



FUSION

PTR-TOF 10



FUSION PTR-TOF 10 – Trace VOC Analyzer

Resolution $m/\Delta m > 10\,000$ • LoD < 0.2 pptv • Sensitivity $> 40\,000$ cps/ppbv

The FUSION PTR-TOF technology sets the benchmark for PTR-TOF instruments: unprecedented sensitivity, lowest limits of detection and clean ion chemistry by genuine IONICON ionization technology.

The new Invion ion source features nearly instant reagent ion switching and ultimate purity. Selective Reagent Ionization (SRI) is available with e.g. H_3O^+ , NO^+ , NH_4^+ , and O_2^+ reagent ions.

A novel bipolar set-up is exclusively available for the FUSION PTR-TOF series enabling negative reagent ions with CO_3^- .

The innovative reaction region of FUSION PTR-TOF stands out against conventional designs. A series

- Ultra-clean FUSION reactor
- Fast Reagent Ion Switching
- Up to 80k cps/ppbv

of ion focusing RF ring electrodes opens into an actively pumped ion funnel. This set-up guarantees lowest chemical background interferences and enables market-leading LoDs. Experience our Next-Gen IONICON PTR-TOF technology. Performance beyond any limits, highest sensitivities and ppqv-level detection limits.

THE SOLUTION FOR REAL-TIME TRACE GAS ANALYSIS



FUSION PTR-TOF 10 Specifications

Mass resolution

$m/\Delta m > 10\,000$ (FWHM)

up to $m/\Delta m$ 15 000 achievable for selected m/z

Sensitivity

m/z 121: 40 000 cps/ppbv @ $m/\Delta m$ 10 000 (FWHM)

up to 80 000 cps/ppbv achievable for selected m/z

Limit of Detection

m/z 121 < 200 ppqv (trimethylbenzene) averaged over 60 s

m/z 121 < 1 pptv averaged over 1 s

All values obtained at a mass range of approximately up to m/z 250.

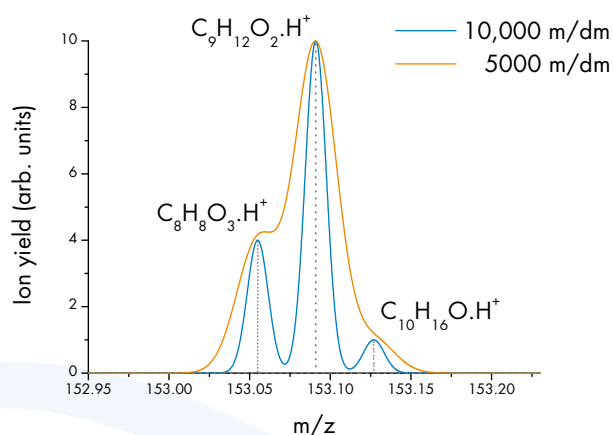


Figure: Three important aroma compounds vanillin, ethyl-guaiacol and carveol, sharing the same nominal m/z . Although the compounds differ in intensity by one order of magnitude, with the high mass resolution of the FUSION PTR-TOF 10 the peaks can be clearly separated and quantified independently.

Download the Technical Note:
Anal. Chem. 2023, 95, 32,11879–11884:
<https://doi.org/10.1021/acs.anal-chem.3c02669>



i For maximum mass resolution,
explore the FUSION PTR-TOF 20.

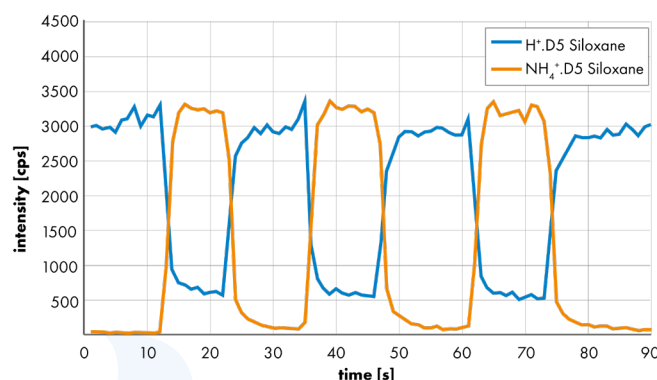


Figure: Fast switching between proton transfer (H_3O^+) and adduct ionisation (NH_4^+) in ~1 s. This includes switching between high and low reaction energies (E/N).

Dimensions

60x135x80 cm (WxHxD)



Weight

~ 185 kg

Typical operation

< 1500 W