

APCO Air Purifier Validated by Airmid Healthgroup: Reduces Bacteria by 98.85% and Viruses by 99.03%



Overview

Airmid Healthgroup conducted rigorous testing of the [APCO Air Purifier](#), a combination ultraviolet light (UV-C), activated carbon-media, and photocatalytic oxidation (PCO) device developed by Fresh-Aire UV. The results demonstrated the purifier's ability to reduce airborne bacteria by 98.85%, viruses by 99.03%, and mold by 78.80%, as well as its effectiveness in reducing high concentrations of volatile organic compounds (VOCs) such as formaldehyde and acetaldehyde.

Background

About Fresh-Aire UV:

[Fresh-Aire UV](#) is a leading manufacturer of advanced air purification systems designed for residential, commercial, and healthcare applications. The APCO Air Purifier combines multiple technologies to target airborne pathogens and VOCs, enhancing indoor air quality.

About Airmid Healthgroup:

Airmid Healthgroup is a world-renowned testing facility specializing in the evaluation of indoor air quality (IAQ) equipment. Based in Dublin, Ireland, Airmid employs cutting-edge methodologies to validate product claims for manufacturers worldwide.

Context:

Indoor environments, particularly those with HVAC systems, can accumulate bacteria, viruses, mold, and VOCs from cleaning agents and building materials. Devices like the APCO Air Purifier are essential for reducing these contaminants and improving indoor air quality in homes, hospitals, offices, and schools.

The Challenge

Fresh-Aire UV sought independent validation of the APCO Air Purifier's:

1. **Pathogen Removal:** Ability to reduce bacteria, viruses, and mold using UV-C technology.
 2. **VOC Reduction:** Effectiveness in breaking down gaseous contaminants such as formaldehyde and acetaldehyde through activated carbon and PCO processes.
 3. **Real-World Performance:** Capability to operate effectively under typical HVAC system conditions.
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Goals

- **Primary Goal:** Validate the APCO Air Purifier's ability to improve indoor air quality by removing airborne pathogens and VOCs.

- **Secondary Goal:** Provide robust, third-party testing data to support Fresh-Aire UV's market positioning in residential and commercial IAQ solutions.
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Solution/Approach

Airmid Healthgroup employed advanced testing methodologies to evaluate the APCO Air Purifier under controlled conditions:

Pathogen Testing:

- **Bacteria (*S. epidermidis*):** Single-pass tests in an ASTM-/AHAM-style environmental chamber simulated real-world HVAC conditions, measuring a 98.85% reduction in airborne bacteria.
- **Virus (MS2 coliphage):** Single-pass tests demonstrated a 99.03% reduction in airborne viruses.
- **Mold (*A. niger*):** Tests recorded a 78.80% reduction in airborne mold spores.

VOC Reduction Testing:

- The purifier's activated carbon-media matrix and PCO technology were tested for their ability to reduce high concentrations of formaldehyde and acetaldehyde.
- Testing simulated 100 times the normal VOC levels found in typical commercial environments, validating the APCO's ability to break down gaseous contaminants into harmless byproducts like CO₂ and H₂O.

Simulated HVAC Conditions:

- Tests replicated HVAC airflow velocities (492 ft/min) under conditions typical of indoor environments (73°F, 55% relative humidity).
- Single-pass results demonstrated high efficiency, with experts noting even greater reductions achievable in

real-world multiple-pass recirculating systems.

Key Results

- **Bacteria Removal:** 98.85% reduction of airborne bacteria (*S. epidermidis*).
 - **Virus Removal:** 99.03% reduction of airborne viruses (MS2 coliphage).
 - **Mold Removal:** 78.80% reduction of airborne mold spores (*A. niger*).
 - **VOC Reduction:** High concentrations of formaldehyde and acetaldehyde were effectively broken down into harmless byproducts.
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Impact

Validated Performance: Independent testing confirms the APCO Air Purifier's effectiveness in reducing airborne pathogens and VOCs, making it a reliable solution for improving indoor air quality.

Healthier Environments: The purifier supports healthier indoor spaces for residential, commercial, and healthcare applications, reducing exposure to harmful contaminants.

Market Differentiation: Robust data from Airmid Healthgroup enhances Fresh-Aire UV's credibility and positions the APCO Air Purifier as a leader in IAQ technology.

Lessons Learned

- **Independent Validation Is Key:** Third-party testing ensures product claims are credible and trusted by

consumers and industry stakeholders.

- **Multiple Technologies Enhance IAQ:** Combining UV-C light, activated carbon, and PCO processes maximizes contaminant reduction.
 - **Simulated Testing Reflects Real-World Performance:** Laboratory testing under HVAC-like conditions provides a reliable measure of product efficacy.
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Conclusion

Airmid Healthgroup's testing confirmed that Fresh-Aire UV's APCO Air Purifier is a highly effective solution for reducing airborne bacteria, viruses, mold, and VOCs. With results demonstrating 98.85% to 99.03% pathogen removal and significant VOC reduction, the APCO sets a new standard for indoor air quality solutions across residential and commercial environments.

Contact Us

Looking to validate your product's health benefits? [Contact Airmid Healthgroup](#) today to learn how our testing and certification services can help you achieve your goals.

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