



Green Technology Accelerator Center

The New York State Pollution Prevention Institute (NYS P2I) helps companies accelerate their introduction of green technologies into the market by identifying emerging market opportunities and providing assistance in a variety of areas.

Isolation Sciences Continuous Access Port Energy Evaluation

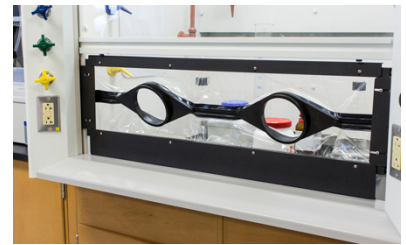
Client

Isolation Sciences, LLC of Williamsville, NY was formed in 2006 to address the problems of rapid and continuous access to contaminated medical and laboratory areas. In 2012, Isolation Sciences released a new product called the Continuous Access Port (CAP) that fills the gap between a partially open laboratory fume hood door and the fume hood table top, allowing access to the contaminated area while isolating the surrounding lab area and operator. The CAP is an alternative to operating the fume hood in the open position.



Opportunity Areas

Isolation Sciences believes that the CAP reduces energy by reducing the amount of conditioned lab air exhausted through the fume hood and reducing the ventilation rate within the laboratory space, resulting in reduced laboratory operating cost. Isolation Sciences further believes that their product provides improved fume hood containment of contaminants. These claims are made in comparison to a fume hood left in the open or partially open position where frequent access to experiments is needed. It is not intended for use in applications where the hood is normally closed. Verification of the CAP performance could lead to increased acceptance, increased sales, increased manufacturing and employment opportunities in the Buffalo, NY area.



CAP Device

Objectives

NYS P2I, funded under the Green Technology Acceleration Center and in collaboration with RIT's Facilities Management Services and Environmental Health and Safety departments, provided an independent third-party evaluation of the CAP device in a fume hood operating under the device's target application. A comparison of the fume hood with and without the CAP, based on exhaust air volume and particulate containment, was also analyzed.

Work Performed

The CAP was installed in the Sustainable Chemistry Lab at the Golisano Institute for Sustainability at RIT and the Variable Air Volume (VAV) valve was reprogrammed to accommodate the device. Face and volumetric air flow were measured or calculated for an operational fume hood with and without a CAP device installed. Containment was also evaluated using a conventional smoke test with and without the CAP device. Using common aggregate costs for conditioned lab air, an operational cost assessment was made to predict cost savings realized with the use of a CAP device.

Results

The CAP device was shown to reduce conditioned laboratory air exhaust volumetric flow rate by 83% compared to the same fume hood left in its open working position (20.625 inches) when the VAV is re-programmed to maintain the same face flow velocity with the CAP. The annual cost savings associated with the reduced exhaust flow rate provided by the CAP device is calculated to be \$2,700, assuming the cost of conditioned laboratory air is \$5.00/cfm/year.

