From: Chris Willette
To: ARB Clerk of the Board
Subject: aircleaner2019 Comment submission
Date: Friday, January 24, 2020 2:17:46 PM

Hi – I am trying to submit a comment on the aircleaner2109 comment board and have been having issue.

My submission is below.

Thank You,

Chris Willette

For amendment to REGULATION FOR LIMITING OZONE EMISSIONS FROM INDOOR AIR CLEANING DEVICES

I) Testing non-ozone UV lamp systems:

I believe the newly developed requirement for testing UV systems for in-duct units pose a substantial financial burden on manufacturers that manufacture and provide UV devices that do not produce light in the ozone generating realm of 185-240nm. Additionally, since many manufacturers of in-duct systems for HVAC have many different sizes to fit the applications ranging from small residential to commercial sized system, having numerous model SKU's the amount of units requiring testing could be overwhelming compared to portable unit manufacturers, which may have only 1 or 2 models.

Certification Requirements for portable units [§ 94804(b)] "any portable air cleaning device using only UVGI lamp(s), with or without mechanical filtration, and no other electronic air cleaning technology, is exempt from the testing requirement for the ozone emission standard of 0.050 ppm as determined in Section 94805".

As is explained in this amendment, ARB is requiring testing of all in-duct devices, even those that use non ozone UV lamps where 94804(b) exempts those same stand-alone models.

This is puzzling, as portable models that pose an equal or greater threat to occupants health are exempt, but in-duct units would require testing even though they are using non-ozone UV lamps greater than 250 nanometers.

Additionally, Should testing be required on in-duct systems that are understood to be non-zone producing will put a tremendous burden on manufacturers who would need to budget for extensive testing of their model(s) and those costs will ultimately be passed on to the

consumer.

It is my suggestion that in-duct testing requirements should be the same as for portable devices.

II) Testing non-ozone UV systems with PCO:

According to the ASHRAE Position Document on Filtration and Air Cleaning 2.3.1 Principles Efficiency and Use (2015):
https://www.ashrae.org/File%20Library/About/Position%20Documents/Filtration-and-Air-Cleaning-PD.PDF

The chapter describes the PCO process as:

"Photocatalytic oxidation (PCO) is defined as a light mediated, redox reaction of gases and biological particles adsorbed on the surface of a solid pure or doped metal oxide semiconductor material or photocatalyst…. A variety of UV light sources can be used in PCO, including black lights (UV-A: long-wave; 400 to 315 nm), germicidal lamps (UV-C: short-wave; 280 to 200 nm), and lamps that generate ozone (vacuum UV [UV-V]: under 200 nm)."

As is explained, a PCO reactor in itself does not produce ozone and is typically not electrified. The PCO catalyst (i.e. titanium dioxide, zinc oxide, etc.) is a surface bound material and does not generate any ozone by itself. It is a light activated process. If a PCO catalyst is paired with a non-ozone UV lamp (i.e. germicidal 254nm UV lamp) there will be no ozone produced. If ozone is produced from a PCO system, it is only because the UV lamp being used is an ozone producing UV lamp (185-240nm).

The same argument regarding the reasoning behind required in-duct testing of UV lamps that do not produce 185-240nm should apply to PCO systems that also do not use that same wavelength. PCO reactors by themselves do not create ozone, just like the 254nm UVC, UVB or UVA wavelengths do not produce ozone. If any IAQ device incorporates a 185-240nm UV lamp then ozone will be produced.

I feel it is important to regulate the offending wavelengths of light specifically 185-240nm and not make a blanket statement that UV light or PCO reactors produce ozone or is even capable of producing ozone as long as the UV light wavelength is defined.