

IDROBASE®

PASSION FOR WATER

FROM COLLABORATION BETWEEN UNIVERSITY RESEARCH AND IDROBASE GROUP

CREATED IN PADUA ITALIAN INNOVATION TO DESTROY VIRUSES

Idrobase Group and K-INN Tech, spin-off of the Industrial Engineering Department of the University of Padua and innovative start-up, have created a synergy for the design and development of an advanced, high performance device to purify the air inside different premises, in particular public ones with high traffic frequency.

The new machine will be the result of a systematic experimental campaign, combined with the support of mathematical models. Among the technologies included in the device are **photo-catalysis on special catalysts and the use of UV-C, for the abatement of pathogenic microorganisms and toxic volatile organic compounds (VOC). The action of ROS (Reactive Oxidizing Substances), generated on the surface of the catalyst, is exploited. The ROS quickly and systematically destroy viruses, bacteria and organic substances and convert them into harmless substances**, thus achieving air sanitization. The UV-C radiation at 254 nanometers allows both to activate the catalyst function and to generate a germicidal action against bacteria and viruses, amplifying their effect.

"Our company - recalls Bruno Gazzignato, co-chairman of Idrobase Group, based in Borgoricco, Padua - is known worldwide for producing BKM devices that, thanks to the elaboration of "state-of-the-art" technology used in U.S. aerospace stations, create a surface sanitization, capable of eliminating 95% of viruses present in the environment, including Coronavirus".



"Thanks to this innovation - adds **Bruno Ferrarese, co-owner of Idrobase Group** - we were able to reopen, in short time, our production unit in China. **Pandemic and international competition have, however, made it difficult to supply catalysts from the U.S.A.** Therefore we have taken the opportunity, offered by K-INN Tech, to realize a product experimentation in Italy".

"The project poses important challenges - explains Paolo Canu, president of K-INN Tech and coordinator of the research project - From the technical point of view, the product combines different technologies, which will work in synergy to ensure the best performance; the key word of this collaboration is, in fact, effectiveness, not as a slogan, but as a strongly felt and shared goal."

The device will sanitize the air and the environment from viruses, bacteria, molds, airborne particulate matter, volatile organic substances: all confirmed causes of pathologies, even serious, often started by respiration. The device will be produced in several formats, adapting to the characteristics of the different premises: from small stores to hypermarkets to large public spaces, where there is an high concentrations of people, such as stations, airports, schools.

The air circulation inside the device is the result of optimization based on aerodynamic calculations to exploit the potential of sanitization technologies in a short time. An effective exploitation of the catalyst and UV-C radiation requires internal paths carefully designed to ensure the effectiveness of the technologies used.

The product is part of a world where the offer is very wide, varied and with extremely different quality levels, often difficult to recognize.

"For about thirty years we have been engaged in the field of sanitization and disinfection as well as in finding solutions to contain PM 10 and PM 2.5, today a suspected transmission vehicle also for Covid-19; for 20 years we have been developing technologies to insure safety from viruses, bacteria, mold, odors, pollution - concludes **Ferrarese - The success factors of this new initiative can therefore be summarized in a systematic combination of advanced scientific, technological and entrepreneurial instruments, as well as in the belief that it is necessary to introduce a device on the market, whose performance is proven by documented measurements at a representative scale"**.

