

Supporting Information

Protonation and oligomerization of gaseous isoprene on mildly acidic surfaces – Implications for atmospheric chemistry[□]

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SI EXPERIMENTAL CONDITIONS

Conditions in typical experiments were: drying gas flow rate: 10 L min⁻¹; drying gas temperature: 340 °C; inlet voltage: - 3.5 kV relative to ground; fragmentor voltage: 17 or 26 V. Isoprene (> 99 %, Sigma-Aldrich) was used as received. All solutions were prepared in purified water (Resistivity = 18.2 MΩ cm) from a Millipore Milli-Q gradient water purification system. Solution pH_{BLK} was adjusted by adding HCl and measured with a calibrated pH meter (VWR).

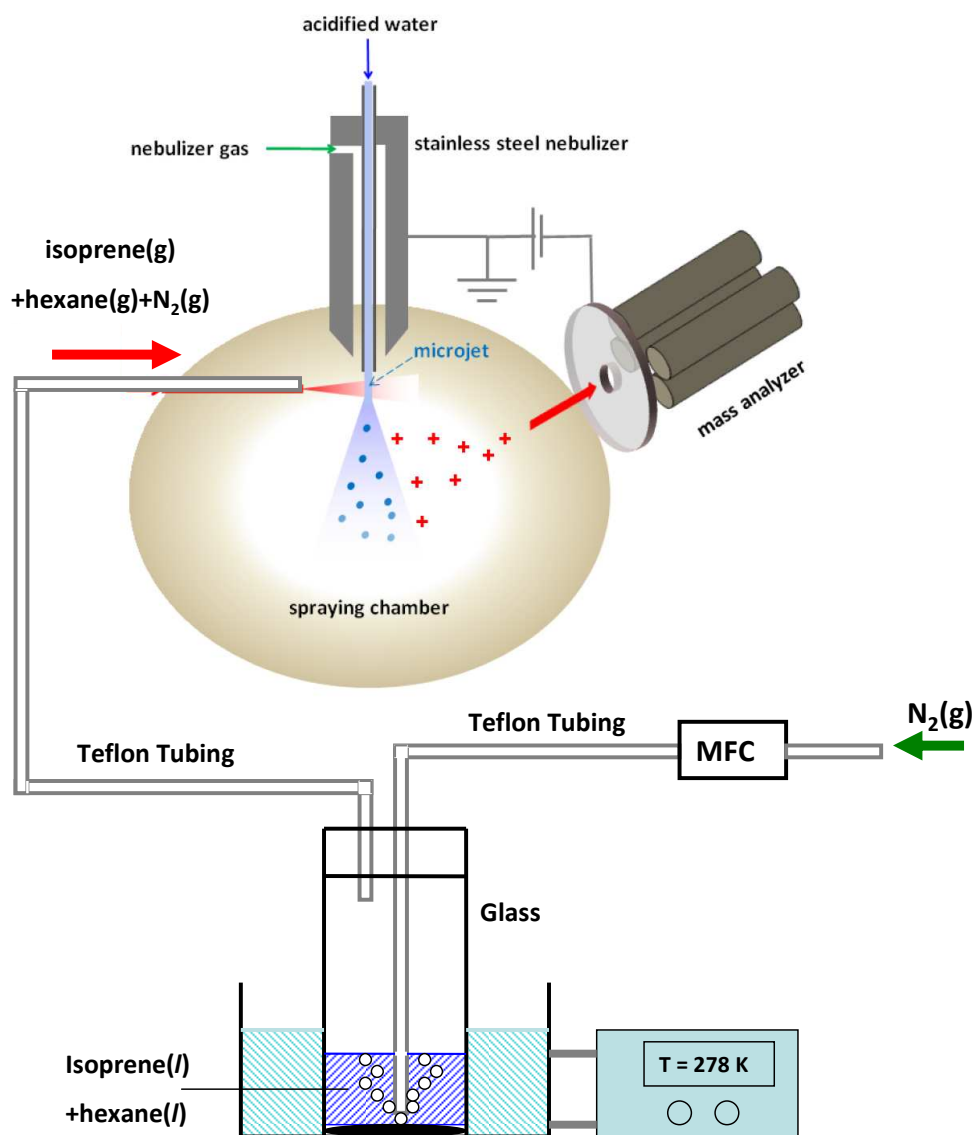


Fig. S1 Present experimental setup. A microjet is created in the spraying chamber of an electro-spray mass spectrometer by injecting acidified water through an electrically grounded nebulizer. The microjet is briefly exposed to isoprene vapors before it is broken up (at ~ 10 microseconds) into charged microdroplets by the fast nebulizer gas. Upon subsequent solvent evaporation, ion excesses are ultimately ejected from the microdroplets via field desorption, and detected by mass spectrometry within 1 millisecond.

