



● **timsTOF Platform**

The next generation multitool for food and environmental research

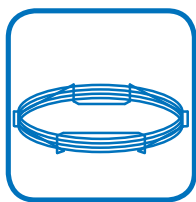
# Four reasons to switch to Trapped Ion Mobility Mass Spectrometry for food and environmental analysis applications:

1

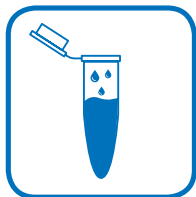
## The timsTOF is one solution for many challenges

Versatility and flexibility to ace multiple applications with interchangeable LC-ESI, GC-APCI, IC-APCI, optional MALDI TLC, DART, and several other front-ends

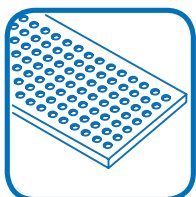
- Get the most out of your investment and your lab space – apply the power of timsTOF to multiple analytical tasks.
- Get the best sensitivity and maximum analytical coverage for diverse compound classes using the VIP-HESI dual ion source.
- Obtain the best sensitivity and maximum analytical coverage for many classes of compounds that you are interested in.
- From biomarker discovery and food authenticity validation, to fermentation or other process evaluation, to rapid analysis dioxins, PFAS, pesticides, mycotoxins, or other contaminants and pollutants – the timsTOF can be switched from one workflow to another in a matter of minutes.



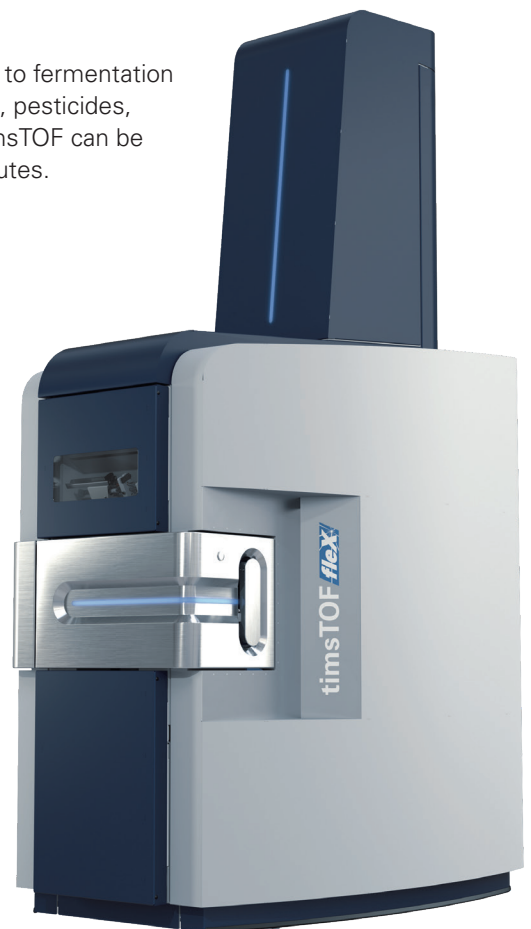
GC-APCI

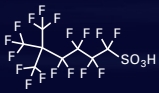


LC-ESI/APCI



MALDI TLC





Perfluoro-5,5-dimethylhexane sulfonic acid (5,5)



Perfluoro-4-methylheptane sulfonic acid (4)

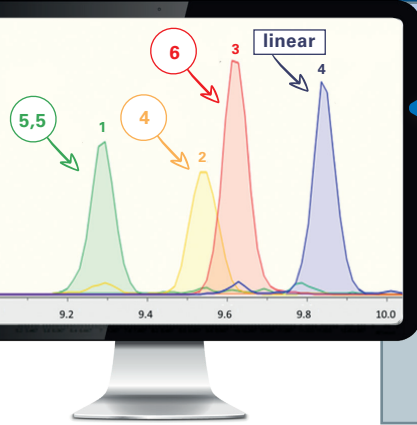


Perfluoro-6-methylheptane sulfonic acid (6)

