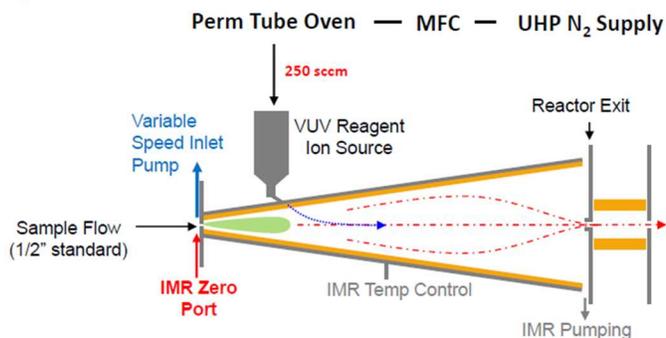




Vocus Aim

Real- Fast, sensitive detection of trace inorganic and organic compounds over a broad volatility range with the Aim source on a Vocus CI-TOF

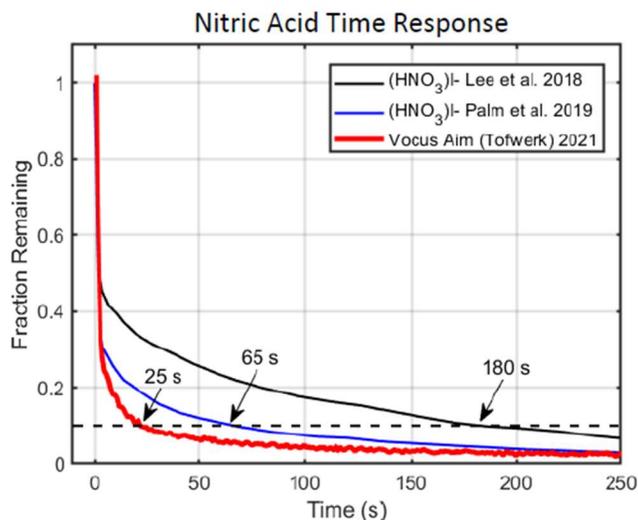


APPLICATIONS

- Online identification and quantification of trace gas- or particle-phase compounds
- Measurements of semivolatile organics and inorganics
- Compatible with the FIGAERO inlet for simultaneous gas and aerosol measurements

ADVANTAGES

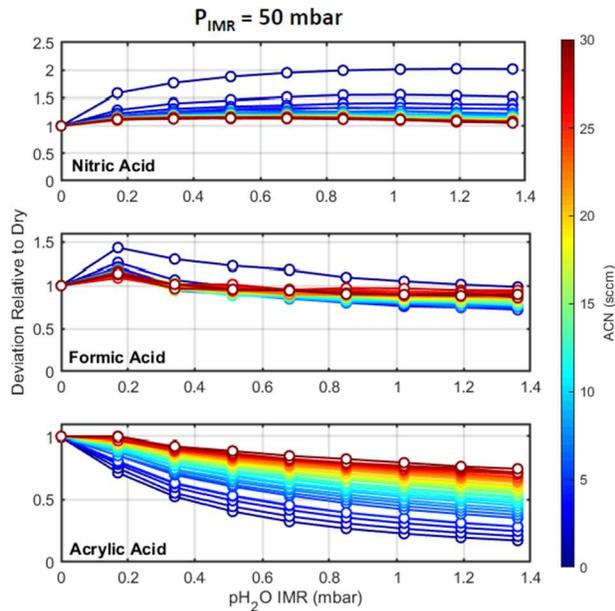
- VUV ion generation: high ion generation with no radioactive or controlled sources
- No quantitative dependence on ambient humidity with most reagent ions (I⁻, Br⁻)
- IMR zeroing system is included along with a zero valve and mass flow controller
- Calibration system (for permeation tubes) is included oven, MFC and valves
- Dramatically improved time response
- Adduct ionization at thermal conditions means little to no fragmentation
- Fast and easy reactor interchange: PTR and Aim Reactors can be easily interchanged between experiments in less than 30 minutes



Reactor materials and geometry are **optimized for fast time response** by minimizing dead volumes, constructing the reactor from Teflon, and balancing the reagent and sample flow velocities

Performance and Specifications

- High sensitivity >30-100 cps/pptv, with ~100 ppbv linear range
- LOD: 1 pptv (1 min), 10 pptv (1 s) for levoglucosan when interfaced on the Vocus S and 2R models
- Switch between up to 3 ions during a single experiment
 - Ion options include I⁻, Br⁻, NH₄⁺, amine, benzene, and more
 - Switching time: <5 seconds
 - Fast switching option: 0.25 seconds (2 reagent ions of single polarity)
- Ion generation via a VUV source (no radioactive or x-ray ionizers)
- Sampling flow: 2000 sccm; operating pressure: 50-100 mbar; axial gradient: field free



- Water suppression for I⁻ using acetonitrile as a dopant
- The water vapor dependence of select analyte adduct ions shows significant flattening of the water vapor dependence
- For weakly bound molecules like acrylic acid water dependence reduced from order of magnitude to ~30%
- Inorganics are relatively unperturbed with the addition of the dopant (ACN)

- **Fast reagent ion switching** is optional (switching time ~4 Hz) and is supported for same polarity ions (in this example Iodide and Bromide ions with waving hands in front of the inlet).
- Normal reagent ion switching times with standard switching option requires ~5 seconds to switch