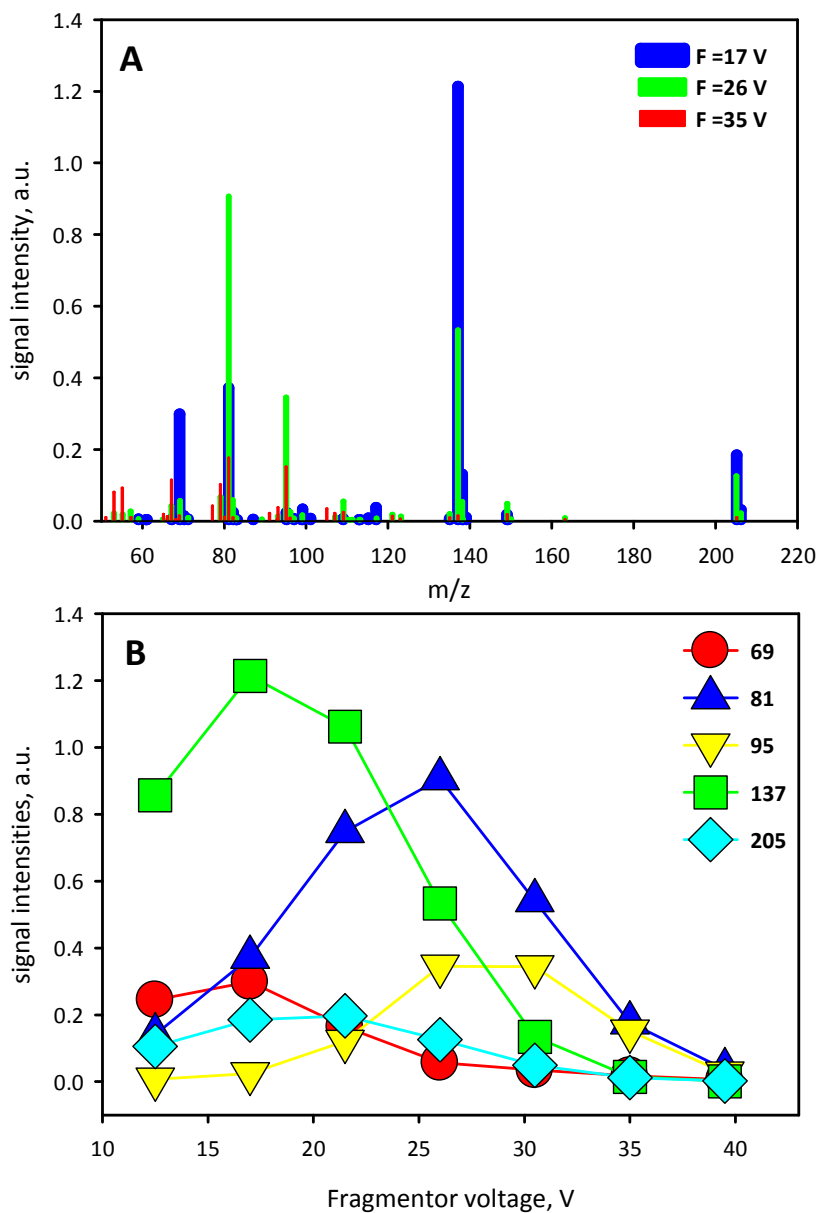


Fig. S2: A: ESI mass spectra of protonated/polymerized isoprene on water microjets at bulk pH 2.3 exposed to 88 ppmv isoprene with various fragmentor voltage. B: The products signal intensities as a function of fragmentor voltage

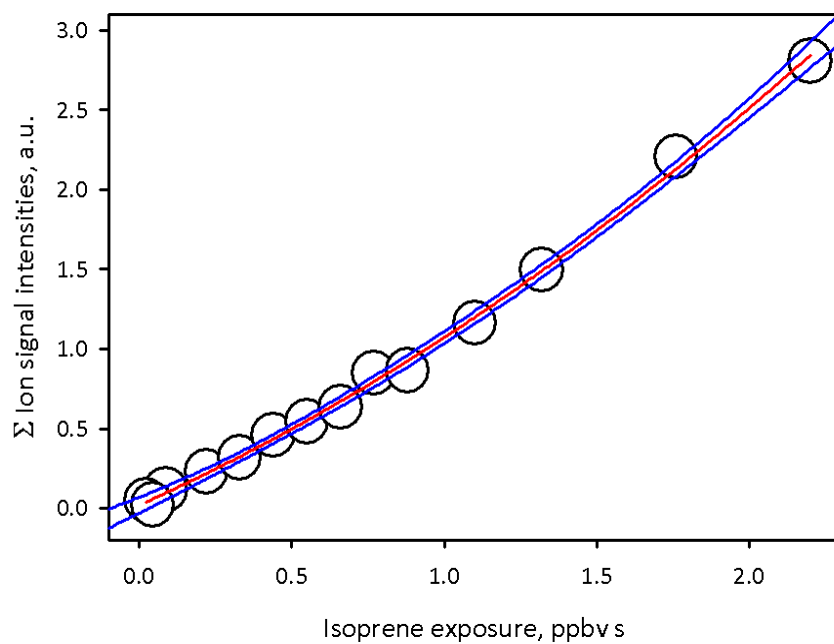


Figure S3