



## Vocus CI-TOF

Real-time measurement of trace volatile organic and inorganic compounds in air

# Real-Time Chemical Analysis of Air

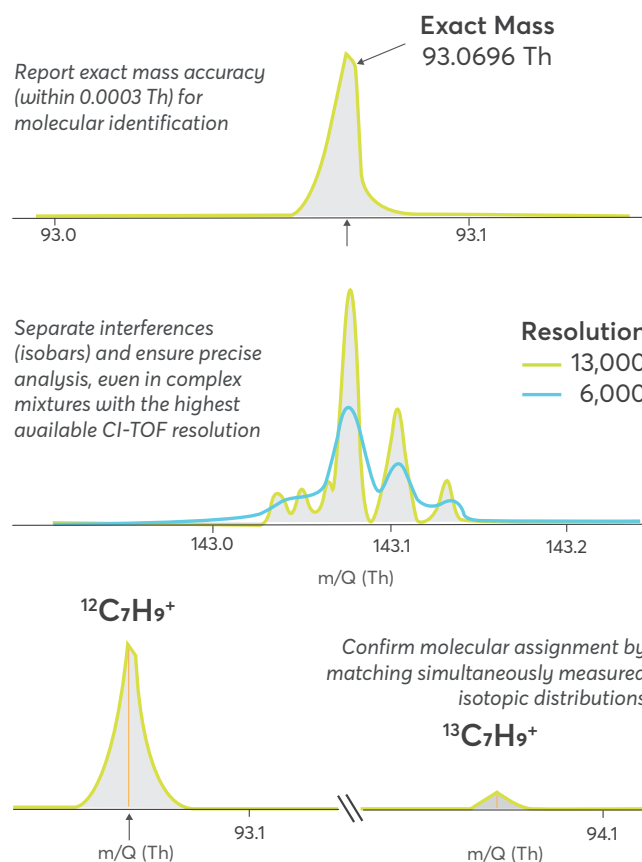
Vocus chemical ionization mass spectrometers deliver sub-ppt limits of detection for the measurement of VOCs and VICs, optimized for use in laboratories, industrial sites, and mobile applications.

## Unmatched Sensitivity and Speed

Vocus CI-TOF reports concentrations of volatile organic and inorganic compounds (VOCs and VICs) with part-per trillion (ppt) limits of detection.

## No Need for Chromatography

Vocus CI-TOF limits fragmentation so that molecular ions can be observed in real-time at high-resolution, allowing for the characterization of complex mixtures without traditional chromatography methods.

