

Behavior of particles and gases in vehicle cabinH. Jung^{1,2}¹University of California, Riverside, ²Emissions Analytics

The impact of air pollution on human health is a major concern and various anthropogenic sources of particulate exposure are under investigation to better understand their contributions to adverse health effects. Travel in vehicles represents a primary source of human exposure to particulate matter. A recent report estimated that for Los Angeles residents, 33-45% of exposure to ultrafine particles occurs while traveling in vehicles. Commuters on highways may be at particular risk, since particulate levels are demonstrably higher on highways. People living in urban areas are keen to reduce their exposure to particulate matter while riding a vehicle but there is a lack of information to make intelligent choices.

This study will show characteristic behavior of carbon monoxide, nitrogen oxides, ozone and particles in vehicle cabin in the presence of a passenger under various ventilation condition. This will give insight on how to control these pollutants in vehicle cabin.

The study will also definition a Cabin Air Quality Index (CAQI) to assess vehicle's ability to maintain clean cabin air quality similar to MPG for fuel economy. The study developed both static and dynamic test methods, which characterize and quantify vehicle cabin air quality from consumer's perspective.

The presentation will include details of the test method, results, and their implications. Standardization effort on CAQI via CEN workshop and VIAQ (Vehicle Interior Air Quality) IWG (Informal Working Group) under UNECE will be briefly explained at the end of the presentation.