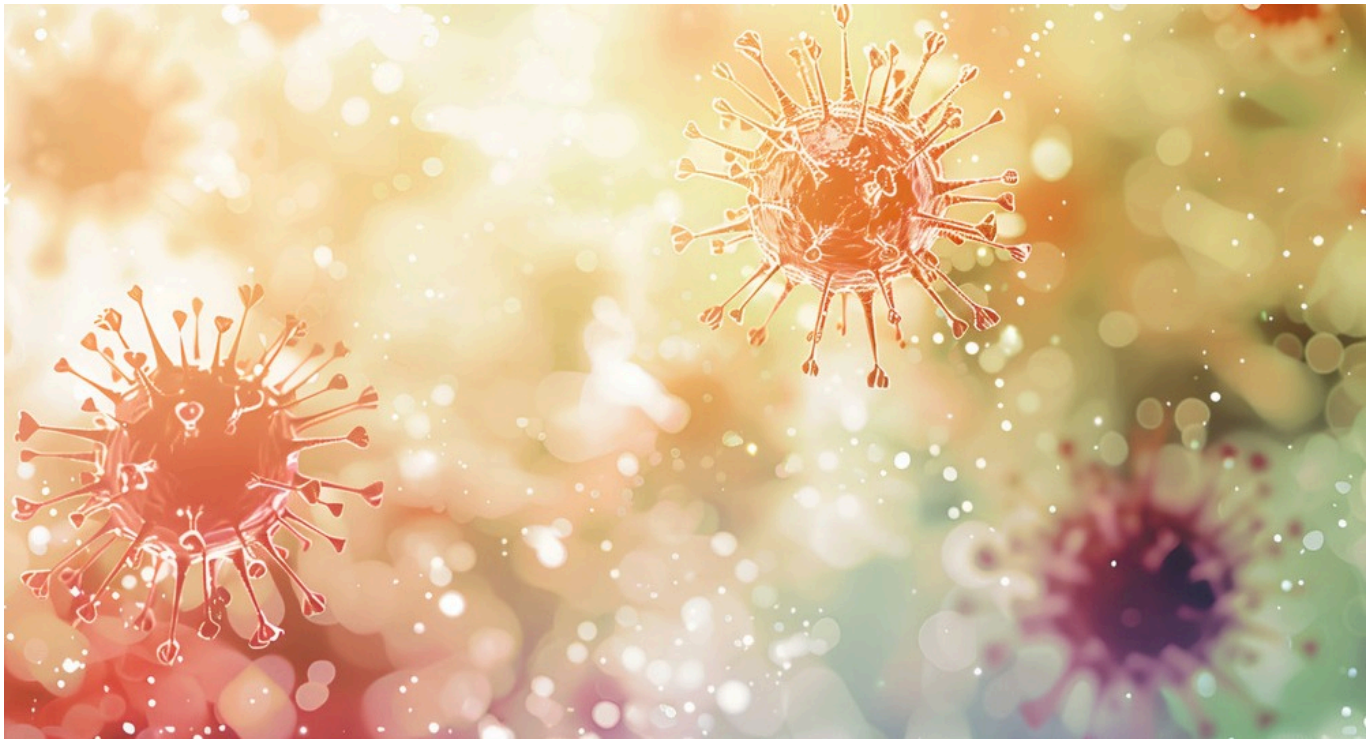
TECH OFFER

Air Purification Technologies for Ensuring Pristine Air Quality on Ships



KEY INFORMATION

TECHNOLOGY CATEGORY:
Sustainability - Sustainable Living
Environment, Clean Air & Water - Sanitisation
Environment, Clean Air & Water - Mechanical Systems

TECHNOLOGY READINESS LEVEL (TRL): TRL9
COUNTRY: SOUTH KOREA
ID NUMBER: TO175173

OVERVIEW

Maintaining clean air on ships is crucial for the health and well-being of passengers and crew, as well as for the proper functioning of sensitive equipment. Due to the structural specificity of ships and higher reliance on mechanical air conditioning than natural ventilation, addressing indoor air quality issues is particularly important. Advanced air purification solutions would be able to effectively address a range of airborne contaminants, including particulate matter, volatile organic compounds (VOCs), and biological pollutants, ensuring a safer and more pleasant environment on board.

A Korean startup has developed an air sterilisation and purification system tailored specifically to the challenges of maritime environments that excels in delivering clean, safe, and compliant air quality solutions. They enhance health and safety, optimise operational efficiency, and contribute to a better overall experience for passengers and crew, while also meeting regulatory requirements and supporting environmental sustainability.

The company is seeking collaborators from the maritime and built environment sectors, as well as HVAC and IoT companies, to expand their applications and explore integration of their technologies into existing HVAC systems.

TECHNOLOGY FEATURES & SPECIFICATIONS

The technology consists of the following key features:

- A seamless three-step purification and sterilisation process using UV-C lamp, carbon filter, and HEPA filter
- Engineered housing design that increases air's retention time, providing a wider and denser air distribution compared to a stand-type air purifier
- Utilises UV-C rays at a wavelength of 254 nm, ideal for disrupting the DNA and RNA of bacteria, without generating ozone
- Strong sterilisation capability through uniform dispersion of UV-C rays and a direct contact sterilisation method to maximise the effectiveness, achieving up to 99.8% removal of airborne viruses and bacteria
- Double filters remove up to 96.3% of major hazardous substance, including ammonia, acetic acid, acetaldehyde, toluene and formaldehyde
- Can be retrofitted to existing diffusers

POTENTIAL APPLICATIONS

The solutions have been successfully implemented on various types of ships and can also be applied to buildings, healthcare facilities or public areas on land where large gatherings occur. Potential applications include, but not limited to, the following:

At sea:

- Ships (Existing / New)

On land:

- Healthcare facilities
- Educational facilities
- Commercial real estate
- Residential real estate

UNIQUE VALUE PROPOSITION

- Tailored for effective operations under the unique conditions found at sea
- Engineered housing design for enhanced air distribution and extended exposure time, allowing more thorough sterilisation of airborne particles
- Enhanced health and safety contributing to the well-being and safety of passengers and crew
- Optimised operational efficiency leading to cost savings and improved reliability of critical ship systems
- Enhanced passenger experience by providing a more comfortable and pleasant on board environment