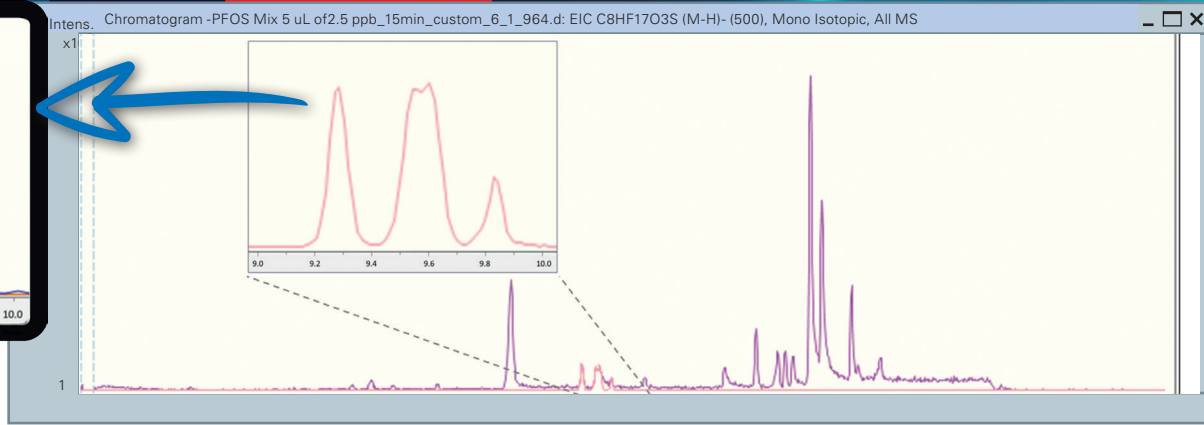


Perfluorooctane sulfonic acid (linear)

## Mobility-filtered EICs



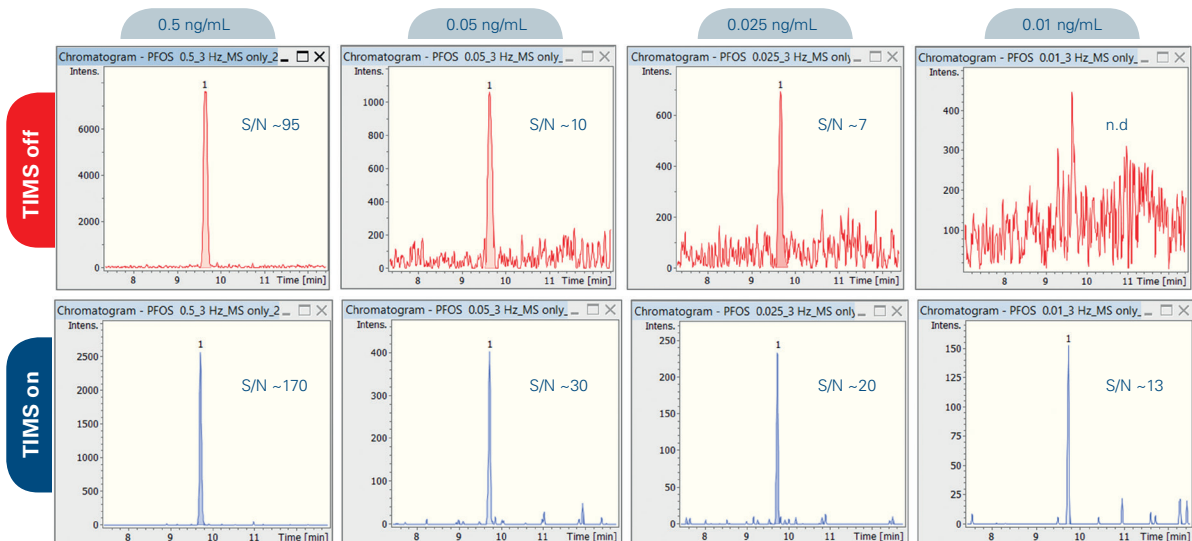
## Unfiltered EIC



## The timsTOF is a solution to see and do what you could not before

Analytical power of the high-resolution mass spectrometry reinforced by high-resolution trapped ion mobility separation

- Separate the most challenging coeluting isomers with ease.
- Simplify analysis of the most complex samples using an extra analytical dimension - ion mobility separation.
- Be more confident in compound identifications with addition of the highly accurate collisional cross section confirmation.
- 'Detect everything' and take advantage of retrospective analysis using an instrument (a solution) that captures all the data all of the time.
- Get higher sensitivity in difficult matrices with using collisional cross section filtering.





# The timsTOF is a solution spending less time and obtaining more results

Faster data acquisition combined with seamlessly integrated software automation of the most difficult and routine analytical tasks

- Utilize ion mobility separation to run faster chromatographic gradients or turn to MALDI for a lightning-fast data acquisition.
- Get going faster with predeveloped methods and highly curated databases for thousands of relevant analytes, including pesticides, veterinary drugs, environmental pollutants, and toxins.
- Save time on data reviews and reporting with highly automated targeted screening and quantitation workflows.
- Seamlessly transition between targeted and untargeted workflows.