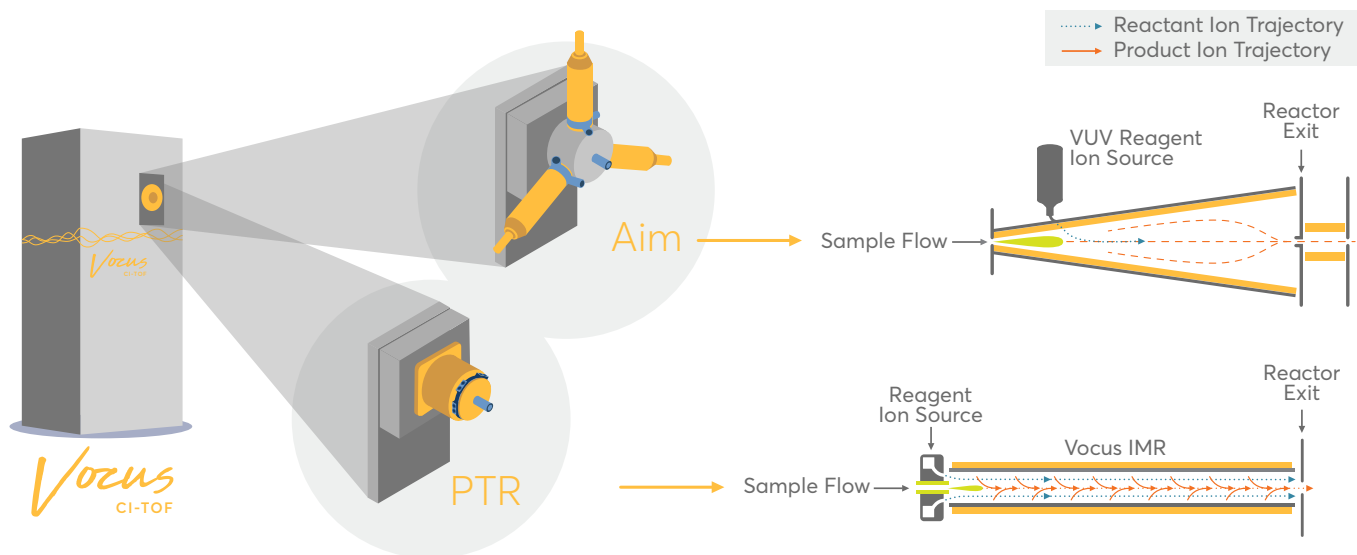


## Related Applications

VOCs and VICs are ubiquitous chemicals that play a significant role in many systems, including health, the environment, food, and industry. The Vocus CI-TOF offers unprecedented performance for real-time identification and quantification of trace VOCs in all fields.

## Flexible Ionization to Target Compounds of Interest

Available with two interchangeable chemical ionization reactors – the Vocus PTR and Vocus Aim. Each reactor is optimized to target different classes of compounds, enabling customizable system configuration to address varied and evolving requirements.



- Real-time Reagent Ion Switching: Ions using the same reactor can be alternated during a single experiment in milliseconds to seconds.
- Interchangeable Reactors: Reactors can be easily interchanged between experiments in less than 30 minutes.

### PTR Reactor

Proton transfer reaction mass spectrometry (PTR-MS) is a powerful technique for the analysis of a broad range of volatile organic compounds (VOCs). The Vocus PTR Reactor reduces wall losses and focuses ions with RF fields to give you up to 10x the sensitivity of other commercial PTR-TOF solutions.

- Available with a variety of positive reagent ions for flexible VOC detection
- High sensitivity with quantitative VOC detection from pptV to ppmV
- No water vapor dependence

### Aim Reactor

The Vocus Aim Reactor offers fast (real-time) and sensitive (single digit pptV) detection of trace organic and inorganic compounds spanning the entire volatility range.

- Available with positive and negative ions
- Highest sensitivity detection of VOC and VIC, including radicals
- Negligible water vapor dependence
- Negligible fragmentation



## Choose the Right Reagent Ions for Your Analysis

Reagent Ion	Analyte Compound Classes	Example Applications	Reactor
$H_3O^+$ (PTR)	Small oxygenated compounds, polar molecules, BTEX, PAHs, other aromatics	Air quality analysis, food and flavor, environmental contamination	PTR
$NH_4^+$	Highly functionalized VOCs, oxygenated compounds, peroxides	Explosives and narcotics detection, photochemical oxidation products	PTR/Aim
$NO^+$	Alcohols, substituted aromatics, cyclic and branched alkanes, long-chain semi-volatile alkanes	Vehicle exhaust, wine contaminants	PTR
$O_2^+$	Alkanes, carbon disulfide, ammonia, halogenated compounds	Ambient air monitoring, vehicle exhaust	PTR
$I^-$	Oxygenated organics, acids, peroxides, inorganic acids, inorganic compounds	Ambient air monitoring, biomass burning, SOA formation, semiconductor	Aim
$Br^-$	Iodine containing compounds, $HO_2$ radicals, mono carboxylic acids	Ambient air monitoring, sea emissions	Aim

## Choose Your Vocus CI-TOF Model

Model	Resolving Power <sup>a</sup>	LOD PTR pptV 1 min   1 s xylene	LOD Aim pptV 1 min   1 s Levoglucosan	Sensitivity PTR > cps/ppbV xylene	Sensitivity Aim > cps/ppbV Levoglucosan	Size kg   mm	Power W
Elf	300	50	–	300	–	55   380 x 500 x 650	450
Eiger	2200	20	–	1000	–	95   422 x 630 x 840	600
Scout	4000	5	10	4000	4000	130   480 x 615 x 1130	800
S	5000	1   10	1   10	30000	30000	130   480 x 615 x 1130	800
2R	10000	1   10	1   10	30000	30000	170   480 x 615 x 1480	800

