of maximum eye protection from UV.

Technology

Work by Karl Citek, OD, PhD, Professor of Optometry, has established that traditional anti-reflective or No-Glare lenses, although they transmit almost 100% of visible light, actually reflect considerable UV.³ Some No-Glare lenses reflect up to 50% of incident UV.³

ciency, E-SPF provides consumers and eyecare professionals with a simple way to select the highest level of complete UV protection. E-SPF is defined as the ratio of UV reaching the cornea with and without a lens in place. E-SPF accounts for both transmission and backside reflection of UV, and higher values of E-SPF indicate greater levels of protection.

Integrating all these factors into a single measure helps eyecare practitioners communicate the importance of ocular UV protection, and lets them (and their patients) compare the protection offered by different lenses.

Talking to patients about the E-SPF will reinforce the message that UV protection is every bit as important for eyes as it is for skin. Discussing UV hazards with every pa-

Superior Visual Clarity and UV Protection

Essilor's patented Broad Spectrum Technology™ minimizes reflected UV exposure and maximizes visible light transmission for safe, clear vision all day long. Introduced in all Crizal® lenses, Broad Spectrum Technology adds exceptional UV protection to the features and benefits of all Crizal lenses.

Crizal SAPHIRE^{uv}™

Crizal Sapphire UV™ lenses provide the best protection against glare and reflections.

Crizal PREVENCIA™

Crizal® Prevenia™ lenses selectively deflect harmful Blue-Violet and UV light, providing improved protection for eyes.

Crizal AVANCÉ^{uv}™

Crizal Avance UV™ lenses are 2x more scratch-resistant than Crizal Alize UV™ lenses.

Crizal ALIZE^{uv}™

Crizal Alize UV™ lenses set the bar for smudge resistance.

Crizal easy^{uv}™

Crizal Easy UV™ lenses give you reliable, No-Glare protection that is easy to clean.

Crizal kids^{uv}™

Crizal Kids UV™ No-Glare lens package is specially designed to meet kids' vision needs.



All Crizal® No-Glare lenses provide the most complete daily UV protection, with an Eye-Sun Protection Factor (E-SPF®) of 25.

This important discovery was the stimulus for development of Essilor's patented Broad Spectrum Technology™, which reduces UV reflection. This technology has been incorporated across the entire portfolio of Crizal® lenses, allowing them to offer the most complete UV protection on No-Glare lenses.

Clear Patient Benefits

To help patients understand the value of this protection, Essilor developed the Eye-Sun Protection Factor (E-SPF®).

Like the well-established index used to rate skin care and sunscreen products' effi-

cient as a normal part of the comprehensive eye exam—and recommending glasses that provide the most complete UV protection—are simple and meaningful steps to better ocular health for everyone.

REFERENCES

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2. Baldy C, Greenstein V, Holopigian K, et al. Light, Sight, and Photochromics. Pinellas Park, Florida: Transitions Optical Inc. 2002.
3. Citek K. Anti-reflective coatings reflect ultraviolet radiation. *Optometry*. 2008;79(3):143-8.