ESSENTIAL
BLUE SERIES®

EVERYDAY HARMFUL BLUE LIGHT[1] AND UV PROTECTION. CLARITY ON TOP.[2]

1. Essential Blue Series® lens feature filters at least 20% of harmful blue-violet light (up to 455nm, with the greatest toxicity between 415-455nm). For Polycarbonate concave lenses, the Harmful Blue Light filtering percentage might be slightly lower.
2. Extremely low residual tint resulting from absorbing blue-violet light.

ESSILOR

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COFFEE SHOP & CO

BLUE LIGHT
IS EVERYWHERE

OUTDOORS

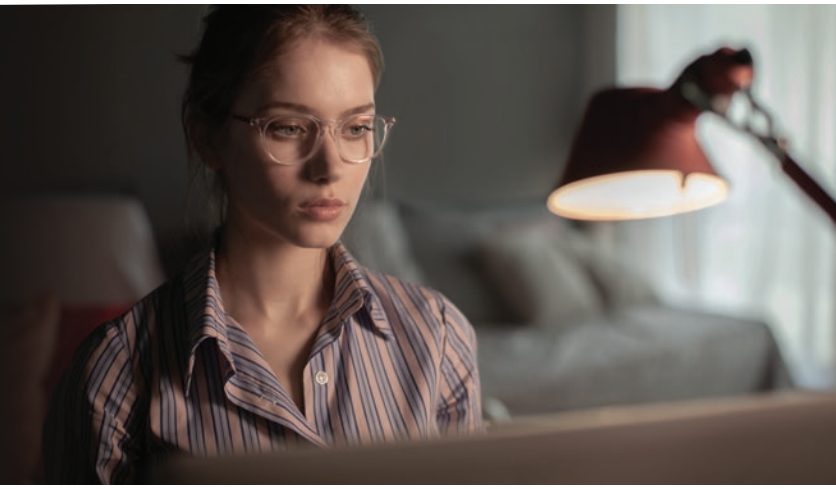
Blue light is emitted mainly by the sun, far its largest source

by

INDOORS

Blue light is also emitted by artificial lights and digital devices

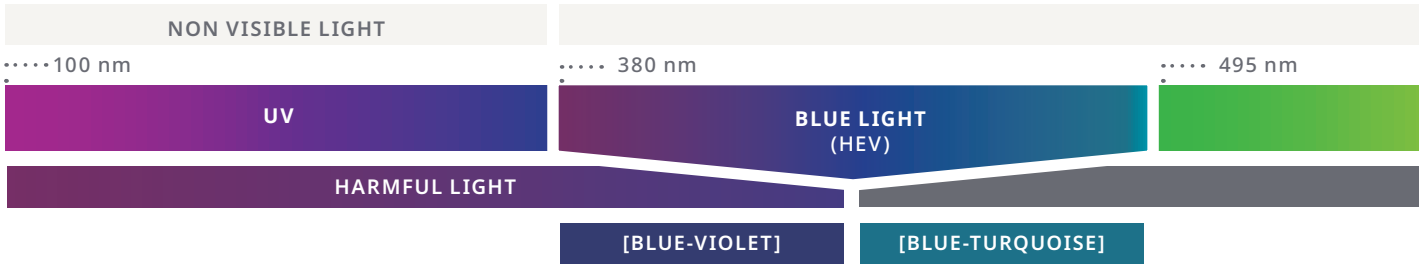
Our exposure to blue light is growing as we are living longer than ever before, exposing ourselves to more and more artificial lights and digital devices



Overexposure to blue light may have an impact on:

WHAT IS **BLUE LIGHT?**

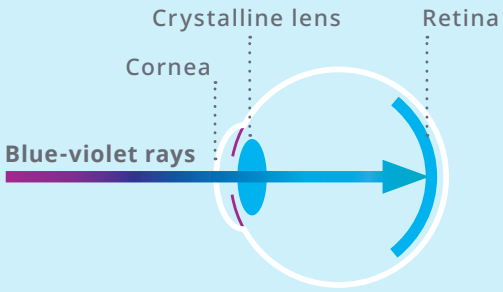
BLUE LIGHT is a part of visible light and it is close to UV light in the light spectrum. Its wavelength ranges between 380-495 nm.

