

Plasma Air's PA662 significantly reduces aerosolized live SARS-CoV-2 Omicron variant by more than 99% after only 90 minutes in third party test

Test facility/performed by: Innovative Bioanalysis, Inc.

GLP Compliance - All internal SOPs and processes follow GCLP guidelines and recommendations. Study performed December 2021- February 2022.

PRODUCT BACKGROUND

The Plasma Air PA662¹ is an ionizer installed at the fan inlet of an air handling unit, fan coil unit, PTAC, heat pump or a VRF ductless split system to reduce the presence of airborne pathogens and pollutants. The ionizer produces positively and negatively charged ions which interact with and inactivate viruses.



PA662

OBJECTIVE

To determine the efficacy of the PA662 ionizer for inactivation of SARS-CoV-2 Omicron variant.

TEST METHOD

Bioaerosol Generation

Test Substance: SARS-CoV-2 Omicron variant (BEI Resources, NIAID, NIH)

A median tissue culture infectious dose (TCID50) of 1.08×10^7 per mL viral media or the control that lacked the SARS-CoV-2 Omicron variant was tested.

Testing Layout

Testing was conducted in a sealed 20' x 8' x 8' chamber per Biosafety Level 3 (BSL3) standards.

The overall dimensions equated to a displacement volume of 1,280 ft³ (~36,245 liters) of air. The chamber remained closed during testing, with no air entering or leaving the room. The chamber was equipped to create the necessary airflow to produce the required concentration of ions.² The virus (or control) was nebulized at 1 mL/minute into a sealed chamber at room temperature (74° +/- 2 F) with a relative humidity of 41% with mixing fans.

Figure 1 shows a drawing of the testing layout including locations of the nebulization port, air sample collectors, fans and the PA662 ionizer. Air samples were collected at 30, 60 and 90 minutes after introduction.

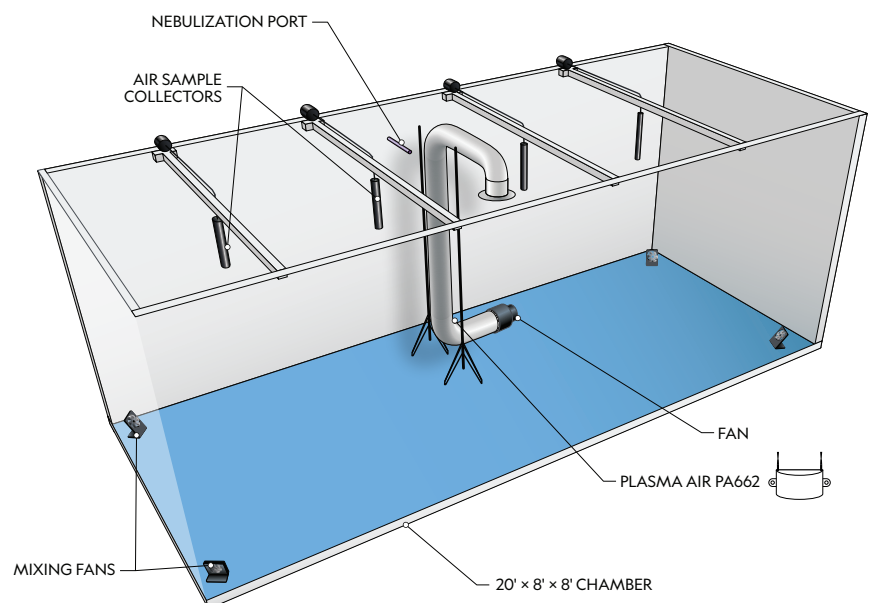


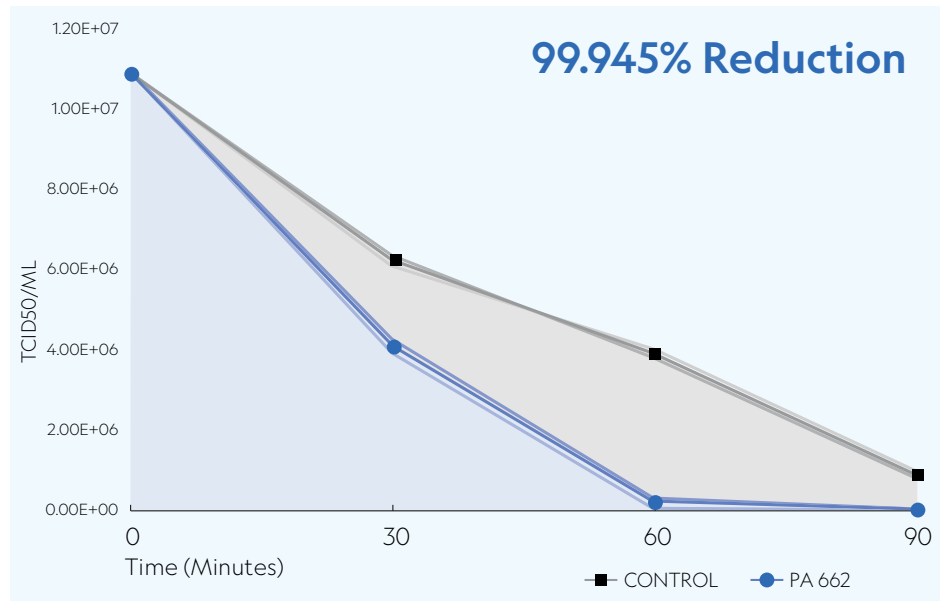
Figure 1: Testing layout

1. Applicable products include all models in the PA660 Series and PA600 Series.

2. 18,000 negative ions/cm³

Results

In these *in-vitro* test conditions **after 90 minutes, PA662 reduced CoV-2 Omicron variant by 99.945%** compared to baseline.



Experiment Results

The PA662 decreased a starting concentration of SARS-CoV-2 Omicron from 1.08×10^7 TCID50/mL to an average 4.08×10^6 TCID50/mL after 30 minutes. At 60 minutes, the ionizer reduced collectible SARS-CoV-2 Omicron to an average of 1.73×10^5 TCID50/mL and neutralized active pathogen to 5.01×10^2 TCID50/mL after 90 minutes.

Control Results

Control testing was conducted without the PA662 operating in duplicate, and samples were taken at the corresponding time points used for the challenge. The results displayed a natural viability loss over time in the chamber and were used as a comparative baseline to calculate viral reduction.

CONCLUSION

The Plasma Air PA662 demonstrated an overall capability in reducing aerosolized SARS-CoV-2 Omicron viruses at each time point faster than the natural viability loss rates. After 30 minutes of operation, a 34.615% net reduction was observed and increased with longer exposure time, as shown by the 95.602% net reduction after 60 minutes and the 99.945% reduction achieved after 90 minutes.