

SPECTRASOL
PROCOGNITIVE LIGHTING



The energy of the sun for work, health and vitality

The Spectrasol light source
principle and design are
protected by two patents.



EFFECTS OF PROCOGNITIVE LIGHTING ON THE HUMAN BODY

Better concentration, vitality, mood, sleep, eyesight and overall health

The performance of the human body is evolutionarily dependent on natural light. For the past hundred years, however, people have been spending most of their active lives in artificially lit interiors. The artificial light quality is therefore crucial for human health. Procognitive lighting does not replace the Sun completely, although it comes very close, and has been proven to help people in several areas.



Procognitive light improves productivity, vitality and concentration, and also reduces fatigue

...A claim made by more than users alone. The beneficial effect of procognitive light has also been confirmed in many studies.

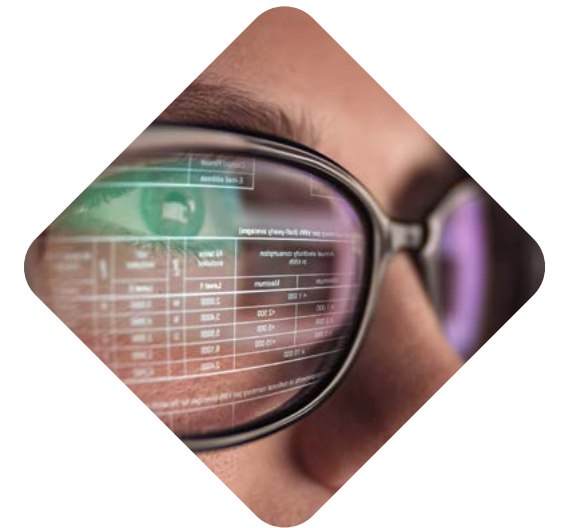


Procognitive light improves mood. Even on cloudy days, people feel like they do in summer

Exposure to full-spectrum light helps to counteract agitation and negative emotions, both immediately and in the long term. Procognitive light is also used to treat seasonal affective disorder (SAD).

Procognitive light reduces eye strain. The red light component helps regenerate the retina

Less blue energy helps reduce the effects of harmful blue light. The red component compensates the effects of blue light and supports the regenerative functions of mitochondria in the retina by photobiomodulation. It also provides superior visual comfort.



Procognitive light improves sleep quality

Procognitive light stabilises the level of the interacting daytime serotonin and night-time melatonin hormones. This positively affects the quality of sleep and the body's ability to regenerate.

Procognitive light supports overall health

A harmonious circadian rhythm, which requires a sufficient amount of good-quality light during the day and reduced amounts of light in the evening and at night, significantly reduces the risk of health problems such as cardiovascular disease, diabetes, obesity and psychological problems. Studies confirm that biologically optimised light improves overall mental and physical health and vitality.



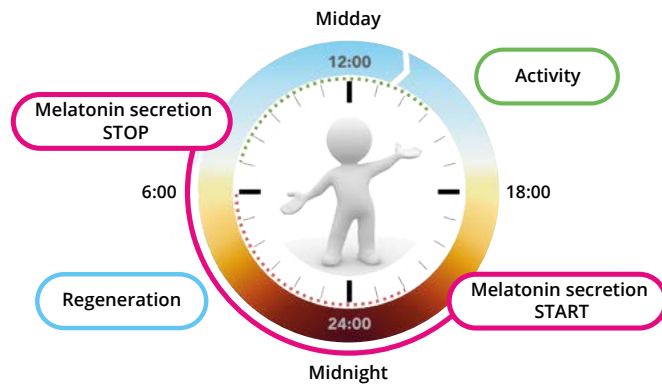
For information on health effects and corresponding studies, visit www.spectrasol.eu/effects



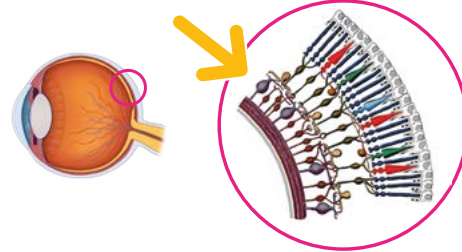
HOW IT WORKS BIOLOGICALLY ?

Light synchronises the circadian rhythms of the human body

1 Natural sunlight and its variations during the day synchronise the circadian rhythm through the eye's non-image-forming (NIF) system. It directs human organism to be active during the day and to regenerate at night. It was only in 2003 that the circadian system was comprehensively described by J.C. Hall, M. Rosbash and M.W. Young, who were subsequently awarded the Nobel Prize in 2017.



