

## ULTRAVIOLET LIGHT DISINFECTION SYSTEMS ADAPTED TO THE SANITARY, FOOD AND DOMESTIC FIELDS

### DESCRIPTION OF THE TECHNOLOGY

Researchers at the Laboratory of Applied Chemical Analysis of the University of Alicante have developed a knowledge about the disinfection of surfaces and foods by means of ultraviolet radiation.

This knowledge has resulted in a set of devices that can be adapted to different applications and surfaces depending on the customer's needs.

The devices have in common the use of ultraviolet light emission sources that can be configured to achieve the desired disinfecting effect.

Ultraviolet light can destroy the microorganisms present on a surface or a food, but it is necessary to know in detail aspects such as the different emission sources, the wavelengths to be applied, the characteristics of the microorganisms and the properties of the element to be disinfected. The researchers have extensive experience working with this technology and are capable of developing innovative and personalized solutions that achieve safe and effective sanitation, without affecting the properties of food or surfaces.

The devices developed are the following:

- **Device for the health sector.** Researchers have worked on the disinfection of medical instruments,

textiles, gloves, masks and other sanitary items seeking to neutralize all types of pathogenic microorganisms, including COVID-19. The device allows the reuse of the material used by healthcare personnel, guaranteeing their sterilization and prolonging the useful life of them.

- **Device for the domestic environment.** A device has been developed for the disinfection of surfaces and accessories in the domestic environment. These elements can be composed of different materials such as plastic, wood, paper or metal.
- **Device incorporated in a refrigerator.** It has extensive experience in the disinfection of both liquid and solid food, as well as its packaging. In this sense, a specific device has been designed that can be attached to a food storage space such as a refrigerator and that allows the safe disinfection of the food contained inside.

### MARKET APPLICATION SECTORS

The technology developed is aimed at different applications and may be of interest to manufacturers of sanitary equipment as well as manufacturers of household appliances and home equipment. However, the technology of disinfection can be adapted to new applications based on customer needs.

### TECHNICAL ADVANTAGES AND BUSINESS BENEFITS

The main advantage is the possibility of achieving total disinfection quickly and safely for surfaces and food in the sanitary and domestic area, eliminating the burden of pathogens that may have accumulated. This allows to give these elements a longer useful life, guaranteeing that the material and the food maintain their original properties.

The most innovative aspect of this technology is that these devices can be adapted to different environments and specific applications. In addition, they can be incorporated into other devices and can be used safely at home or in the healthcare field by users without technical knowledge.

### CURRENT STATE OF DEVELOPMENT

The devices are the result of research carried out in recent years and focused on the search for disinfection solutions based on irradiation using ultraviolet light. During these years, the research group has developed other specific devices that have been applied in different industries in the food sector.

## ULTRAVIOLET LIGHT DISINFECTION SYSTEMS ADAPTED TO THE SANITARY, FOOD AND DOMESTIC FIELDS

### INTELLECTUAL PROPERTY RIGHTS

Several devices developed using this technology are protected by patent.

### COLABORATION SOUGHT

The research group is looking for companies or institutions interested in acquiring the technology or in collaborating to develop new personalized devices for industrial application.

### RELATED IMAGES



**Figure 1.** UV-C device used to deactivate microorganisms in opaque liquid foods.



**Figure 3.** UV disinfection of plastic tanks used in the manufacture of cheeses.



**Figure 2.** Device used to disinfect surfaces used in the yogurt industry.

### CONTACT

Area of relations with the company



## **ULTRAVIOLET LIGHT DISINFECTION SYSTEMS ADAPTED TO THE SANITARY, FOOD AND DOMESTIC FIELDS**

Research Results Transfer Service (OTRI)

University of Alicante

Telephone: +34 96 590 9959

Email: [areaempresas@ua.es](mailto:areaempresas@ua.es)

Web: <http://innoua.ua.es/>