

ECOBreezeSmart



UK Research
and Innovation



Innovate
UK

Ecobreeze was successful in the Sustainable Innovation Fund: Round 3 and winners of Innovate UK Funding 2021.

Peer Reviewed Summary

Our R&D team submitted accreditation applications that demonstrate and quantify EcobreezePure and EcobreezeSmart's transformational safety, air purification efficacy and environmental benefits. Our innovative solution removes malodorous particles and particulate matter from the air using a micro-static prefilter and a honeycomb carbon filtration system. Its Smart IoT technology has the potential to revolutionise air hygiene by delivering air that is clean, fresh and free from VOCs and other airbourne particulates. Ecobreeze is particularly beneficial where mechanical or natural ventilation is lacking. Ecobreeze system is effective at removing 89% of malodour in just 30 minutes. The value proposition for our innovation is that it increases the safety and satisfaction of those visiting or working at business premises e.g. hospitals, offices, dental waiting rooms, hotel corridors, shops and gyms. This is particularly important during the current COVID-19 pandemic when staff may have concerns to return to the workplace and when customers may be reluctant to visit business premises.

Ecobreeze incorporates a smart dashboard so that the premises manager can remotely monitor footfall and need to change the filter.

Currently, businesses use polluting air fresheners to mask smells. Ecobreeze releases no pollutant. Instead, it removes malodorous smells (as well as microorganisms) using our patented filter system. The technology is designed with sustainability at its heart. The filter is made from sustainably sourced coconut shells and the product is packaged in recycled materials. Ecobreeze delivers a 30% reduction in health or environmental impact compared to competitor products. Our company, Washroom-Wizard Ltd, has already proven the feasibility of its sustainable technology using independent testing evidence from Southern Microbial Services, Odournet and St. Croix Sensory. These tests showed that EcoBreeze can significantly reduce the presence of microbe spores in the air 80% and is significantly effective at reducing urine and faecal malodour.

This is a proposal to conduct an industrial research project with Sustainable Innovation Fund support that will result in the production of EcobreezeSmart and Pure demonstration units for business development purposes; the submission of regulatory, safety and environmental accreditation applications; two new positions within the company and accelerated commercialisation of our groundbreaking new product.

Public Description

Ecobreeze is a first-of-its-kind Smart air purification solution that boasts safety benefits as well as environmental advantages. Ecobreeze has been granted a UK, USA and European Patent and Trademark. Has been successful in winning a Innovate UK Grant and has won CSSA Cleaning Innovation Award in 21

1. The Need

Help protect the UK's environment, contributing to the UK Government's Clean Air Strategy (2019) to reduce emissions of non-methane volatile organic compounds (NMVOCs). EcoBreeze Pure benefits the environment by improving air hygiene in enclosed places without releasing pollutant fragrances to mask malodours, serving as an effective and sustainable alternative to pollutant air fresheners (containing NMVOCs).

Improve indoor air quality to safeguard the UK population's health. Long-term exposure to man-made air pollution in the UK has an annual impact on shortening lifespans, equivalent to 28,000 to 36,000 deaths (COMEAP, 2018). This issue is pronounced within workplaces given that air inside workplaces can be 2-5 times more polluted than outdoor air due to a lack of ventilation, chemical fumes, pathogens, mould or pollen (US Environmental Protection Agency); and at least 5.7 million people in the UK are allergic to their workplace (Allergy UK, 2012).

Assessors 3's Feedback

"The advantages described well illustrate the new product's superiority"

Assessors 4's Feedback

"A compelling presentation of previous work and success on first generation product, and the positive impact it would have both on the environment and human health and wellbeing."

Assessors 5's Feedback

"Motivation for the project is good with good possible impacts for the future, addressing indoor ventilation problems especially with regards to smaller confined spaces."