2 Photosensitive ganglion cells in the eye receive information from light and send signals to the suprachiasmatic nucleus (SCN) in the hypothalamus. The SCN is the master 'timer' or central clock that synchronises the body's circadian rhythm with the external environment.



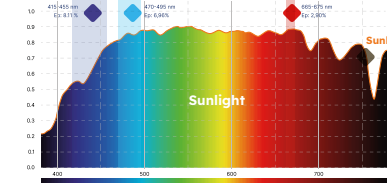
3 Ganglion cells respond properly to natural light. The more artificial light differs from natural sunlight, the more poorly the ganglion cells respond and the circadian rhythm synchronisation is disturbed.

OUR TECHNOLOGY

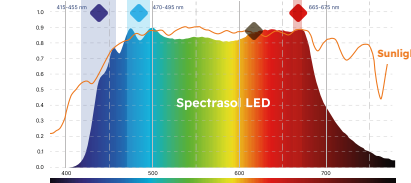
Spectrum closest to sunlight



Spectrasol technology light emissions contain a balanced representation of all wavelengths and are a 97% match of the spectral composition of sunlight.

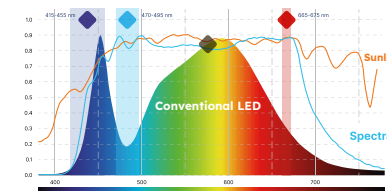


Sun
Natural sunlight spectrum on a clear day.

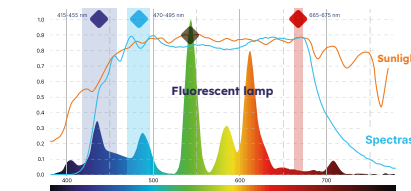


Spectrasol LED
Featuring healthy light components and minimal undesirable components.

Unsuitable spectral composition of conventional light sources



Conventional LED
Unbalanced spectrum, concentrated blue energy, lack of red energy.



Fluorescent lamp
The discontinuous and incomplete spectrum is most different from sunlight.

SPECTRAL COMPOSITION

The Spectrasol LED light source has a uniquely continuous and balanced spectral composition based on natural sunlight.

It does not contain unnaturally concentrated harmful blue light energy in the 415-455 nm range.

Spectrasol has a balanced azure energy in the procognitive melanopic range of 460-500 nm, which naturally supports the circadian system during the day.

Spectrasol emits red energy in the photobiomodulation range of 665-675 nm, whereby the negative effects of harmful blue light are compensated.

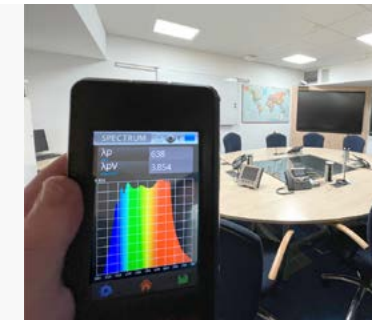
Spectrasol technology certification and verification

The procognitive and photobiomodulatory circadian effects of Spectrasol light have been verified by several studies performed by independent scientific institutions. We have additionally acquired certifications according to applicable standards.



Local manufacturing, ESG, EPD and WELL certification

Manufacturing in the Czech Republic guarantees high quality, short delivery times and a small carbon footprint. The Spectrasol technology combines health and practical benefits with sustainability principles. It contributes to meeting organizations' ESG goals and obtaining WELL, BREEAM and LEED building certifications. Many of our lights also have EPD certification.



We have proven all our claims by exact measurement

Measurement of the spectral composition of Spectrasol lights installed in a fire brigade control room in Prague. The radio spectrometer demonstrates the overall balance of the spectral composition, as well as the presence and correct intensity of both procognitive and regenerative energy.

For more information on the technology, visit www.spectrasol.eu/technology



PRODUCTS

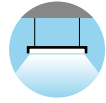
Luminaires for all types of installations



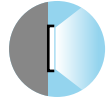
SURFACE-MOUNTED LIGHTS



LIGHTS FOR INSTALLATION IN FALSE CEILINGS



PENDANT LIGHTS



WALL LIGHTS



STANDING LAMPS



DUST-TIGHT LIGHTS



PHOTOTHERAPY

For a complete product overview,
visit www.spectrasol.eu/products



REFERENCE PROJECTS

The energy of the sun,



wherever you need to be focused, vital and comfortable



A selection of Spectrasol lighting references

COMPANIES, MANUFACTURING PLANTS



ThermoFisher
SCIENTIFIC

and many others...

HEALTH SECTOR



and many others...

SCHOOLS AND EDUCATIONAL FACILITIES



and many others...

SECURITY, DEFENCE, 24/7 WORKPLACES



and many others...

For a complete list of references, visit
www.spectrasol.eu/testimonials



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