



Name of the Technology: A Microbial UVC Disinfection Casket

Technology Summary:

The COVID-19 infection has spread worldwide through various sources in human beings. It was very difficult to find the infected items. So as a precautionary measure, the outsourced items like food, grocery items, medicine, masks, etc. were disinfected prior to use. Ultraviolet (UV) light is a form of light that is invisible to the human eye, having wavelengths roughly between 200 and 300 nanometers. The UV light-based devices have exploited the market based on the disinfecting property of UV light. With this finding, UV irradiation has been found to kill or inhibit the growth of many microbes (including bacteria, viruses, fungi, and protozoa) which are known to cause disease in humans and animals. UV light with a wavelength of approximately 250 to 260 nm provides the highest germicidal effectiveness. UV light has also been utilized to disinfect the surfaces of packages. A wrapped or enveloped product is subjected to a UV light source to control potential contamination on the surface of the packaging. A problem occurs when the package has surfaces that require disinfection, but these surfaces do not face the UV lamp as the package passes the UV lamp. Additional passes under the UV lamp must be made to illuminate the other surfaces of the package. This single surface disinfection may be acceptable for flat, roughly two-sided packaging, but is typically not acceptable for multi-sided packages. To disinfect such products, A Microbial UVC disinfection casket has been developed by CSIR-NPL, New Delhi, in collaboration with M/s Motras Scientific Instruments Pvt Ltd, Manesar, Gurugram, Haryana. The system has been validated for a UVC wavelength of 254 and an intensity of 13 J/m² for the estimation of time for germicidal disinfection. The casket has also been tested for ozone formation, and it was found within the permissible limit. This system will be highly useful to disinfect non-porous surfaces. The photographs of both the inside and outside body structure of the casket are as shown below:



Interior View

Outer View

Applications: To disinfect non-porous surfaces like food packets, grocery items, medicine, masks, mobile, wallet, surgical items, etc, prior to use using UVC light.

Novelty Features: The casket consists of: (i) an electrical system; (ii) an interlock switch; (iii) an activation switch; (iv) a view port indicator also having an octagon design, six or more internal UV reflective surfaces with UV reflective material.

Advantages:

- Kills bacteria, viruses, and mold/fungus within seconds
- No formation of by-products hazardous to health
- Ozone free*
- Suitable for continuous operation in the presence of people
- Simple handling, Low maintenance, and operating costs
- Highest level of operational reliability
- Designed and made in India



- Microbial UVC disinfection casket for the low-level surface disinfection of non-porous surfaces from pathogens like bacteria and virus with suitable UV intensity doses.
- There is no additional formation of ozone inside the device.
 - Ozone Safe
 - Automatic lamp Control
 - Built-in Timer
 - Audible alarm on completion
 - Easy lamp replacement

Technology Readiness Level:

Idea	Concept Definition	Proof of Concept	Prototype	Lab Validation	Technology Development	Technology Demonstration	Technology Integrated	Market Launch

IPR Details:

Indian Patent Title: A Microbial UVC Disinfection Casket

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Broad Area/Category: Environment

User Industries: Hospitals, Restaurants, houses, Hotels