

1.0 DESIGN DATA

1.1 24x24x36 Duct

Design based on:

Lamp Type	Qty Wide	Spacing	1 - UVMatrix AS-R-4/22	Qty Down Duct	Spacing
AS-IH-1005	1	9		4	9

CFM	1600 cfm	Ductwork Area	4.00 ft ²
Average Intensity in Ductwork	2853 μW/cm ²	Air Velocity in Ductwork	6.64 ft/sec
Ductwork Width	24 Inches	Contact time in Ductwork	0.45 s
Ductwork Height	24 Inches	Average Disinfection Rate	96.90 %
Length of UV Intensity Field	36 Inches	Power Consumption by UVC	112 VA
Average Dosage Provided	1289.01 μJ/cm ²		

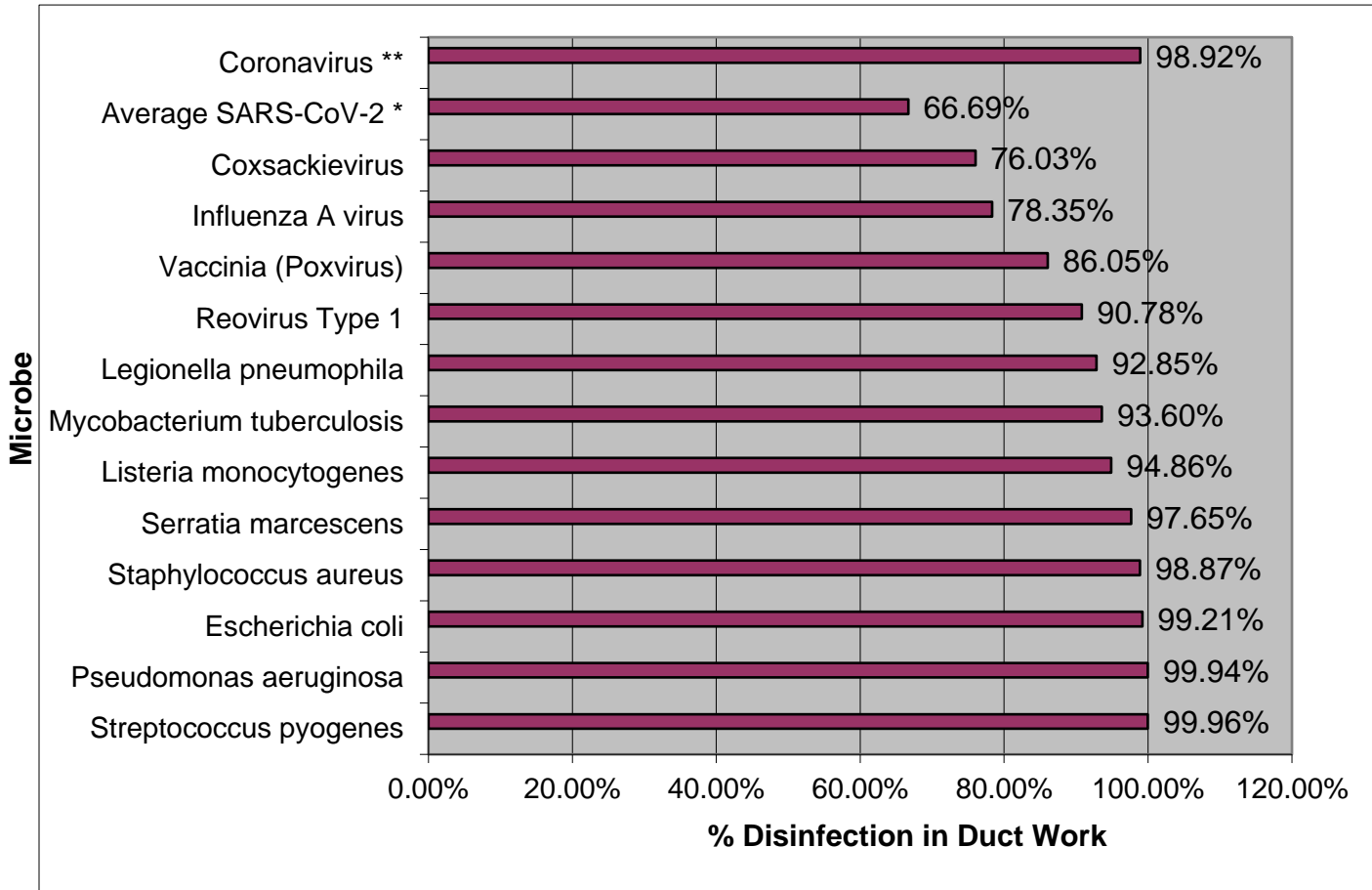
Disinfection on the exposed surfaces is not calculated due to the UVC lamps should be running at all times, so the time constant is indefinite. With the time constant being infinite the dosage applied to any surface exposed to the UVC energy, is infinite.

* Calculations for percentage disinfection were done using the single stage exponential decay equation for microbial populations exposed to UV irradiation ($S = e^{-kIt}$). The results are based on a single pass using the average of the microbes listed in the table below (0.0028483 UVGI Rate Constant), and the following reduction factors:

- 0.80 Lamp Aging (End of Lamp Life)

% Disinfection calculations are based on intensity at end of (18,000 hour) lamp life.

Listed below are calculated percentages of what can be expected for disinfection of listed microbes.



There are many strands of Coronavirus that have been identified. The chart above lists two of those strands.

The disease name was subsequently recommended as COVID-19 by the World Health Organization. Meanwhile, 2019-nCoV was renamed SARS-CoV-2 by the International Committee on Taxonomy of Viruses.

Reference:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7074995/#:~:text=The%20disease%20name%20was%20subsequently,on%20Taxonomy%20of%20Viruses.>