



CleanWhite LED® Amplification Effect

How CleanWhite LEDs® Enhance the Performance of Air Purification Systems

Independent laboratory testing confirms that integrating CleanWhite® technology into ceiling-mounted air purification devices significantly boosts their pathogen-reduction performance.

Testing was conducted by MicroChem Laboratory in April 2024 using three representative airborne pathogens:

- *Escherichia coli* (E. coli) – bacterial
- *Staphylococcus epidermidis* – bacterial
- MS2 Bacteriophage – a non-pathogenic viral surrogate often used to model airborne viruses like influenza and coronavirus

Two nearly identical systems were evaluated in a sealed chamber:

- One system using active air purification only
- One enhanced with CleanWhite visible-spectrum disinfection technology

Air samples were collected at 10, 20, 45, and 90 minutes.

CleanWhite® Enhances Pathogen Removal Over Time

E. coli – % Reduction Comparison

Time	Purifier Only	With CleanWhite	Effectiveness Change
10 min	39.56%	98.51%	+58.95%
20 min	91.81%	99.93%	+8.12%
45 min	99.88%	99.99%	+0.11%
90 min	99.97%	99.99%	+0.02%

Staphylococcus epidermidis – % Reduction Comparison

Time	Purifier Only	With CleanWhite	Effectiveness Change
10 min	64.68%	76.11%	+11.43%
20 min	92.78%	95.34%	+2.56%
45 min	98.76%	99.61%	+0.85%
90 min	99.97%	99.99%	+0.02%

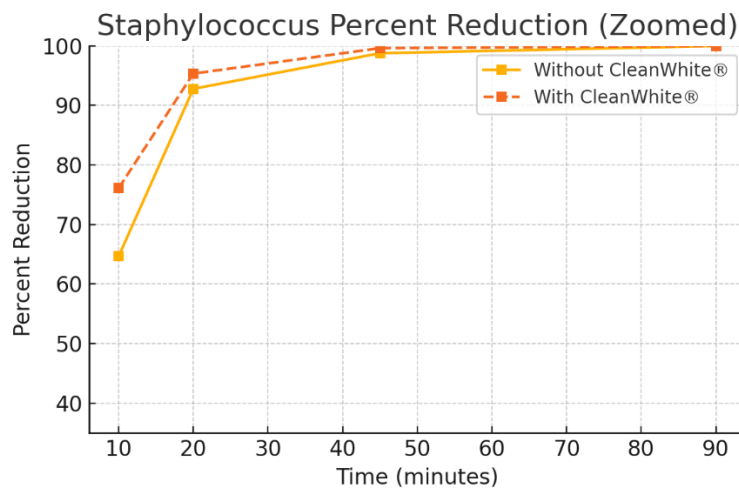
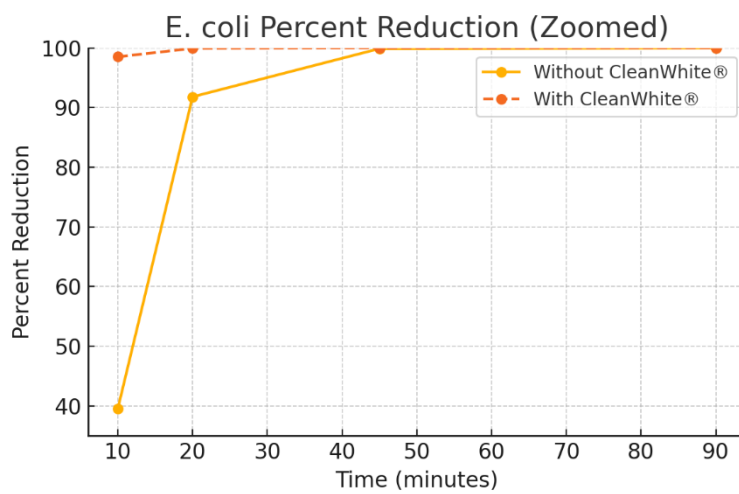
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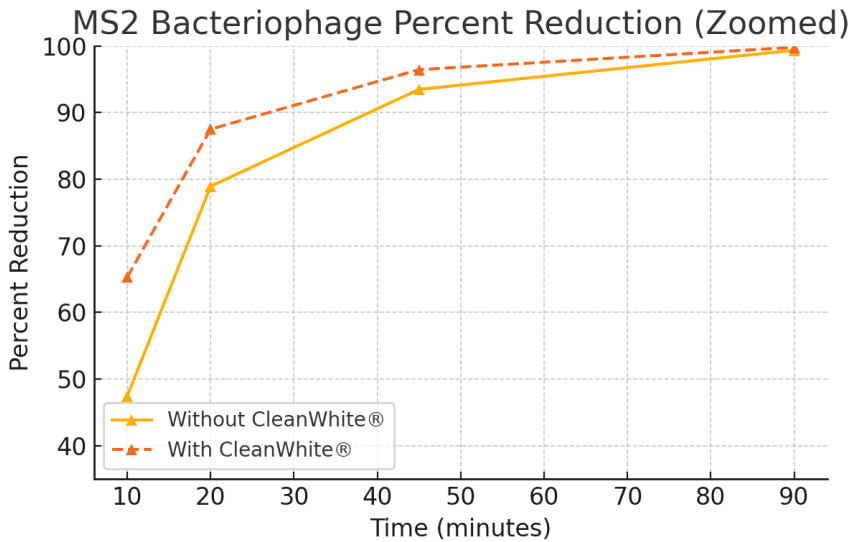
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MS2 Bacteriophage – % Reduction Comparison

