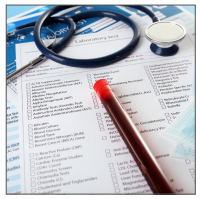
SepSolve Analytical


BenchTOF2™ mass spectrometers

Redefining GC–MS
for the modern lab

Redefining GC–MS for the modern lab

The all-new BenchTOF2™ mass spectrometer is the ideal choice to tackle challenging GC and GC×GC applications, due to its ability to perform confident target and non-target analyses on a single platform.

This next-generation instrument builds on an unbeatable combination of sensitivity, spectral quality, selectivity, speed and stability, with innovative performance improvements in both hardware and software.

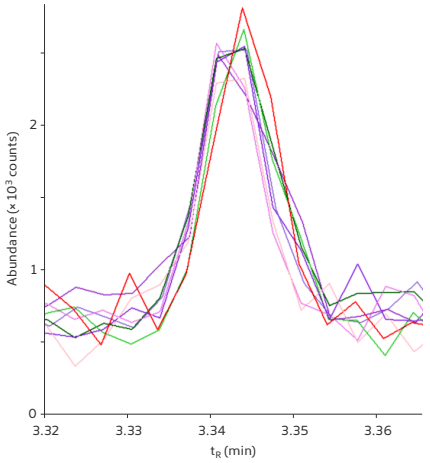
Read on to see what BenchTOF2 can bring to your analysis...

Get more from your mass spectrometer

Modern labs must constantly adapt to cope with new analytical challenges and ever-increasing workload, while improving data confidence and reducing associated costs. BenchTOF2 addresses these challenges through enhanced performance in easy-to-use workflows.

MORE sensitivity

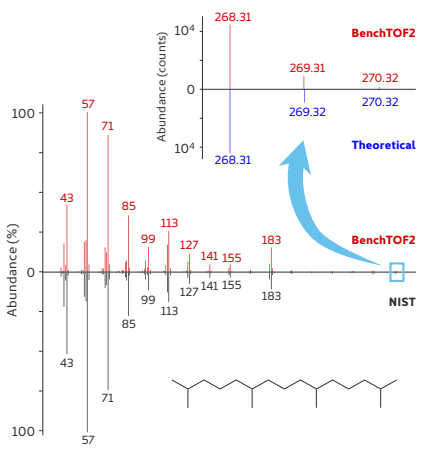
Eight replicate injections of 20 fg OFN gives an IDL of 7.4 fg



Improved detection limits (<20 fg OFN) with full spectral information means a wide range of trace-level species can be detected in a single analysis. BenchTOF2 also allows retrospective searching for new compounds of interest.

MORE confidence

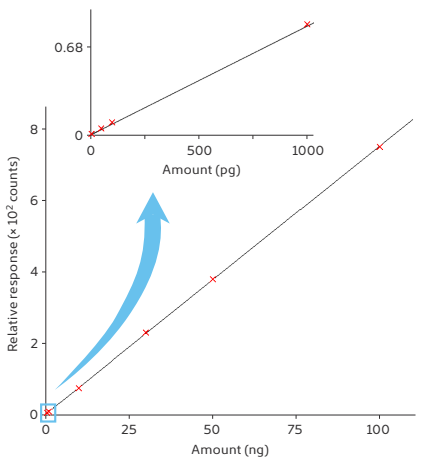
An exact isotope pattern match against the theoretical spectrum is achieved for pristane (a C_{19} alkane)



Remove the guesswork and complexity associated with analyte identification, through an unbeatable combination of spectral fidelity, selectivity and smart software tools, such as isotope overlays and a mass-to-formula calculator.

MORE productivity

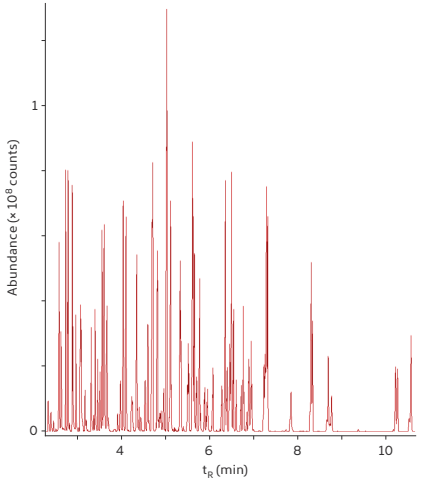
A linear response for acenaphthylene from 500 fg to 100 ng is achieved in a single calibration



Extended dynamic range across five orders of magnitude allows accurate quantitation of high-concentration compounds, while maintaining low detection limits. This removes the need for dilutions or repeat analyses.

