

Overview of the University of Colorado Clean Air and Clean Water Studies

Accents In Water has just concluded studies in cooperation with Dr. Mark Hernandez, PhD, PE, Principal Investigator, to identify the impact that a water feature has on its environment. The studies were performed at the University of Colorado at Boulder's Level 3 Lab in the Department of Civil, Environmental and Architectural Engineering.

Summary of Clean Air Delivery Rate (CADR) observations

This test was designed to define how effectively a water feature will reduce airborne particulate matter out of the air through its self generated electrostatic charge.

The results of this test are measured as a Clean Air Delivery Rate or CADR. The resulting CADR value is a measurement of how much air can be rendered free of bacteria and other microorganisms per hours of operation.

In separate experiments, Tuberculosis and Anthrax were introduced into the environment. Over a period of 5 hours, the number of bacteria in the air was reduced by at least 85%. The CADR for a 4x8 water feature was measured at 30 cubic meters per hour.

Summary of Modeling Analysis of UV inactivation

Why ultraviolet light? Ultraviolet sterilization systems require little maintenance and are a non-chemically based method of killing microorganisms. UV is a highly effective method of sterilization used throughout food processing, drinking water treatment and medical sterilization.

In this experiment, a different set of bacteria were chosen for their various levels of resistance to ultraviolet light. Independently tested were Legionella (Legionnaires Disease), Staph and Tuberculosis.

The objective of this study was to measure how effectively UV light is in deactivating, or killing a given microorganism. Each bacterium was independently tested against the UV to determine what percentage of bacteria survive passage through the UV chamber, thereby establishing a necessary dose of UV required to kill all bacteria.

Based on each of the testing models, the water is being dosed at levels far above what any of the bacteria are capable of surviving. We can safely say that Accents In Water can kill 99% of tested bacteria in a single pass through the UV chamber. Since our water features are recirculating systems, the water is constantly being cleaned, killing airborne microorganisms that are electrostatically attracted to the water feature.