

Theresa Pistochini, M.S., P.E.

John Borsos
California Teachers Association

Re: Ultraviolet Germicidal Irradiation (UVGI)

Dear John,

I am responded to your question on how the ultraviolet (UV) lamp contained inside the UVDI V-PAC devices compares to CDC documentation on the effectiveness of Ultraviolet Germicidal Irradiation applied to upper rooms¹. These two situations are very different.

Ultraviolet light of the appropriate wavelength has been demonstrated to inactivate certain airborne microorganisms as long as the intensity of the light and the exposure time requirements to the air are met, which is described in the CDC document. Upper room UV systems are designed to light the upper half of room (so there is no direct exposure on occupants) where the air is moving slowly and the light is contact with the air for a significant period of time.

In contrast, the UVDI product packages a UV-C lamp in a portable air cleaner. The air is moving fast inside the portable air cleaner and I would expect minimal benefit because the exposure time is so short (a fraction of a second). This is **not comparable** to approach described by the CDC in the cited paper. In addition, the UVDI product uses a UV-C lamp to activate a Photocatalytic Converter, which may create harmful byproducts. A recent guide on in-room air cleaners published by ASHRAE² states:

“Technologies such as ionizers, UV-PCO, and many called by other names may claim to remove or destroy multiple types of contaminants but may convert them to other compounds that might be harmful. These technologies are designated by CDC as emerging technologies **without an established body of evidence** reflecting proven efficacy under as-used conditions.”

I recommend that SCUSD not use the UVDI product and instead:

¹ <https://www.cdc.gov/niosh/docs/2009-105/default.html>

² <https://www.ashrae.org/file%20library/technical%20resources/covid-19/in-room-air-cleaner-guidance-for-reducing-covid-19-in-air-in-your-space-or-room.pdf>

- Test, adjust and balance outdoor air ventilation rates using a certified TAB technician to meet Title 24 2019 requirements
- Install MERV13 filters
- Install CO2 sensors to monitor ventilation system function
- Use cost-effective portable air cleaners that have mechanical filtration only to supplement central filtration where needed, where cost effectiveness is determined by the cost of the air cleaner and the clean air delivery rate (CADR), as measured by AHAM standard AC-1.

I am happy to answer any questions or discuss this further.