

LEDPRO

LED light controlling lens

The first patented ophthalmic lens technology featuring cutting-edge optical performance and enhanced comfort for users exposed to LED light.

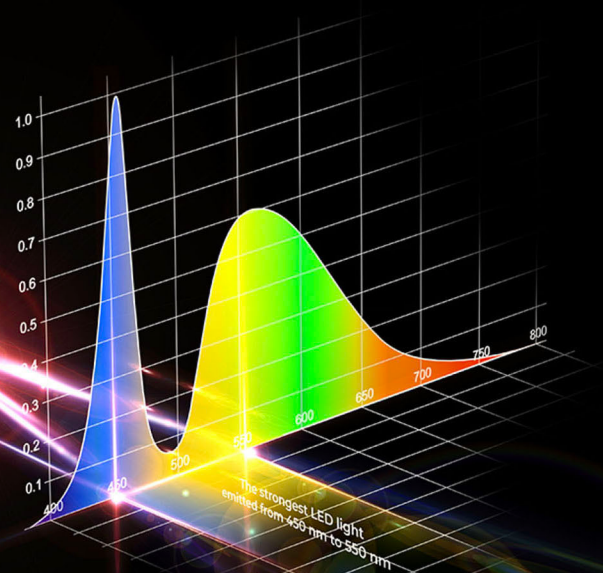
Designed by Younger Optics, the USA's largest independent ophthalmic manufacturer

What is LED light?

Light Emitting Diodes (LEDs) are an amazing invention that has radically altered the illumination of our world.

An LED is a semi-conductor that emits light when an electrical current passes through it. Though it was discovered back in 1927, it was only at the end of the 20th century that the highly efficient blue-light LED was invented, revolutionising illumination technology. LED light bulbs consume 90% less energy than conventional ones, dramatically reducing energy consumption.

Each LED emits light in a very narrow spectrum. To achieve white light, multiple LEDs of different colours are combined. Because of this, the spectral range of LED light is not uniform across the visible light spectrum. Most popular white LED lights emit brighter light at 450 nm and 550 nm than at other wavelengths, creating sharp peaks in the spectral chart at these locations.



LED light control



LEDPRO absorption dyes control light intensity at 450nm and 550nm to eliminate vision discomfort

LEDPRO lenses can be used in primary eyewear. They benefit the wearer by reducing LED-related discomfort without compromising vision. Because of the absorption of a portion of visible light, LEDPRO lenses have slightly visible green hue.

Combined with efficient AR coating, they transmit almost 90% of visible light, passing all required standards for Class 1 eyewear with no use limitations*. (Under EU MDR classification a Class 1 rule 1 as a non-invasive medical device).

LEDPRO lenses block 100% UV light, as well as high-energy visible light up to 400nm, offering great eye-health benefits in addition to the enhanced comfort under LED light exposure.

* Certain medium to high prescription spectacle lens powers recording 75% or less light transmission are not valid for night driving.

LED light & vision

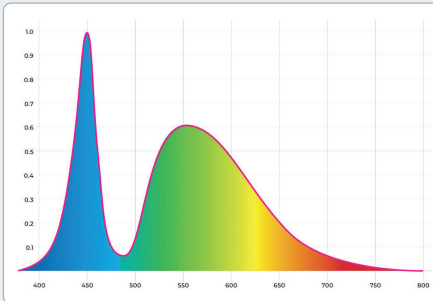
Due to its energy efficiency and to accommodate for its narrow spectrum, the luminance of LED lighting is much higher than of traditional light technologies.

This added brightness is both an advantage and a disadvantage. It improves visibility in the dark, but also creates discomfort and visual fatigue for many people, especially after prolonged exposure or when pointed directly into the eyes.

In today's world, our eyes are constantly exposed to LED light. Studies have shown that people who require visual correction are more likely to experience LED-related discomfort.

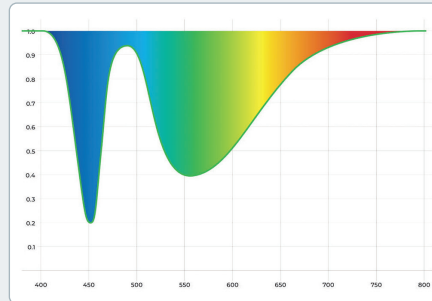
How the LEDPRO lens works

Visible spectrum of LED light



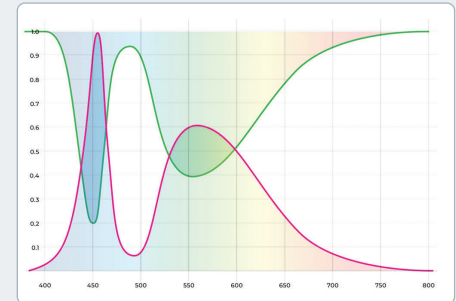
LED Light Spectral Output

Absorption of LED PRO lens



LEDPRO Filter

Blinding LED light peaks reduced



Cancelling Effect of Filter vs Output

LED PRO Benefits

INDOORS LIGHTING

Almost all indoor illumination today is LED, especially in industrial environments and increasingly supermarkets, and other large spaces such as hospitals and schools.

LED lighting is usually stronger, brighter and more intense than conventional lighting, as its' brightest light radiates in straight lines. Long exposure to it can lead to visual fatigue. LEDPRO lenses can improve the comfort of prescription lens wearers by attenuating the strong emission at 450 and 550 nanometers.

LED PRO Benefits

LED MONITORS AND COMPUTER GAMES

Most computer monitors and game consoles use LED technology. It is known that prolonged exposure to LED light may cause visual fatigue and even headaches for some people. LEDPRO lenses mitigate this effect, which can improve eye comfort for computer users and gamers.

LED PRO Benefits

SPORT ARENAS

People who engage in sport activities under artificial lighting, are exposed to very strong LED illumination.

Basketball, badminton, tennis, table tennis, football, cricket and bowling, often expose participants to visual fatigue and general discomfort due to LED light's strong presence.

LED PRO Benefits

NIGHT DRIVING

Most cars today use LED headlights, tail lights and even car perimeter strip lighting. While providing much better visibility for the drivers, LED headlights are generally much stronger and highly focused, and can create a blinding effect for other drivers, especially on coming traffic. Drivers who spend longer driving in the dark can also experience heightened visual fatigue because of the constant exposure to LED headlights and tail lights.



Produced by Ellivron Optical from
material supplied by Younger Optics



Ellivron Optical - an Independent UK
Developmental Manufacturing Opticians

ELLIVRON

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