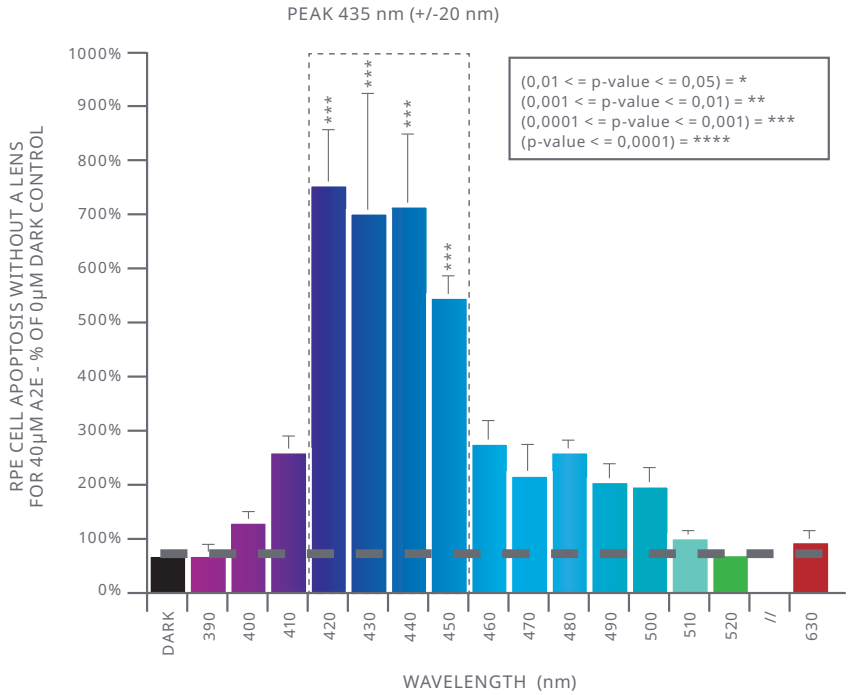


HARMFUL BLUE-VIOLET LIGHT

Blue-violet light has been identified as the **most harmful light to the outer retina.**

It activates lipofuscin phototoxic components, **that may cause retinal cells death.**





THE EFFECTS OF HARMFUL LIGHT ON RPE CELLS

The outer retina is composed of retinal pigment epithelial (RPE) cells and the outer segments of visual photoreceptors, which detect light. RPE cells are critical to the functioning, survival and constant renewal of these photoreceptors.

RPE cells may be damaged by Blue-Violet light.

Cuttingedge research carried out by Essilor® & the Paris Vision Institute has revealed that the precise band of 415-455 nm induces the highest rate of RPE cell apoptosis.

BLUE LIGHT IS MADE UP OF BOTH:

- | Harmful blue-violet light (380-455 nm with the greatest toxicity between 415-455 nm)
- | Beneficial blue-turquoise light (465 – 495 nm)

VISIBLE LIGHT

BENEFICIAL LIGHT

BENEFICIAL BLUE-TURQUOISE LIGHT

Blue-turquoise light stimulates the eye's pupillary reflex and parts of the brain where melatonin is produced.

During the day it can be beneficial to our well-being *(cognitive performance, mood)* and it is in charge of regulating our sleep-wake cycle[1].

WE NEED TO PROTECT OUR EYES FROM HARMFUL BLUE-VIOLET LIGHT WHILE LETTING BENEFICIAL BLUE-TURQUOISE LIGHT PASS THROUGH.

1. Hattar S., Liao H.W., Takao M., Berson D.M. and Yau K.-W. (2002), Melanopsin-containing retinal ganglion cells: architecture, projections and intrinsic photosensitivity.

