



Breath Inlet

Real-time measurement of VOCs in breath



Features

- Direct sampling of human breath with the Vocus CI-TOF
- Quantitative response for diverse VOCs in breath with parts-per-trillion (ppt) detection limits
- Heated interface for efficient transfer of lower volatility compounds
- Automated alternation between breath, background, calibration, and ambient measurements
- Continuous mouthpiece flushing and active inhalation and contamination prevention

Applications

- Breathomics research
- Disease diagnosis
- Therapeutic treatment monitoring
- Pharmacokinetics

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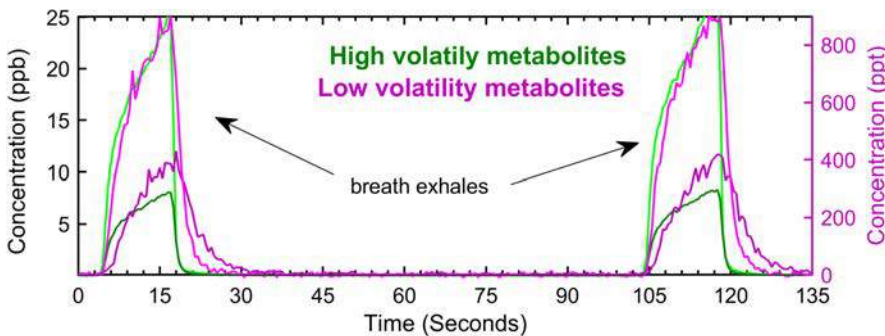
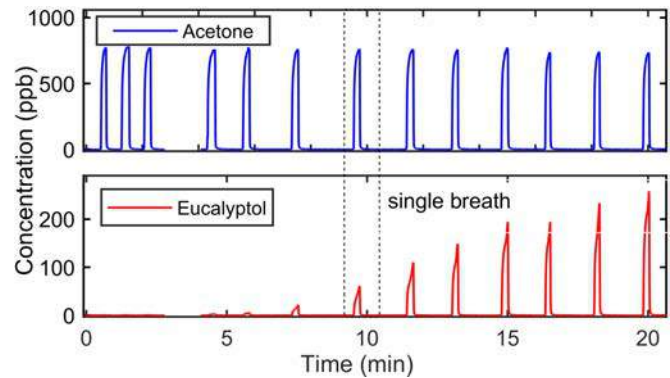
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Real-Time Analysis of VOCs in Breath

Direct measurements of breath after ingestion of a eucalyptol capsule. The displayed measurements were made 3 hours after ingestion of the capsule. Zero air was automatically measured between the sampled exhalations. Acetone is universally present in human breath and is used for tracking the progress of individual exhalations. As indicated by the increasing concentration in breath, the blood levels of eucalyptol increase with time after ingestion.



More at:
<https://www.tofwerk.com/breath-analysis-for-pharmacokinetics/>



Low Volatility Metabolites. Typical breath exhalations last 15-20 seconds, with the end-tidal breath fraction accounting for the last 5-10 seconds. Even low volatility metabolites of eucalyptol reach background concentration within a few seconds.

Specifications

Length	0.5 – 1 m
Temperature range	40°C – 150°C
Mouthpiece adapter	PTFE, removable and autoclavable
Internal sample tubing	1/8" OD, 1/16" ID PFA or Silconert2000 treated stainless steel
Disposable mouthpiece	ACE® 100078 (compatible with ACE one, ACE I (AL7000), ACE II Basic plus, ACE III Basic, ACE III Premium, ACE Neo, ACE AL6000)
Forthcoming Options	Spirometry, CO2 and pressure sensors

