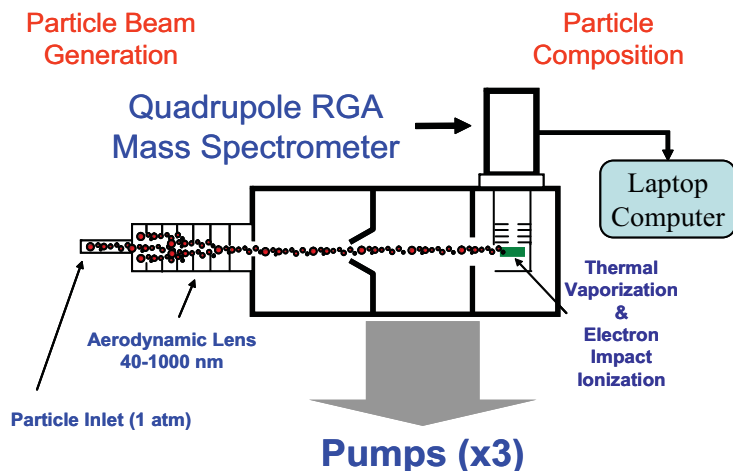


# ACSM

## 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.
- 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).
- Routine air quality monitoring.
  - Source characterization.
  - Optical/CCN closure.
- Aerosol chamber studies.
- 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 (0-200 amu).
- Separation of particle vaporization and component ionization - linear detection.
- Internal calibration reference.
- Automated zeroing (filter).
- Minimal maintenance.
- Remote control ready.

## AEROSOL CHEMICAL SPECIATION MONITOR

### SPECIFICATIONS:

Sensitivity  
( $\mu\text{g m}^{-3}$ , 30 minute,  $3\sigma$ ):

Organic: 0.3  
Sulfate: 0.4  
Nitrate: 0.2  
NH<sub>4</sub>: 0.5  
Chloride: 0.2

Data Rate: Adjustable, 30 minutes is typical

Sample Flow: 85 cc min<sup>-1</sup> (volumetric flow)

Operating Pressure: Ambient

Aerosol Size range: 40 nm to 1  $\mu\text{m}$  (vacuum aerodynamic diameter).

DAQ Control: Ethernet based, laptop provided

Size/Weight: Bench top, 21" x 19.5" x 34", 140 lbs  
[53.34 cm x 49.53 cm x 86.36 cm, 64 kg]  
Rack mount, 19" x 21" x 17U, 140 lbs  
[48.26 cm x 53.34 cm, 75.57 cm, 64 kg]

Electric Power: 300 W; 85-264 VAC, 47-63 Hz

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