Discover

ESSENTIAL BLUE SERIES®

EVERYDAY HARMFUL
BLUE LIGHT PROTECTION...

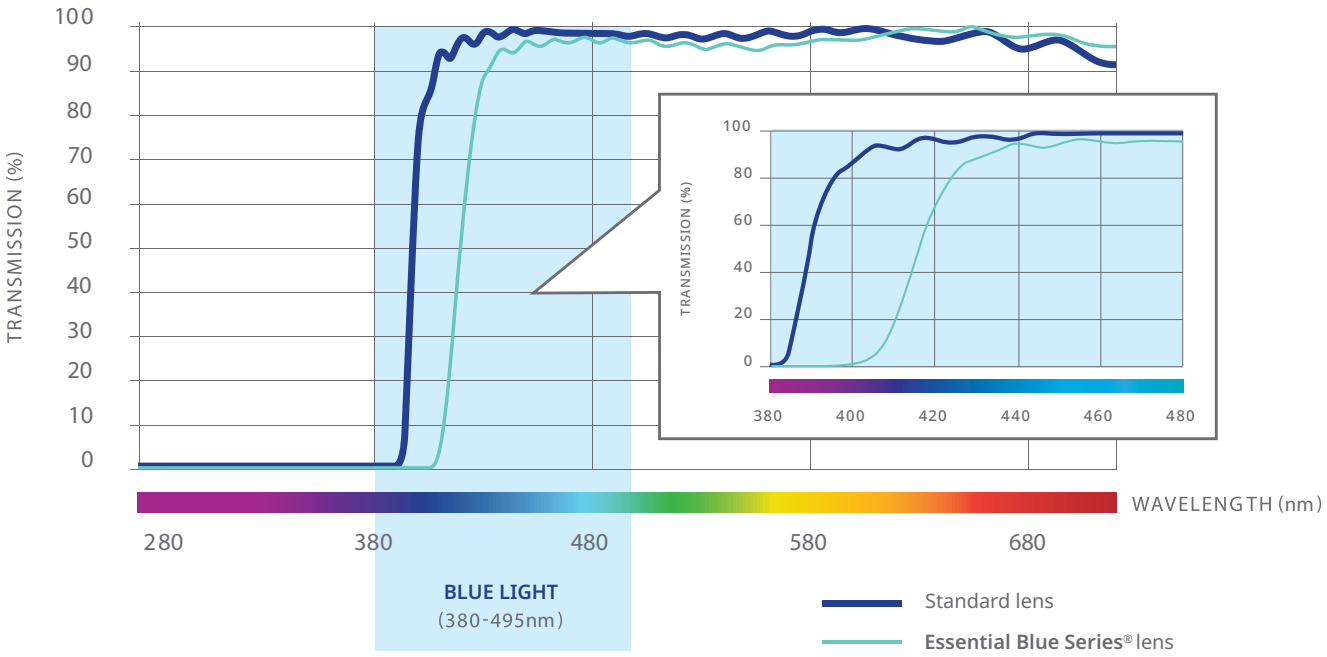
A new in-mass solution conceived to protect our eyes from harmful blue-violet light, every day.

Thanks to a combination of carefully selected molecules at the very heart of the lens, **Essential Blue Series®** efficiently filters out harmful blue-violet light while letting beneficial blue-turquoise light pass through.

Essential Blue Series lens feature offers **UP TO 3 TIMES MORE PROTECTION** against harmful blue-violet light than regular prescription lenses[1]

1. *Essential Blue Series* lens feature filters at least 20% of harmful blue-violet light. For polycarbonate concave lenses, the Harmful Blue Light filtering percentage might be slightly lower. Regular prescription lenses = 1.5 or Poly material (without blue protection) with *Crizal Avancé UV* coating at equal center-thickness.

Transmission curve of **Essential Blue Series**® lens versus standard lens.