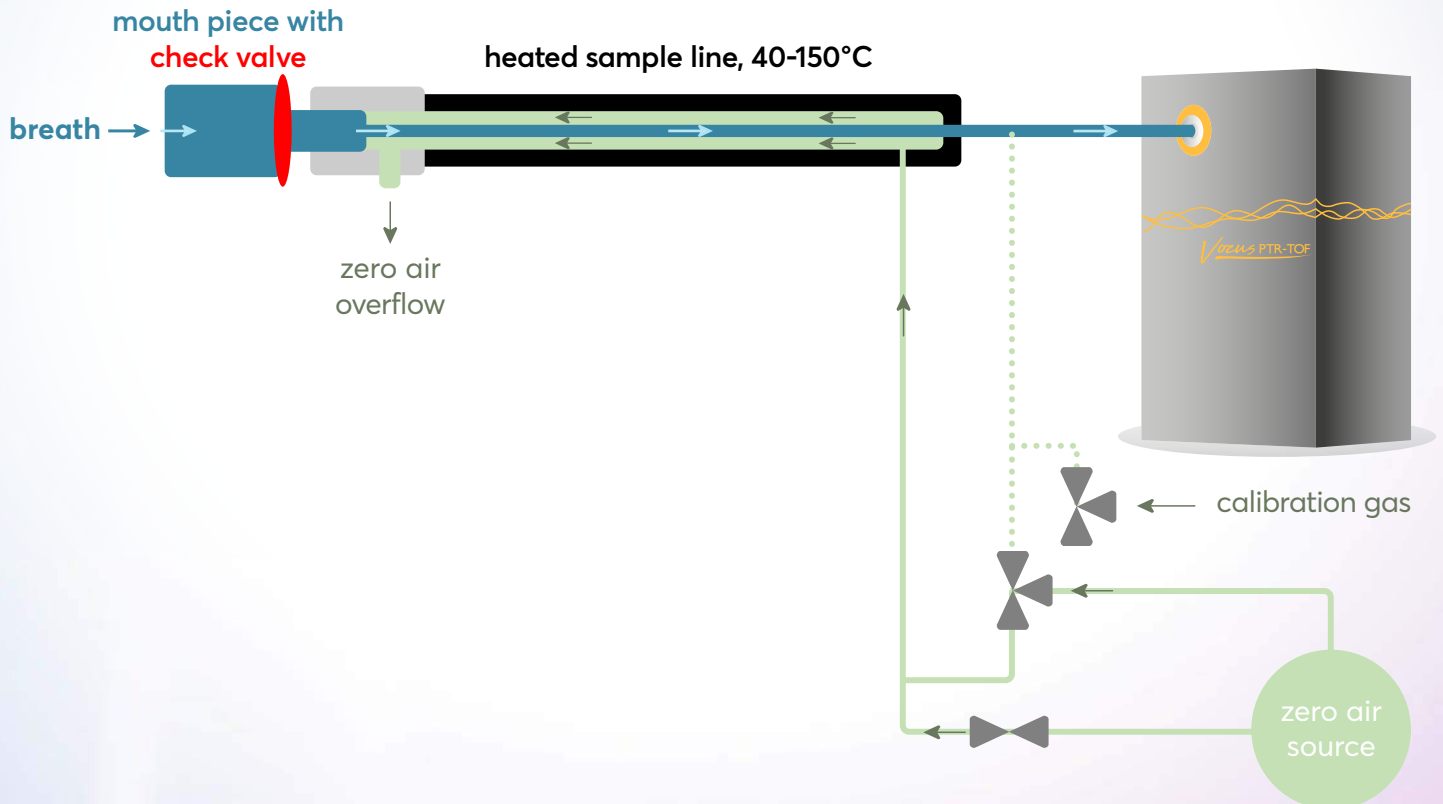
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Design

The Breath Inlet includes a disposable mouthpiece with check valve to avoid re-inhalation, a washable/autoclavable mouthpiece adapter and a heated transfer line to prevent condensation of the gases.



Breath

A disposable mouthpiece is easily connected to the mouthpiece adapter. The exhalation of breath into the mouthpiece displaces the continuous overflow of zero air. Between exhalations, the internal sampling line is automatically flushed by the heated zero air for background measurements.

Ambient Air

The concentrations of many VOCs in breath is related to their abundance in the ambient environment. Real-time measurement of these VOCs in ambient air is thus essential. Ambient air is measured by removing the mouthpiece and turning off the overflow.

Calibration

The Vocus is calibrated by removing the disposable mouthpiece and initiating the automatic calibration routine in software.