Geophysical Research Abstracts, Vol. 8, 06508, 2006
SRef-ID: 1607-7962/gra/EGU06-A-06508

Characterisation of PAH's compounds in Diesel Exhaust Emissions for Different Types of Diesel and Different Motor Regimens.

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The determination of aerosol chemical composition is important in environmental research. The study of PAH's (Polycyclic Aromatic Hydrocarbons) compounds is critical because many PAH's are carcinogenic and mutagenic. Aerosols contain PAH's were generated by an emission diesel engine in the atmospheric simulator EUPHORE (European PHOtoReactor) and were analysed by GC-MS methodology.

The different accelerating regimens in diesel engine produce variations in the identified compounds and their concentrations. Samples for PAH's analysis were taken directly from the exhaust stream of the diesel engine on a glass fibre filters (GF/A, 47mm, Whatman). Soot particles and condensed organic matter were collected on filter during the conditioning and operating phase of the engine. Results obtained in the aerosol characterisation of PAH's compounds show significant differences in the concentrations (Test t sig$<$0.05). They show that at starting conditions bigger sized PAH's compounds were generated and conditions of low consume gave rise to smaller molecular weight compounds. The percentage of PAH's identified as standard and tentative was range between 75% and 90% using our analysis protocol.

A study of different types of diesel to have different percentage of aromatic hydro-

carbons was also realised. Types of diesel were: diesel with 5%, 15%, 25% and a biodiesel. Significant differences in results of the identification and quantification were observed (TEST t sig$<$0.05). More of PAH's compounds were tentative identified than in previous studies. Biodiesel is the most characteristic diesel because more different compounds and lower concentrations are presented.

In conclusion, this is an innovative study to improve the identification of PAH's compounds. Tentative compounds are compounds that a molecular structure can be proposed. This methodology of identification and quantification could help to explain some atmospheric reactions.