

Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Morphological effects on coated aerosol kinetics ELIAS ROSEN, EVA GARLAND, TOMAS BAER, University of North Carolina at Chapel Hill — The fate of organic material in the atmosphere can be strongly dependent on the chemical environment under which oxidation takes place. We have investigated the reaction of gas-phase ozone and oleic acid adsorbed to the surface of polystyrene latex spheres and silica aerosols to better understand how the substrate influences heterogeneous kinetics. Flow tube experiments were performed with an Aerosol Time of Flight Mass Spectrometer using a two-laser vaporization/ionization scheme to minimize analyte fragmentation. Pseudo-first-order rate coefficients suggest that ozonolysis of oleic acid proceeds differently on the hydrophobic latex and hydrophilic silica particles. Mechanistic interpretation of these results has been complicated by the discovery that the morphology of oleic acid vapor deposition onto both particle types is non-uniform, which results in the formation of discrete areas of organic material on the particle surface as evidenced by AFM and SEM/EDS measurements.

Elias Rosen
University of North Carolina at Chapel Hill

Date submitted: 27 Nov 2007

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