



Odor Testing on a Transit Bus Using The Thermo King Air Purification Solution

Improving the Indoor Air Quality (IAQ) within a bus is important to help transit riders and drivers feel comfortable while using public transportation. That is why we developed the Thermo King Air Purification Solution. Our air purification solution uses an active purification technology, graphene-enhanced photocatalytic oxidation (GPCO), to deactivate certain viruses and other microbes in the air.*

How GPCO Works

The air purification solution is fully contained and located in the existing bus HVAC unit. As air circulates from the passenger cabin into the HVAC system, it passes through the GPCO device, which is coupled with a MERV 7 pre-filter that collects particulate matter. The GPCO device produces oxidants that deactivate various pathogens as the air passes through.*

**Outcome based on testing using MS2 Bacteriophage, a common surrogate for SARS-CoV-2, the virus causing COVID-19; testing showed 98% effective viral deactivation within 20 minutes of operation.*



Test Objective

To determine the effect of our Air Purification Solution's GPCO, Thermo King commissioned an independent third-party field test on a transit bus with two different strong-smelling Volatile Organic Compounds (VOCs), D-limonene (lemon scent) and A-pinene (pine scent).

Each VOC was injected into the bus and two tests were conducted to measure the reduction in VOC concentration: a natural decay test (GPCO off, fan on) and a GPCO test (GPCO on, fan on).

Results

The GPCO test of the Air Purification Solution reduced the concentration of the lemon scent VOC by approximately **80% after 20 minutes**.

The control test (natural decay) reduced the concentration of the lemon scent VOC by approximately **35% in 20 minutes**.

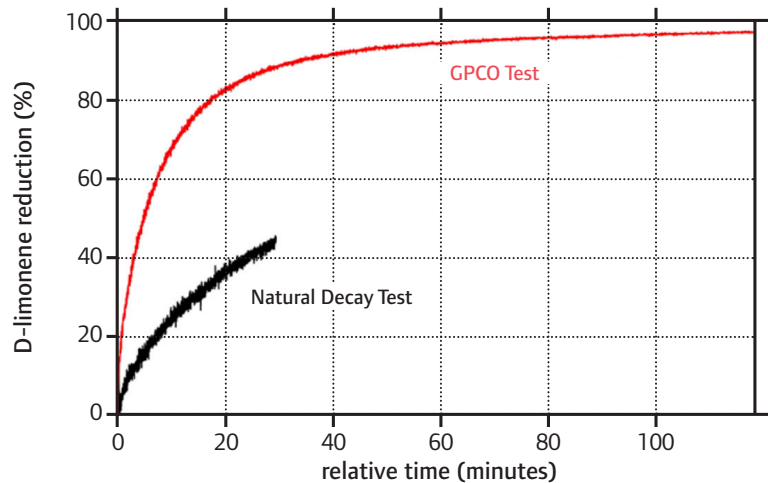
The GPCO test of the Air Purification Solution reduced the concentration of the pine scent VOC by approximately **80% after 60 minutes**.

The control test (natural decay) reduced the concentration of the pine scent VOC by approximately **55% in 60 minutes**.

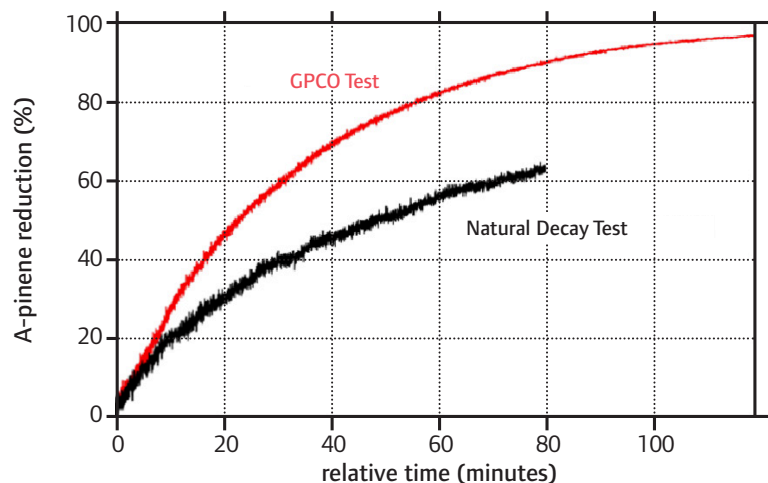
Conclusion

The GPCO device was shown to be more effective at reducing the VOCs' concentrations than natural decay and at a faster rate.

Lemon Scent Decay



Pine Scent Decay



To learn more about Thermo King Air Purification Solution and its proven effectiveness against VOCs and viruses, contact your Thermo King sales representative.