Eliminate 99% of harmful contaminants in the air within 20 minutes

Neutralizes and decomposes VOC and other chemicals and odors, improving indoor air quality.

Eliminate airborne viruses, bacteria, mold & fungal spores

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INNOVATIVE BIOANALYSIS
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ABSTRACT: EFFICACY OF THE PYURE MDU/Rx™ DEVICE AGAINST AEROSOLIZED SARS-CoV-2

Background: This in vitro study was designed to determine the efficacy of the MDU/Rx™ unit. The product is a commercially available mobile disinfection device manufactured by The PYURE Company (PYURE) out of Boynton Beach, Florida. The MDU/Rx™ unit is designed to be placed free standing in a room and decrease the concentration of pathogens in the air and on surfaces when it is operating, in order to sanitize enclosed spaces and their contents. For this challenge, the SARS-CoV-2-CA1/2020 pathogen was used. The CDC estimates more than 10,000,000 people in the United States have been infected by SARS-CoV2 leading to an estimated 240,000 deaths between 2019 and 2020. 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. PYURE supplied a pre-packaged MDU /Rx™ free standing unit for testing purposes. For the testing, power was supplied through a power regulated 120v outlet 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-CA1/2020 virus, the PYURE MDU/Rx™ unit showed a progressive reduction during the time it was operated resulting in significant destruction of the virus. In three identical trials, the average reduction of aerosolized virus was 99% at the 20-minute sampling point and a steady, further reduction to greater than 99.98% at the 80-minute sampling point, where the virus was no longer detectable due to the limit of quantification. The average reduction of inoculated surface samples was 99% at the 60-minute sampling point and steady, further reduction to greater than 99.999% at the 180-minute sampling point, where the virus was no longer detectable due to the limit of quantification.

EQUIPMENT PROVIDED:

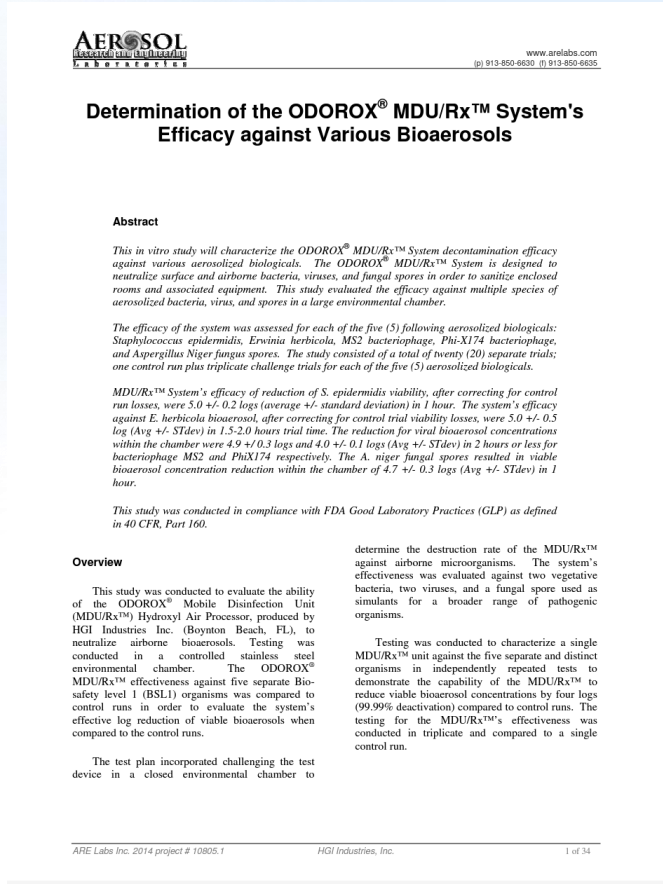
MANUFACTURER: The PYURE Company

MODEL: MDU/Rx™

SERIAL #: MDURXA0000069

Innovative Bioanalysis, LLC MDU/Rx™ Bioaerosol Test

[Link to report]



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Determination of the ODOROX® MDU/Rx™ System's Efficacy against Various Bioaerosols

Abstract

This in vitro study will characterize the ODOROX® MDU/Rx™ System decontamination efficacy against various aerosolized biologicals. The ODOROX® MDU/Rx™ System is designed to neutralize surface and airborne bacteria, viruses, and fungal spores in order to sanitize enclosed rooms and associated equipment. This study evaluated the efficacy against multiple species of aerosolized bacteria, virus, and spores in a large environmental chamber.

The efficacy of the system was assessed for each of the five (5) following aerosolized biologicals: Staphylococcus epidermidis, Erwinia herbicola, MS2 bacteriophage, Phi-X174 bacteriophage, and Aspergillus Niger fungus spores. The study consisted of a total of twenty (20) separate trials; one control run plus triplicate challenge trials for each of the five (5) aerosolized biologicals.

MDU/Rx™ System's efficacy of reduction of S. epidermidis viability, after correcting for control run losses, were 5.0 +/- 0.2 logs (average +/- standard deviation) in 1 hour. The system's efficacy against E. herbicola bioaerosol, after correcting for control trial viability losses, were 5.0 +/- 0.5 log (Avg +/- STdev) in 1.5-2.0 hours trial time. The reduction for viral bioaerosol concentrations within the chamber were 4.9 +/ 0.3 logs and 4.0 +/- 0.1 logs (Avg +/- STdev) in 2 hours or less for bacteriophage MS2 and PhiX174 respectively. The A. niger fungal spores resulted in viable bioaerosol concentration reduction within the chamber of 4.7 +/- 0.3 logs (Avg +/- STdev) in 1 hour.

This study was conducted in compliance with FDA Good Laboratory Practices (GLP) as defined in 40 CFR, Part 160.

Overview

This study was conducted to evaluate the ability of the ODOROX® Mobile Disinfection Unit (MDU/Rx™) Hydroxyl Air Processor, produced by HGI Industries Inc. (Boynton Beach, FL), to neutralize airborne bioaerosols. Testing was conducted in a controlled stainless steel environmental chamber. The ODOROX® MDU/Rx™ effectiveness against five separate Bio-safety level 1 (BSL1) organisms was compared to control runs in order to evaluate the system's effective log reduction of viable bioaerosols when compared to the control runs.

The test plan incorporated challenging the test device in a closed environmental chamber to determine the destruction rate of the MDU/Rx™ against airborne microorganisms. The system's effectiveness was evaluated against two vegetative bacteria, two viruses, and a fungal spore used as simulants for a broader range of pathogenic organisms.

Testing was conducted to characterize a single MDU/Rx™ unit against the five separate and distinct organisms in independently repeated tests to demonstrate the capability of the MDU/Rx™ to reduce viable bioaerosol concentrations by four logs (99.99% deactivation) compared to control runs. The testing for the MDU/Rx™'s effectiveness was conducted in triplicate and compared to a single control run.

ARE Labs Inc. 2014 project # 10805.1 HGI Industries, Inc. 1 of 34

[Link to report]