The screenshot displays the Bruker timsTOF software interface, which is used for data analysis and reporting. The main window shows a table of analysis results with columns for Analyte, MS/2, Score, Δm/z (m/z), Δm/z (ppm), m/z Score, ΔRT (min), RT Score, mSigma, mSigma Score, Exp. Degrad., Found Degrad., and Area. Below the table, there are several panels: 'Detailed Ion Results' showing a table of ion peaks, 'Chromatogram' showing a plot of intensity versus time, and 'Mass Spectrum' showing a plot of intensity versus m/z. A large blue stopwatch icon is overlaid on the right side of the image, symbolizing time efficiency. The bottom part of the screenshot shows a 'Calibration Function Graph' and a 'Calibration Residual Plot' for the analyte Mephobarbital, along with a 'Calibration Data Point' table.

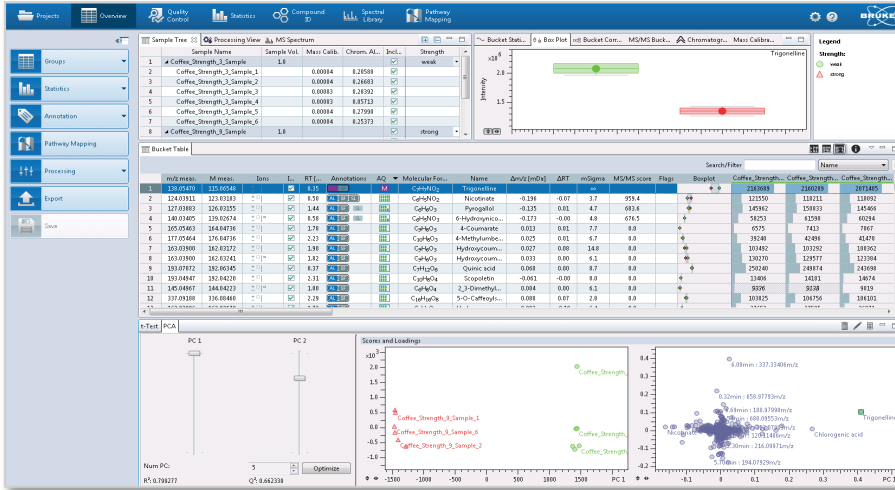
Analyte	MS/2	Score	Δm/z (m/z)	Δm/z (ppm)	m/z Score	ΔRT (min)	RT Score	mSigma	mSigma Score	Exp. Degrad.	Found Degrad.	Area
16	Metoprolol	10.6	0.20	0.00	11.0	-1.00	1.0	44.5	4.0	4	4	225403
17	Propiconazole derivate	10.6	0.15	0.00	11.0	-1.50	1.0	19.9	1.0	1	1	70402
18	CEP (Epothiloneamide)	10.6	0.20	0.00	11.0	-1.50	1.0	32.7	3.0	3	3	461171
19	Imidacloprid-methyl-Fragment	10.6	0.20	0.00	11.0	-1.40	1.0	1.5	1.0	4	4	229792
20	Mephobarbital	11.1	0.17	0.00	11.0	-1.0	1.0	1.0	1.0	2	2	91706
21	Mephobarbital	11.1	0.17	0.00	11.0	-1.0	1.0	1.0	1.0	2	2	331329
22	Acetaminophen	11.1	0.40	0.00	11.0	-1.40	1.0	5.0	4.0	4	4	285300
23	Phytonutrient-N-decylol	11.1	0.51	0.00	11.0	-1.10	1.0	1.0	1.0	1	1	120113
24	Pyridoxal phosphate	11.1	0.80	0.00	11.0	-1.30	1.0	2.0	2.0	1	1	159587
25	Ethoxycarbonyl	11.1	0.51	0.00	11.0	-1.60	1.0	6.0	1.0	1	1	21048
26	Propiconazole	11.1	0.40	0.00	11.0	-1.10	1.0	16.5	1.0	1	1	248837

