

# PTR-TOF 10k



## Ultimate-Resolution PTR-TOFMS - Trace VOC Analyzer

Sensitivity > 1000 cps/ppbv LoD < 1 pptv Resolution > 10000 m/ $\Delta$ m

The new PTR-TOF 10k offers the **highest mass resolution** available combined with original IONICON TRU-E/N PTR technology. Powered by the **new ioniTOF 10k**, this trace VOC analyzer features an exceptional mass resolution of **10000 - 15000 m/ $\Delta$ m** and a low detection limit of **below 1 pptv**.

The PTR-TOF 10k was developed for challenging samples and complex mass spectra, aiming at providing more insight in the data than ever before.

Benefit from our experience in analytical sciences for more than two decades and take your analysis to the next level with the PTR-TOF 10k.

Quantitative analysis of the **entire mass range** in a **split-second** and **high mass resolution** are features of all IONICON time-of-flight mass spectrometers. **Direct injection** of sample gas **without preparation** contributes to the speed and simplicity our instruments are known for.

The instrument includes the IONICON-exclusive **genuine PTR-MS technology**, our **patented ion chemistry quality** and **TRU-E/N** with well-reproducible measurement results and the highest possible level of quantification accuracy.

- > **New high-resolution ioniTOF 10k**
- > **Outstanding separation & identification**
- > **X2 performance technology aboard**
- > **Genuine PTR-MS with TRU-E/N**

Find out more:

[www.ionicon.com/products](http://www.ionicon.com/products)

# PTR-TOF 10k

## IONICON PTR-TOF 10k SPECIFICATIONS\*

- Mass resolution: > 10000 m/Δm (FWHM) for m/z > 181
- Response time: < 100 ms
- Sensitivity: m/z 181 > 1000 cps/ppbv
- Limit of Detection: < 10 pptv (1 sec), < 1 pptv (60 sec)
- Adjustable inlet flow: 50 - 800 sccm
- Inlet system (Different/Multiplexing inlet systems available on request):
  - 1.2 m long inlet hose - with inert (PEEK) capillary
  - Inlet system heating: 40-180°C (104-356°F)
  - Reaction chamber heating range: 40-120°C (104-248°F)
- Power requirements:
  - 115/230 V, standby/typical operation: < 400/600-900 W
- Dimensions (w x h x d): 60x135x80 cm (23.7x53.2x31.5 in.)
- Weight: < 180 kg (396.9 lbs)

\*Specifications are subject to change without prior notice.  
 Product pictures and illustrations may differ from actual configuration.  
 Detection limit, linearity range and resolution are dependent on the substances measured, integration time and system set-up.

## PTR-TOF 10k BENEFITS

The new IoniTOF 10k is the core component of this new PTR-TOF. It delivers an outstanding mass resolution of 10000-15000 m/Δm which is beneficial for many applications.

The PTR-TOF 10k has been developed with challenging samples and a complex gas matrix in mind, where the additional insight provided by the high mass resolving power of the IoniTOF 10k is a major asset for the analysis. It enables an advanced separation and identification of substances. Especially in e.g. food & flavor applications where aroma can be constituted by thousands of molecules populating the spectrum, a mass resolution of 10000 and beyond is essential in order to separate and identify substances.

The instrument relies on robust and reliable, field-proven PTR technology which is trusted by hundreds of IONICON PTR-MS users and of course qualifies for our TRU-E/N label. The X2 performance technology incl. IONICON hexapole ION-GUIDE and ION-BOOSTER funnel are aboard as well. The patented IONICON ion-chemistry quality ensures precise E/N conditions, well-reproducible measurement results and the highest possible level of quantification accuracy.

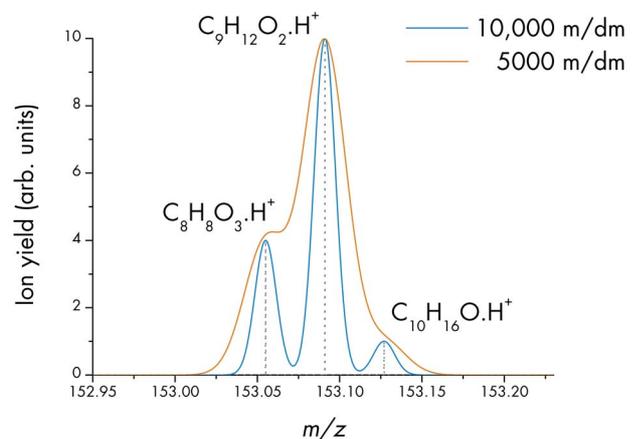


Figure: Three important aroma compounds vanillin, ethylguaicol and carveol, sharing the same nominal m/z. Although the compounds differ in intensity by one order of magnitude, with the extremely high mass resolution of the PTR-TOF 10k the peaks can be clearly separated and quantified independently. This is not possible with a medium-range PTR-TOFMS instrument with - in this example - 5000 m/Δm resolution, where all three peaks merge together into virtually one broad peak with shoulders.

## PTR-MS & SRI-MS

The PTR-TOF 10k uses the IONICON-exclusive genuine PTR-MS soft ionization technology of proton transfer from  $H_3O^+$ . It is also available with the SRI-MS add-on, featuring  $NO^+$ ,  $O_2^+$  and  $NH_4^+$  (EP 3503161 B1) or  $Kr^+$  (EP 2606505 B1, US 9188564 B2) alternatively to  $H_3O^+$  as reagent ions created in the IONICON ULTRA-PURE ion source.

$O_2^+$ , but especially  $Kr^+$ , have a higher ionization potential than  $H_3O^+$  and therefore many important (inorganic) substances such as  $CH_4$ ,  $CO$ ,  $CO_2$ ,  $NO_2$ ,  $SO_2$ , etc. can be detected and quantified using a single IONICON instrument.  $NO^+$  as reagent ions help separating several isomeric VOCs for subsequent real-time analysis.  $NH_4^+$  offers improved selectivity, simplified mass spectra and suppressed fragmentation.