

Diesel fumes more polluting than gas, new California study finds

By Monte Morin, Associated Press

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A chemical analysis of air samples taken from California's San Joaquin Valley and an Oakland traffic tunnel show that diesel fuel emissions are more polluting than previously thought, according to researchers.

The study, which appeared Monday in the journal PNAS, focuses on a specific form of pollutant known as secondary organic aerosol, or SOA. The pollutant is a major element of smog and can contribute to heart and respiratory problems.

The study authors examined air samples taken in Bakersfield and Oakland's Caldecott Tunnel during a 2010 air quality field study conducted by the National Oceanic and Atmospheric Administration and the California Air Resources Board. Researchers concluded that diesel exhaust is responsible for 65% to 90% of a region's vehicle-related SOA emissions, depending on the mix of traffic.

"We can now say that, while both motor vehicle sources are important for these 'secondary' particles, diesel is responsible for a larger proportion, especially in regions such as the San Joaquin Valley with a lot of diesel use," said senior author Allen Goldstein, an environmental scientist at UC Berkeley.

The analysis contradicts an earlier study published in March, which found that gasoline emissions were a greater contributor to secondary organic aerosol. The topic promises to remain one of heated debate as it carries serious implications for government policies on air quality and public health.

Aerosols are tiny particles that are suspended in the atmosphere. A secondary organic aerosol is one that has been altered chemically by exposure to other elements.

In the UC Berkeley study, authors wrote that diesel exhaust is seven times "more efficient" at forming aerosol than gasoline exhaust. In the United States, diesel fuel accounts for 21% of on-road fuel use, according to study authors. In California, the diesel share of on-road use ranges from approximately 10% in coastal cities to more than 30% in agricultural regions.