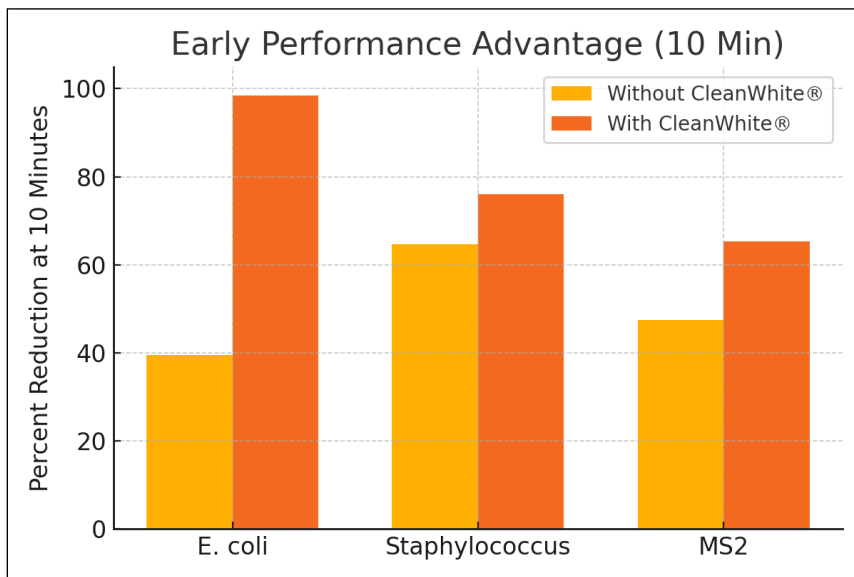
Timepoint	Purifier Only	With CleanWhite	Effectiveness Change
10 min	47.44%	65.30%	+17.86%
20 min	78.94%	87.51%	+8.57%
45 min	93.48%	96.45%	+2.97%
90 min	99.37%	99.80%	+0.43%





What This Means

- **The greatest impact of CleanWhite® occurs early in the cycle** — delivering up to 59% greater reduction in airborne E. coli and nearly 18% greater reduction in airborne virus particles in just 10 minutes.



- These percent gains are not small. For example, a 17.86% improvement in MS2 reduction means there are **more than twice as many virus particles left in the air** without CleanWhite.



- CleanWhite technology rapidly accelerates antimicrobial activity, helping reduce exposure risk **faster** and **more effectively**.
- These early-stage differences are critical in real-world settings where air is constantly being disturbed by occupants and ventilation.
- Even at later timepoints, CleanWhite continues to deliver measurable gains. For example, the difference between 99.37% and 99.80% viral reduction may seem small, but it means that nearly **three times more** viral particles remain in the air without CleanWhite. These added reductions can make a critical difference in high-traffic or healthcare environments, reinforcing CleanWhite's role as a powerful, passive enhancement to air purification.
- **CleanWhite also continuously disinfects surfaces** — not just air — offering an added layer of protection where airborne pathogens settle and accumulate.

When paired with air purification systems, CleanWhite® works in tandem to accelerate disinfection and improve overall effectiveness against both bacterial and viral threats. Each technology is effective on its own — but together, they offer a powerful, complementary solution for cleaner, safer air.

For Complete Test Results, Please Contact Your illumipure Representative or email sales@illumipure.com

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