Formula	Ion Type	Mandatory	Area	Δm/z (m/z)	Δm/z (ppm)	ΔRT (min)	mSigma	Ion Ratio	Ion Ratio Dev.	Valid Ratio	Ion Ratio Dev.	Reference Ion
3	Calix[4]PZP	M=not	290188	0.30	0.30	-0.40	0.0	1.0	1.0	1.0	1.0	M=not
2	Calix[4]PZP	M=not	28512	0.30	0.30	-0.40	0.0	1.0	1.0	1.0	1.0	M=not
4	Calix[4]PZP	M=not	24812	0.30	0.30	-0.40	0.0	1.0	1.0	1.0	1.0	M=not
1	Calix[4]PZP	M=not	10168	0.30	0.30	-0.40	0.0	1.0	1.0	1.0	1.0	M=not

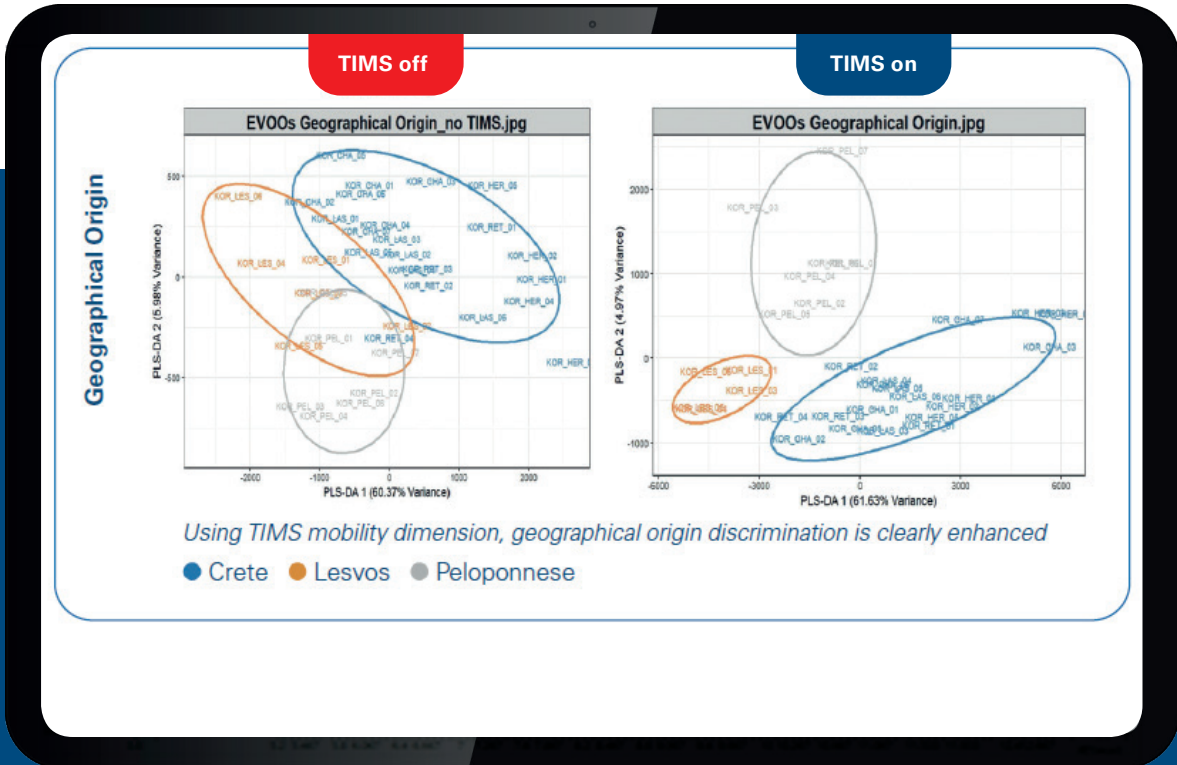
Active Data Point	SampleType	MS/2	RT (min)	Quantity exp.	Quantity	Area	Intensity	Accuracy [%]	Residual [%]	Area [I]	Rel. Area	Recovery [%]	Dilution
15	ms_41mets_15_01_4000	CALIBRANT	6.25	5.0 µg/g	4.8 µg/g	16146	10718	91.88	-2.41	-	-	-	1.00
16	ms_41mets_16_01_4104	CALIBRANT	6.25	5.0 µg/g	5.2 µg/g	25193	11058	104.72	-4.31	-	-	-	1.00
17	ms_41mets_17_01_4000	CALIBRANT	6.24	5.0 µg/g	4.7 µg/g	23899	11054	94.89	-5.0	-	-	-	1.00
18	ms_41mets_18_01_4000	CALIBRANT	6.26	5.0 µg/g	5.2 µg/g	24972	11312	100.81	2.61	-	-	-	1.00
19	ms_41mets_19_01_4104	CALIBRANT	6.25	5.0 µg/g	5.1 µg/g	24918	11272	101.11	1.11	-	-	-	1.00
20	ms_41mets_20_01_4104	CALIBRANT	6.25	10.0 µg/g	10.3 µg/g	26146	22948	102.51	2.51	-	-	-	1.00
21	ms_41mets_21_01_4104	CALIBRANT	6.25	10.0 µg/g	10.7 µg/g	31725	22628	106.59	6.61	-	-	-	1.00



