

Name of the Technology: UVC-based Air Microbial Disinfection Unit

Technology Summary:

Indoor air quality has become a concern for hospitals, residential & commercial buildings, vehicles etc. There is a growing demand for improvements in hospital settings to reduce the transmission of pathogens. This demand is driven by hospitals that have to deal with an increasing number of cases of infections, not caused by the patient's diagnosis upon admission, but rather, due to airborne pathogens that exist in a hospital environment. These airborne pathogens pose additional health risks to patients and result in additional costs to the hospital. Microorganism transmission through air contributes to nosocomial infections with viruses, bacteria, and fungi. UV light with a wavelength of approximately 250 to 260 nm provides the highest germicidal effectiveness. Standard, commercially available UV lamps can efficiently emit a broad germicidal spectrum that includes these specific wavelengths of UV light, and in the intensity required for effective control. UVC is used for air disinfection in virtually every application, because there are always situations where microorganisms in the air can cause a problem and make people ill. For example, in offices and schools, public transportation, entertainment venues, but also in the food processing and agricultural industry. Airborne microorganisms can easily and effectively be inactivated by UV-C light. With this objective CSIR-NPL has developed “A UVC based ambient air microbial disinfectant” in collaboration of LIFE FORCE, I.P. Extn, New Delhi-110092. The photograph and key features of the system is as shown in the figure.



Key Features

- Applications: 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 & operating costs
- Highest level of operational reliability
- Designed and made in India
- Safe for humans, plants and animals



Novelty Features:

The system is designed in such a way that it generates a 50 dB noise level with an airflow rate of 160 cubic feet/minute and can be programmed for automatic operation.

Advantages:

- Kills bacteria, viruses and mold/fungus within seconds
- Ozone free*
- Suitable for continuous operation in the presence of people
- Simple handling, Low maintenance & operating costs
- Highest level of operational reliability
- Designed and made in India

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: An ambient air microbial disinfectant

Inventor(s): Nahar Singh, Rajesh, Virender Kumar Jaiswal, Parag Sharma, S R Radhakrishnan, Gajjala Sumana, Devesh Kumar Shukla, Shankar G. Aggarwal, Khem Singh, Shiv Kumar Jaiswal, DK Aswal, Vijay Sharma and Sandeep Khichi

Indian Application Date: 4th October 2021.

Indian Application Number: 202111045122

Broad Area/Category: Environment

User Industries: Hospital, restaurant, etc.