

Studies Show CASPR Technology Emits No Ozone, Safe Levels of H₂O₂

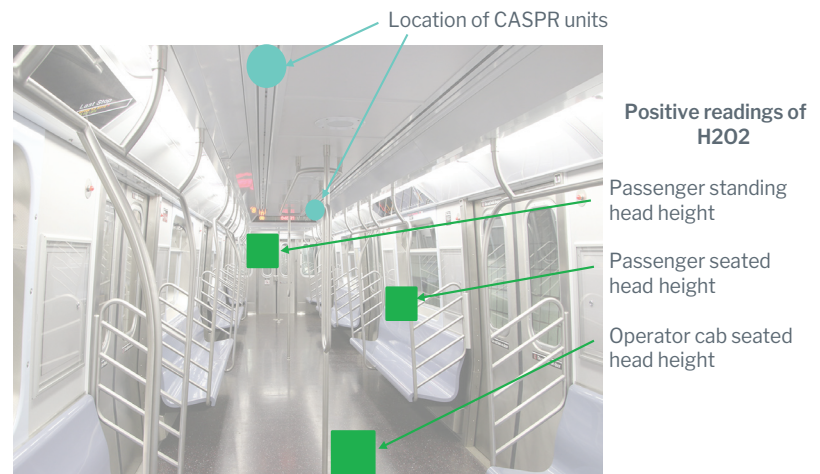
Keeping indoor air and surfaces clean is a constant challenge in many places, but especially in small and crowded environments. CASPR, however, has proven technology that is ready to meet that challenge in today's busiest spaces.

Our mobile and HVAC in-duct technology uses a proprietary Photocatalytic Oxidation (PCO^x) process that extracts oxygen and moisture from ambient air and then produces and continuously delivers a low concentration (less than 0.03 ppm) of gaseous hydrogen peroxide to sanitize a target area.

In addition to the proven benefits of the technology as a pathogen killer, the units can also effectively clean and continuously operate in a space while people are present.

To further prove its safety in high-traffic and confined environments, such as hospitals and public transportation, CASPR worked with accredited laboratories to test ozone and hydrogen peroxide levels and prove short-term and long-term exposure safety.

In the public transportation test, four CASPR 2500 units were installed in a subway car, with two CASPR units in each HVAC. Each CASPR unit included a custom bracket, a Natural Catalytic Converter Cell and a ballast to power the device.



The hydrogen peroxide samples in the transportation study were collected per OSHA method #1019, using personal sampling pumps and 25-mm quartz filters coated with titanium oxysulfate.

CASPR's disinfection technology was tested in hospital & public transportation environments to prove short-term & long-term exposure safety

Ozone samples were also taken in the public transportation testing and were collected per OSHA method #214, using personal sampling pumps and nitrite-impregnated glass fiber filters (IGFFs). The 8-hour samples ran at approximately 0.5 liters per minute to surpass the collection of a minimum of 180 liters of air. Concurrently, 15-minute samples ran at approximately 1.5 liters per minute to achieve the collection of 22.5 liters of air.

The hospital test measured levels from an in-duct CASPR unit that targeted a patient room. The tests measured hydrogen peroxide levels six inches above the head of the bed and also one foot below the HVAC return air grill on the ceiling of the room. The samples in the hospital study used ACS diffusion monitors and monitored over 8-hour and 15-hour periods.

Hospital Hydrogen Peroxide Test Results		
6 INCHES ABOVE THE BED		
Date	Duration	Result
07/07/2017	8 hours	<0.02 ppm
07/19/2017	8 hours	0.02 ppm
07/19-20/2017	15 hours	<0.01 ppm
07/20/2017	8 hours	<0.02 ppm
07/21/2017	8 hours	<0.02 ppm
07/24/2017	8 hours	<0.02 ppm
1 FOOT BELOW AIR VENT		
07/07/2017	8 hours	<0.02 ppm
07/19/2017	8 hours	<0.02 ppm
07/19-20/2017	15 hours	<0.01 ppm
07/20/2017	8 hours	0.03 ppm
07/21/2017	8 hours	<0.02 ppm
07/24/2017	8 hours	<0.02 ppm

No ozone was detected anywhere during the course of the tests. In the public transportation tests, **hydrogen peroxide levels never exceeded 0.025 ppm** (parts per million) during the tests, with most samples registering less than 0.01 ppm. Likewise, the hospital test reported less than 0.03 ppm over the multi-day testing in the patient room.

With OSHA and NIOSH’s standards for safe use of H₂O₂ in the air in occupied spaces at 1 ppm, the tests proved CASPR’s disinfection technology generates pathogen-killing hydrogen peroxide at levels 100x below those standards. This ensures CASPR’s technology is safe—and effective—for occupants in healthcare and public transportation environments.

No ozone was detected during testing. Hydrogen peroxide levels were also found to be 100x lower than OSHA requirements

Sources
 "CASPR Ozone & Hydrogen Peroxide Laboratory Analysis Report", SGS Galson, December 2020

"Hydrogen Peroxide Notes on SMC Room 500 at Startup, July 7 to 24, 2017", Integris, July 2017