2. The Idea

Our Kent-based SME, Washroom-Wizard Ltd., has commercialised an air purification system called Ecobreeze via a patented, triple-action honeycomb carbon filter. A summary of its technical details and mode of operation are in the appendix. Ecobreeze has great potential to be enhanced to a portable version called Ecobreeze Pure that allows mass market commercialisation, positioning our business as a pioneer in sustainability and increasing our competitiveness as a supplier of air purification systems globally. Ecobreeze Pure could generate a lucrative source of revenue from sales to B2B customers i.e. office, gym, hotel and dental practices. This is particularly relevant during and post the pandemic as our system has been scientifically proven to filter air providing an efficient ventilation system for areas that can not use external ventilation. Furthermore the EcobreezeSmart and Pure systems offer a complete IoT Air Care system that provides real time data that can increase profitability through productivity efficiencies, Notifications prompt maintenance & cleaning teams to address urgent needs. Configurable occupancy, room temperature & humidity triggers optimise cleaning routines for a clean, comfortable environment

Assessors 2's Feedback

"There is a clearly innovative approach and the development of patents and other IP protection in multiple markets demonstrates the freedom to operate and the significant application of personal IP in the project."

Assessor 4's Feedback

"This project has fantastic green credentials; The project shows the innovation is both functional and has a market pull."

Assessor 5's Feedback

"The project addresses the need or challenges identified, with good environment and sustainability. The overall proposal also clearly discloses the considerations of Innovation and Freedom to operate there along with a differentiation with competing technologies."

3. Climate change and environmental sustainability

This project will lead to significant benefits for the environment because its design ensures high pathogen- and odour-removal performance without the use of ozone, biocides, ionisers or aerosols. Moreover, all packaging will be made from recycled materials and the patented, triple-action carbon honeycomb filters are non-toxic and made from sustainably sourced coconut shells. Ecobreeze Pure is mains powered via a plug/USB cable, reducing battery waste and incorporating an AC/DC transformer to enable it to run on energy-saving low voltage.

Our company strives to minimise climate change by developing innovations that promote the UK government's (DEFRA) Clean Air Strategy (2019). This strategy lists non-methane volatile organic compounds (NMOCs) as a principal form of indoor air pollution because NMVOCs react with other air pollutants in the presence of sunlight to produce ground level ozone. Ecobreeze Pure serves as an alternative to air fresheners and fragrances - a major source of NMVOCs, and so our innovation will positively contribute towards a clean environment. Moreover, our solution will help the UK government to meet its national commitment to reduce emissions of NMVOCs against the 2005 baseline by 32% by 2020, increasing to 39% by 2030.

Ecobreeze significantly reduces health and environmental impacts in an innovative way; and it demonstrates a 30% reduction in health or environmental impacts compared to benchmark air purifier products. Our company strives to meet the highest benchmark of health and environmental leadership.

On a day-to-day basis, we take care to minimise the environmental footprint of our business. We operate in the cloud and paperlessly wherever possible. EcobreezeSmart and EcobreezePure are the only All-in-One Air care system that provides:

- Remote monitoring of temperature and humidity and the ability to alter BMS/local systems accordingly
- Energy efficiency saving as site managers can adjust HVAC systems immediately when temperature and humidity alerts are triggered, rather than when noticed by staff or when manually checked, driving cost efficiency
- Potential for reduction in carbon emissions or at the very least surety that energy costs are spent effectively
- Reduction of hazardous waste e.g., batteries, aerosols & UV light (Ozone)
- Potential reduction in water and energy waste
- Superior VOCs reduction compared to other air care systems

Assessor 1's Feedback

"The project approach is also expressed in sound environmentally sustainable terms"

Assessor 2's Feedback

"There is an excellent articulation of the project impacts in environmental sustainability, with a thorough assessment of both the project team impact and end products positive impact on environmental metrics."

Assessors 3's Feedback

"The applicant clearly explains how this product will improve the quality of air within a room by the removal of quite a range of harmful products. Improvement to sustainability and air quality is a part of the working practice of the company and considered in all they undertake"

Assessor 4's Feedback

"The Ecobreeze project has a clear and positive impact on a cleaner environment and gives policy behind this- the innovation has a high performance without the use of ozone, biocides, ionisers, aerosols, or other harmful emissions."