



**KRISTALNA  
IDEJA**

Innovation is life



## CASE STUDY

The sophisticated, smart device *iTherapy 1* affects the reduction of the concentration of aerosol particles PM<sub>1</sub>, PM<sub>2.5</sub>, PM<sub>10</sub> and volatile organic compounds of TVOC particles.

- ✓ Easy and direct wall installation.
- ✓ No maintenance required resulting in cost reduction.
- ✓ Efficient and effective air purification in any enclosed space.

## ABSTRACT

“Floating hotels” are tempting to travel to attractive locations, yet various types of ships hide secrets. Noroviruses, coronavirus, various infections, are all dangers that lurk on passengers and staff once they board on a ship. The reason why epidemics of various respiratory infections and intestinal diseases often occur is that there are a large number of people in a relatively small enclosed space. Ships are very difficult to disinfect when a viral pathogen appears on them. Less than 5 virus particles are enough to make someone sick. Private charter yachts, domestic sailing ships, cruisers will always be threatened by a certain risk of various infectious diseases, but these risks need to be managed in order to minimize them. Appropriate protective measures should be introduced to prevent or minimize the risk of spreading infectious diseases.

## THE CHALLENGE

In order to prevent certain diseases on board, all seafarers, regardless of the type of ship on which they work, should have at their disposal personal protective equipment that they are obliged to use during their work, and should also implement other measures to prevent or minimize risk of spreading the infection. Polluted air in enclosed cabin spaces has long posed a danger to the health of passengers and staff. A special problem is also represented by volatile organic compounds TVOC which gradually evaporate from ship varnishes and paints. In addition, the higher flow of people in a relatively small enclosed space causes an increase in the concentration of PM aerosol particles.



It is very important to implement a solution like **iTherapy 1** that will provide a safe environment for passengers and cabin

#### **Impact of air purifier iTherapy 1**

- ✓ **concentration of aerosol particles  
PM1 reduced by 74%,  
PM2.5 by 80%, PM10  
by 82%**
- ✓ **concentration of  
TVOC particles  
reduced by 75%**
- ✓ **air quality improved  
by 91%**

#### **THE RESULTS**

By removing unwanted and dangerous PM aerosol particles, TVOC particles smart air purifier **iTherapy 1** directly contributes to creating an improved and healthier environment. The innovative, refined air purifier **has improved air quality by 91%** and thus modified climatic conditions. Its modern technology will allow you to breathe with full lungs in a closed ship space.

The contaminated marine aerosol further facilitates the spread of aerosol particles within the cabin space. Elevated concentrations of PM aerosol particles in the air are associated with an increased incidence of virus infection. Viruses are adsorbed by coagulation on PM aerosol particles and can participate in diffusion or long-distance transmission. The realization that the concentrations of PM aerosol particles in indoor air can be higher than outside, and as carriers of the virus can allow significantly faster diffusion of the virus, is a serious warning.

#### **THE SOLUTION**

To provide their passengers the experience of staying in a fresh and clean environment, it is recommended to install the **iTherapy 1** smart air purifier to detect, control and reduce the concentration of aerosol particles and chemicals indoors. New air purification technology contributes to the rapid reduction of PM aerosol particles and TVOC particles. PM aerosol particles and TVOC particles are inhaled along with air and penetrate deep into the lungs. iTHE100 filters these particles by the adsorption process. When aerosol particles reach the filter, they stick to its specific surface by the adsorption process. The **iTherapy 1** smart air purifier is characterized by excellent and efficient performance. The results of measuring the overall air quality showed a high impact on the elimination of air pollution. The concentration values of the measured average parameters: aerosol particles (PM1, PM2.5, PM10,  $\mu\text{g}/\text{m}^3$ ), volatile organic compounds (TVOC, ppb) are significantly lower. The **iTherapy 1** air purifier reduced the concentration of PM1 aerosol particles by 74%, PM2.5 by 80%, and PM10 by 82%. The concentration of volatile organic compounds was reduced by 75%.

**iTherapy improving  
quality of life**

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