Essential Blue Series® lens feature partially cuts out harmful blue-violet wavelengths whereas a standard lens without blue filter doesn't.

The harmful blue-violet light is partially absorbed by the lens and converted into harmless and unperceived heat while the beneficial blue-turquoise light pass through.

...AND UV FILTER

Essential Blue Series® lens feature offers UV protection in any lens material[1]

ESSENTIAL BLUE SERIES®	
Index	**Wavelengths cut**
Plastic 1.50	403 nm
Airwear®	403 nm
Thin & Lite® 1.60	411 nm
Thin & Lite® 1.67	413 nm

1. ***Essential Blue Series*** lens feature combined with ***Crizal Prevencia*** coating have a front and back side UV protection up to E-SPF 35™ index.

CLARITY ON TOP

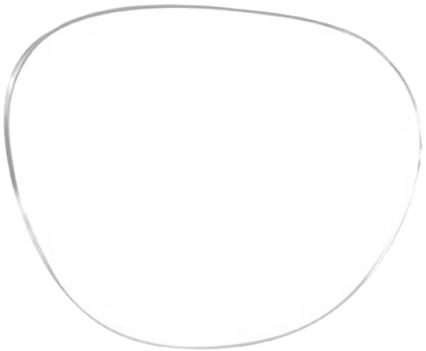
Due to the principle of complementary colors, cutting blue light leads to a yellow residual tint on the lens.

According to the laws of physics, if an object absorbs a color, it will appear as its complementary color.

As blue and yellow are complementary colors, the block of blue-violet light gives the lens a yellow residual color.

OPTIMAL CLARITY

A coloring agent has been added to **Essential Blue Series®** lens to neutralize the yellow residual tint for an optimal clear lens.[2]



2. Extremely low residual tint resulting from absorbing blue-violet light

ULTIMATE PROTECTION

AGAINST UV AND HARMFUL BLUE-VIOLET LIGHT[1]

The combination of **Essential Blue Series®** lens with **Crizal® Prevencia®** coating offers

UP TO 5 TIMES MORE PROTECTION

against harmful blue-violet light than regular prescription lenses[1]

1. ***Essential Blue Series*** lens feature combined with ***Crizal Prevencia*** coating filters up to 35% of harmful blue-violet light with front and back side UV protection of E-SPF 35™ index. For polycarbonate concave lenses, the Harmful Blue Light filtering percentage might be slightly lower. Regular prescription lenses = 1.5 or Poly material (without blue protection) with ***Crizal Avancé UV*** coating at equal center-thickness.

Crizal® Prevencia®

OFFERS 3 BENEFITS

1. Selective blue light filtration

Partially filters out harmful blue-violet light while letting beneficial blue-turquoise light pass through

2. UV cut

UV protection with an E-SPF 35™ index

E-SPF® is an index rating the overall UV protection of a lens. E-SPF® was developed by Essilor International and endorsed by third party experts. The E-SPF® index relates to lens performance only and excludes direct eye exposure that depends on external factors (wearer's morphology, frame shape, position of wear).

3. Optimal vision & durable transparency

Offers a complete protection against:

Reflections

Scratches

Smudges

Dust

Water

PRODUCT RANGE AND PERFORMANCE

ESSENTIAL BLUE SERIES® LENS	Plastic 1.50®	Airwear®	Thin & Lite® 1.60	Thin & Lite® 1.67
Beneficial blue-turquoise light transmission (%) (465-495 nm)	95%	98%	97%	97%
Harmful blue-violet light cut (%) (400-455 nm)	28%	22%	27%	33%

ESSENTIAL BLUE SERIES® LENS + CRIZAL® PREVENCIA®	Plastic 1.50®	Airwear®	Thin & Lite® 1.60	Thin & Lite® 1.67
Beneficial blue-turquoise light transmission (%) (465-495 nm)	91%	94%	95%	94%
Harmful blue-violet light cut (%) (400-455 nm)	40%	35%	37%	42%

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