



An aerosol mass spectrometric study of the oxidation of biogenic VOCs under varying relative humidity and precursor concentrations

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A series of flow tube studies were conducted at the Göteborg flow tube facility (GFROST) in June 2008 where the ozonolysis of alpha-pinene and limonene was performed under well controlled conditions. The Aerodyne High-Resolution Time-of-Flight Aerosol Mass Spectrometer (AMS) measured the chemical composition of the resulting secondary organic aerosol (SOA) particles. The effects of relative humidity (RH) and precursor concentration were measured with the HR-ToF-AMS. Scanning of the alpha-pinene or limonene concentration shows evidence of semi-volatile partitioning in the flow tube. Measurements of total mass or volume indicate a relatively short time required to reach mass equilibrium, however chemical measurements made by the AMS such as the m/z 44 to total organic ratio as measured by the AMS indicate the equilibration time of the chemical species is much longer. The effects of RH and precursor concentration on the mass spectra and other SOA properties will be discussed.