

# Powerful protection against blue light, infrared and pollution

HEV light, also known as blue light, is visible light at a wavelength close to UV. It is high in energy and is not blocked by UV filters. In addition to being a component of sunlight, it is produced by digital screens from TVs, PCs, LED lamps and smartphones. HEV light penetrates deeper into the skin than UV light and has a higher level of energy than IR light, resulting in greater potential for skin damage to occur via ROS production. To provide protection, Mibelle Biochemistry presents InfraGuard.

Human skin encounters different stresses during the day. In addition to UV radiation, skin is exposed to environmental pollution and different wavelengths of light, being high energy visible (HEV) and infrared (IF), which can cause damage. IR is the long wavelength part of the solar radiation which reaches the earth surface. Recent studies have shown that IR radiation is involved in photo-ageing of the skin.

**"HEV irradiation is known to negatively affect skin by generating reactive oxygen species"**

HEV irradiation is known to negatively affect skin by generating reactive oxygen species (ROS), which cause oxidative damage and contribute to photo-ageing. It has also been shown that blue light irradiation delays skin barrier recovery. Therefore, it is very important to protect skin from the harmful effects of blue light.

InfraGuard (INCI: *Caesalpinia Spinosa* Fruit Pod Extract, Propylene Glycol, *Helianthus Annuus* Sprout Extract, Sodium Benzoate, Phenoxyethanol and Aqua/Water) combines an extract of organic sunflower sprouts with *Caesalpinia spinosa* tannins. The sunflower sprout extract has been found to support the overall health of mitochondria while the

### Did you know?

The need for protection from blue light has grown substantially in line with the drastic increase in screen time among consumers. This is especially an issue as blue light is most efficient at inhibiting melatonin, a hormone that regulates the circadian rhythm, which is the body's natural clock. Excessive screen time, especially before bedtime, can lead to changes in sleep patterns and affects the quality of sleep.

*C. spinosa* tannins are highly-efficient and stable antioxidants.

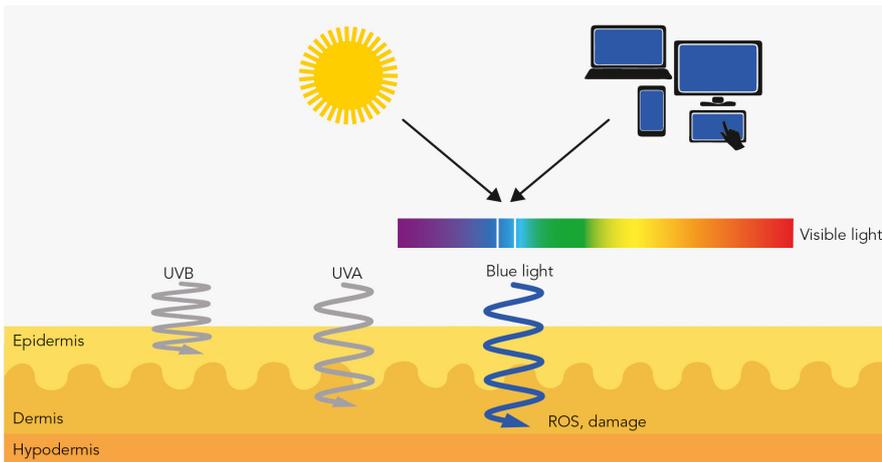
### AN EFFECTIVE ALTERNATIVE TO VITAMIN C

The technique of electron spin resonance spectroscopy was used to analyse the antioxidant activity of

InfraGuard. The ingredient from Mibelle was found to be almost as active as vitamin C, however vitamin C is known to be highly unstable in a formulation.

InfraGuard also outperformed other natural antioxidants such as resveratrol and green tea. Further *in vitro* studies demonstrated a protective effect of InfraGuard in skin cells irradiated with infrared and HEV light. Normal human epidermal keratinocytes or normal human dermal fibroblasts were pretreated for 24 hours with InfraGuard at different concentrations and then submitted to HEV light exposure for two hours. Immediately following the irradiation period, the amount of ROS was measured in the cells. The ingredient significantly reduced ROS production in blue light irradiated keratinocytes as well as in





The damaging effect of blue light on skin

**"2% InfraGuard not only protected the skin, but also improved skin firmness and density"**

irradiated fibroblasts. Therefore, it helps to prevent free radical formation upon blue light exposure.

**COMPLETE SKIN PROTECTION**

Additional *in vitro* studies showed a protective effect of InfraGuard in skin cells exposed to particulate matter. Treatment with the ingredient decreases ROS and protects

mitochondrial integrity in IR irradiated skin cells.

For a clinical trial, 32 volunteers were selected who spent their summer holidays in a warm, sunny climate for two to four weeks. They applied an SPF30 sun cream with 2% InfraGuard or the same cream without InfraGuard (placebo) onto each inner side of the forearms twice daily during the entire vacation period. Before and after the vacation, skin firmness and density were measured.

After the vacation, skin firmness and density had deteriorated on the skin area where only the sun cream was applied. Use of 2% InfraGuard not only protected the skin, but also improved skin firmness and density.

These results demonstrate that InfraGuard, available in South Africa from Carst & Walker, delivers complete skin protection against the harmful effects of blue light, infrared and urban pollution. ■

**Carst & Walker** – [www.carst.co.za](http://www.carst.co.za)  
**Mibelle** – [www.mibellebiochemistry.com](http://www.mibellebiochemistry.com)



**InfraGuard**  
**Powerful protection against infrared and blue light**

- Blocks IR and blue light-induced free radical formation
- Protects mitochondrial DNA
- Inhibits light-induced skin aging
- Prevents the loss of skin density upon sun exposure
- Reduces 5G-induced free radical formation and inflammation

SWISS QUALITY PRODUCT

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