Investigation of SOA Composition from the Photolysis of 1-Nitronaphthalene using Single Particle Mass Spectrometry

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Nitro-substituted polycyclic aromatic hydrocarbons (nitro-PAHs) are associated with mutagenic and carcinogenic effects. 1-Nitronaphthalene is among the most abundant gas-phases in nitro-PAHs and is emitted from combustion processes like vehicle exhaust.

Photolysis reactions are known to have a major role in the degradation of 1-nitronaphthalene in the troposphere. In this study, the chemical composition of secondary organic aerosol formed from the photolysis reactions of 1-nitronaphthalene was investigated using an Aerosol Time-of-Flight Mass Spectrometer. A previously unreported reaction mechanism has been identified, elucidating a new pathway to secondary organic aerosol formation in the troposphere.