

## ABSTRACT

### FIELD MEASUREMENTS OF TOXIC PARTICLES IN THE SAN JOAQUIN VALLEY, CALIFORNIA

Solid and liquid particles suspended in the air known as particulate matter (PM) are believed to be responsible for various health problems. Epidemiological studies demonstrate a strong correlation between levels of particulate matter in the air and adverse health effects. PM levels within the San Joaquin Valley may contribute to elevated incidences of asthma and other diseases experienced by residents. To investigate this possible relationship, PM samples were collected and analyzed in Fresno, CA between January and July 2006 to determine the chemical composition of carboxylic acids, alkanes, polycyclic aromatic hydrocarbons, and quinones using a combination of filters and a Lundgren impactor. Organics were extracted and analyzed using gas chromatography with mass spectrometry. Findings indicate that quinone levels (up to 4.24 ng/m<sup>3</sup>) are comparatively high in Fresno and account for a significant fraction (up to ~65%) found on fine particles that can penetrate deep into the lungs posing health risks.

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