

# Remote LED lighting in the food processing

### green product























### what is it ?

**RLTproFood** based on the evolution of the system Led RLT (**R**emote **L**ighting **T**echnology), designed, developed and patented by **IODA**, as a solution in "hostile" environments or environments where it is difficult to fit a lighting source as operating temperatures

are particularly low (below -30 ° c) or particularly high (over 150 ° c), or harmful gases, explosive powders / or contaminants which are particularly corrosive are present in the atmosphere.



## **RLTproFood**

From this device, patented in 2014, IODA develops lighting applications specific for food plants called **"RLTProFood"**, Remote Light technology for processing and producing food", designated to be used in the production lines, and / or processing, and / or management, and / or packaging of food especially organic (eg. pastry, bread and fresh pasta, dairy products, fresh fruits and vegetables), based on LED technology and sustainable components.





**RLTproFood** is a compact lighting system, designed to emit light using an LED source; which can easily be adjusted with different settings of intensity and emission spectrum.

### How do you compose?

The innovative idea of **IODA** in designing the lighting system RLT - lighting technology at a distance - consists in 'applying to this light source (LED), an optical system and a mechanical / electronic body whereby light generated in a environment defined "benign "is guided through the wall / cavity that contains the hostile environment via an optical system, ODS (Optical Driver Structure). The lighting system RLT meets the RoHS



Directive (which is the directive 2002/95 / EC); therefore there is environmental respect and reduction of waste to provide lighting systems in the different optical spectrum (for example, visible or UV).

### What does the solution RLTproFood? Currently the two configurations are:

#### - LED visible light

It allows to have a lighting system that is extremely compact and easy to install in the environment in which the food is treated, illuminating it in order to avoid contamination with food, and allow the 'deployment in hostile environments even at high or low temperatures (eg. Ovens or refrigerators).

#### Furthermore LED technology enables:

- best visual inspections in production lines and / or processing of the food (eg. cooking ovens).
- energy savings (reducing energy consumption by 70-80% compared to other technologies).
- 50,000 hours operation, therefore reduction of maintenance costs.
- high color rendering and visibility with light that maintains the same intensity and which can easily be modulated according to need.

**LED UV light** lighting system in which RTL proFood uses as light source UV LED in where the frequency and intensity of irradiation acts as a germicidal treatment of food products without altering their organoleptic composition.

"UV LED RLTProFood" is in the prototype stage, the product version that uses UV light; in addition to the same benefits of LED technology, it adds the possibility 'of sterilization and / or ability to reduce the presence of bacteria for the production lines, processing and packaging of food.

The product aims to achieve the Community market for organic farmers and fresh food, especially of vegetables, fruit, dairy products, baked goods and pasta, where the beneficial effects of RLT in its two main configurations allow significant energy savings and waste reduction, while improving food safety and quality.



The visible spectrum is the portion of the electromagnetic spectrum that is visible (can be detected by the human eye). Electromagnetic radiation in this range of wavelengths is called visible light or simply light.

A typical human eye responds to the wavelengths from about 390 nm to 700 nm. In terms of frequency, this corresponds to a band in the vicinity of 430-790 THz.

<u>Ultraviolet (UV)</u> radiation is electromagnetic radiation with a wavelength shorter than that of visible light, also composed of X-rays, that is, in the range between about 400 nm and 10 nm, is so named because the spectrum consists of electromagnetic waves with higher frequencies (and wavelengths shorter) than those visible to humans as the color purple.

#### Industrial application:

UV frequencies are used in the manufacture, processing, filling and packaging of food products, this to ensure the hygiene and freedom from germs.

Disinfection with ultraviolet light normally has an excellent cost-effective and environmentally friendly alternative to chemical processes used conventionally. The short wave radiation UV-C has a strong bactericidal effect. The micro-organisms such as viruses, bacteria, yeast and fungal spores are killed by UV radiation in a matter of seconds. UV light is very versatile and can be used to treat the water, the air and the area involved.

With irradiation with short wave UVC, germs are rendered harmless on the surface, such as packaging materials, work surfaces and some food products. The process has been used to great effect for the disinfection of packaging in the dairy industry to extend shelf life and freshness.

## Advantages of the lighting system RTL:

- energy efficiency thanks to LED light which allows savings of 70-80% compared to conventional lighting;
- easy to install; use, durability and safety
- better lighting of production environment of food processing especially fresh food
- LED UV method of sterilization, reduction of bacterial production of the environment and of the food, as well as extension of the shelf life of fresh foods such as fruits, vegetables and fresh pasta.



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### IODA, who we are.

**IODA** is a company of engineers, founded in 1977 by Gianluigi Battisti, initially born as a company specialized in the production of optical lenses in mineral.

Over the 80's began production of glass molds for organic lenses, it has always stood for innovation and steady growth of its know-how up to be among the first companies in Italy able to design, prototype and produce custom optical systems. **IODA** provides innovative solutions to the demands of an increasingly eclectic, an important added value that led **IODA** to collaborate with major Italian and European industries.



IODA - Advanced Lenses Technology

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