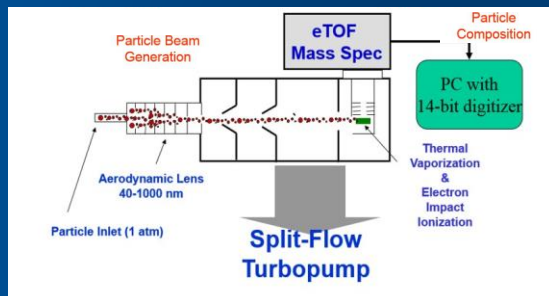




TOF – ACSM Time-of-Flight Aerosol Chemical Speciation Monitor

Measure real-time, non-refractory aerosol particle mass and chemical composition.



APPLICATIONS

- Continuous on-line measurement of ambient aerosol mass concentrations.
- Composition analysis for particulate ammonium, nitrate, sulfate, chloride, and organic species.
- Field measurements of aerosol chemical composition from high-pollution at urban sites to pristine background at remote locations.
- Routine air quality monitoring.
- Aerosol chamber studies.
- Source characterization.
- Optical/CCN closure.
- Industrial process monitoring.

ADVANTAGES

- Aerodynamic particle lens for efficient gas-particle separation.
- Linear universal detection through two-step thermal vaporization (~600 C) and electron impact ionization process.
- Mass spectrometric analysis (0-400 amu).
- Automated zeroing (filter).
- Minimal maintenance.
- Remote control ready.
- Separation and quantification of organic aerosol species including HOA (hydrocarbon-like organic aerosol, linked to primary combustion sources) and OOA (oxygenated organic aerosol, linked to secondary aerosol sources).

Time-of-Flight Aerosol Chemical Speciation Monitor

SPECIFICATIONS

Sensitivity
($\mu\text{g m}^{-3}$, 10 minute, 3σ):

Organic: 0.06
Sulfate: 0.006
Nitrate: 0.007
Ammonium: 0.06
Chloride: 0.003

Data Rate: Adjustable, 10 minutes is typical

Sample Flow: 85 cc min⁻¹ (volumetric flow)

Operating Pressure: Ambient

Aerosol Size range: 40 nm to 1 μm (vacuum aerodynamic diameter).

DAQ Control: Hi-speed USB 14 bit acquisition card, PC embedded in instrument rack.

Size/Weight: Bench top, 25.6" x 20.1" x 23.6", 165 lbs
[65 cm x 51 cm x 60 cm , 75 kg]

Electric Power: 600 W Max; 350 W typical, 90-260 VAC, 50-60 Hz

Software: Custom acquisition and analysis routines. Specialized routines for PMF analysis of the organic fraction.

