INNOVATIVE BIOANALYSIS
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SARS-CoV-2 USA-CA1/2020

CLIENT: AIRQUALITY TECHNOLOGY (SHANGHAI) CO. LTD

PROJECT: SARS-CoV-2 MESP® AIR STERILIZATION TECHNOLOGY

PRODUCT: (FAH01M-A) MESP® AIR STERILIZING PURIFIER

CAP LIC NO: 886029801

CLIA LIC NO: O5D0955926

STATE ID: CLF 00324630

CHALLENGE VIRUS: SARS-CoV-2 USA-CA1/2020

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ABSTRACT: EFFICACY OF THE AIRQUALITY AHU-MESP AIR PURIFIER AGAINST SARS-CoV-2

Background: This in vitro study was designed to determine the efficacy of an MESP technology electrostatic air filter designed for HVAC systems. The product was provided for testing by AirQuality and is a commercially available in-duct mechanical electrostatic filtration system. The AirQuality AHU-MESP® HVAC sterilizing purifier is designed to be placed inside the HVAC ductwork or air handling unit (AHU) of a facility to decrease the spread of pathogens throughout the HVAC system while it is operating. For this challenge, the SARS-CoV-2 USA-CA1/2020 pathogen was used. Coronavirus can be spread through the air and by touching contaminated surfaces. There is a demand for disinfectant devices that have a proven ability to reduce infectious pathogens in the air thereby reducing the risk of human infection and transmission. AirQuality supplied a pre-packaged AHU-MESP® air sterilizing purifier. For the testing, power was supplied through a step-up ITU-3000 regulator for 220v with surge protector and backup battery system. Test procedures were followed using internal SOPs for aerosolized viral pathogen challenges and subsequent decontamination. All internal SOPs and processes follow GCLP guidelines and recommendations.

Results: When tested against SARS-CoV-2 USA-CA1/2020 virus, the presence of the electrostatic filter inside the modified HVAC ducting showed a reduction of detectable pathogen at the downstream collection point. Under optimal conditions with a pre-defined CFM the system was able to achieve a 99.99% reduction of recoverable viral media in the airstream of the testing system.

EQUIPMENT PROVIDED:

MANUFACTURER: AIRQUALITY TECHNOLOGY (SHANGHAI) CO., LTD.

MODEL: FAH01M-A

SERIAL #: 0401005320C08010016

CONCLUSIONS:

In aerosol there was an observed 99.99% reduction of collectable viral media from the downstream collection port with the filtration system installed. Collection samples were compared to control value collections to obtain the average % reduction.

When aerosolizing pathogens and collecting said pathogens, there are variables that cannot be fully accounted for, namely, placement of pathogen, collection volume, collection points, surface saturation, viral destruction on collection, viral destruction on nebulization, and possibly others. Every effort was made to address these constraints with the design and execution of the trials. And these efforts are reflected in the meaningful recovery of virus in the control test.

Taking these variables into account, there was a high level of inactivation efficacy achieved by in-duct electrostatic filtration system created by AirQuality.

DISCLAIMER:

The Innovative Bioanalysis, Inc. ("Innovative Bioanalysis") laboratory is not certified or licensed by the United States Environmental Protection Agency and makes no equipment emissions claims pertaining to ozone or byproduct of any AIRQUALITY device. Innovative Bioanalysis makes no claims to the overall efficacy of any AIRQUALITY FAH filter. The experiment results are solely applicable to the device used in the trial. The results are only representative of the experiment design described in this report. Innovative Bioanalysis makes no claims as to the reproducibility of the experiment results given the possible variation of experiment results even with an identical test environment, viral strain, collection method, inoculation, nebulization, viral media, cell type, and culture procedure. Innovative Bioanalysis makes no claims to third parties and takes no responsibility for any consequences arising out of the use of, or reliance on, the experiment results by third parties.

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