- Use automatic mass annotation of unknowns to timely detect unexpected contaminants and mass adulterations.
- Save time with a streamlined workflow for structural elucidation of unknowns.
- Utilize multi-sample comparison and difference finding functionality for chemical process development or supplier validation.



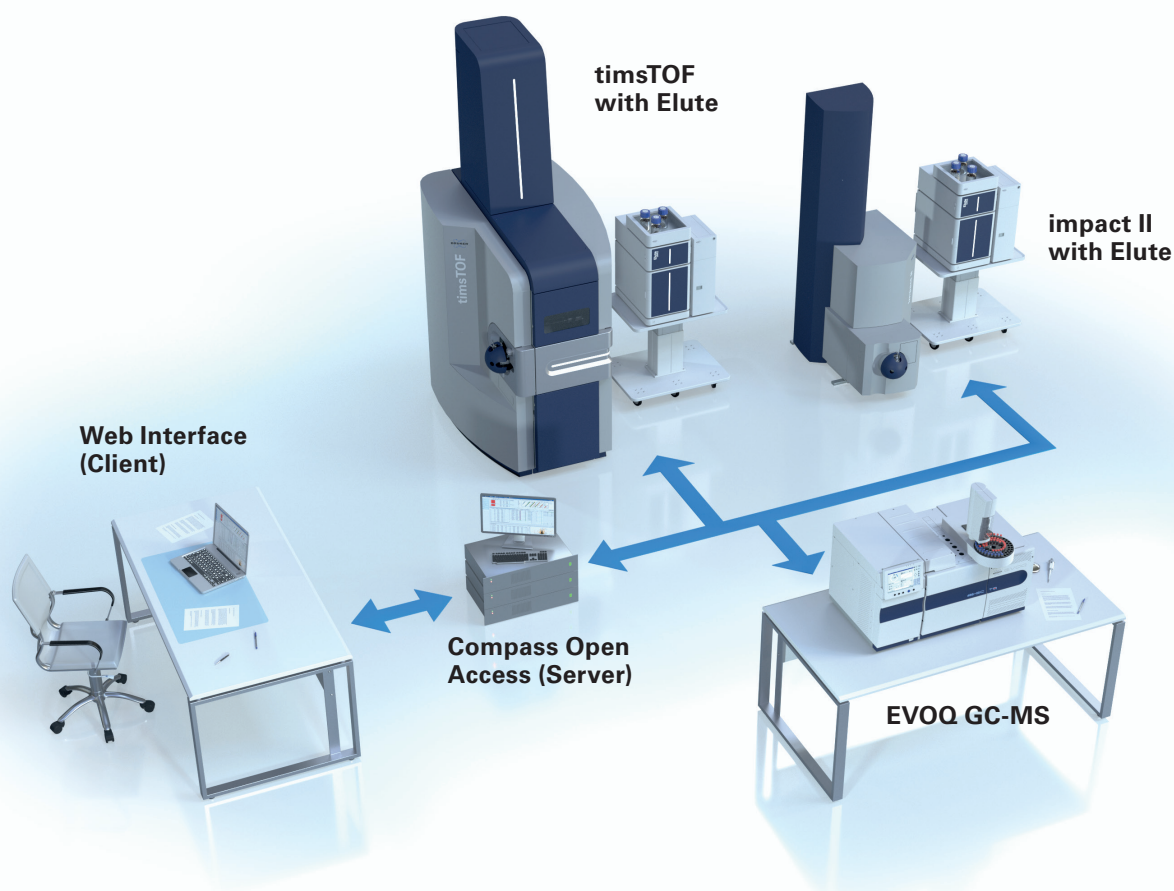
- Leverage the power of integrated statistical analysis tools for biomarker discovery, food authenticity and place origin confirmation, or environmental research.





## The timsTOF is a solution that fits seamlessly into Bruker's unique network centric lab architecture

Work on your analytical data anywhere in the world, share it with your colleagues and link multiple different MS instruments into one integrated system.



For Research Use Only. Not for use in clinical diagnostic procedures.

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