MORE efficiency

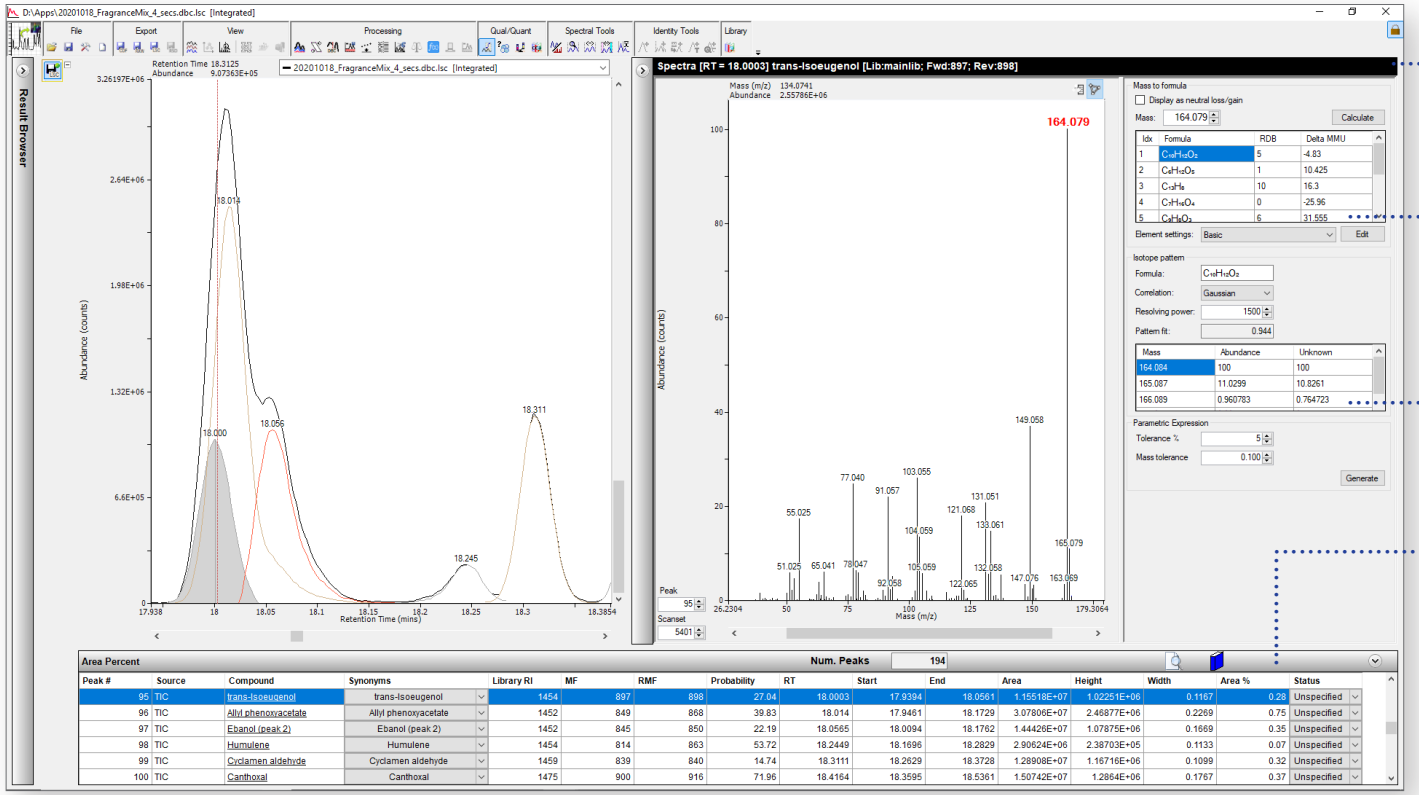
A 95-component standard is run in <11 min using H_2 carrier gas



BenchTOF2 is fully certified for use with hydrogen carrier gas. The result is faster chromatographic separations, reduced running costs, faster return on investment, and mitigation of gas supply issues.

Are you sure you've identified the compound correctly?

The excellent selectivity and spectral fidelity of BenchTOF2 means that confidence comes as standard. BenchTOF2 spectra contain accurate isotope abundances and do not exhibit mass discrimination, making them directly comparable to commercial libraries. When used in a simple mass-to-formula calculator, this eliminates guesswork and complexity, for fast and confident analyte identification.



Browse data quickly using the one-click library hit to screen BenchTOF2's high-quality spectra against commercial libraries

Harness BenchTOF2's improved mass accuracy in routine workflows using the mass-to-formula calculator to reduce the number of possible formulae and simplify identification

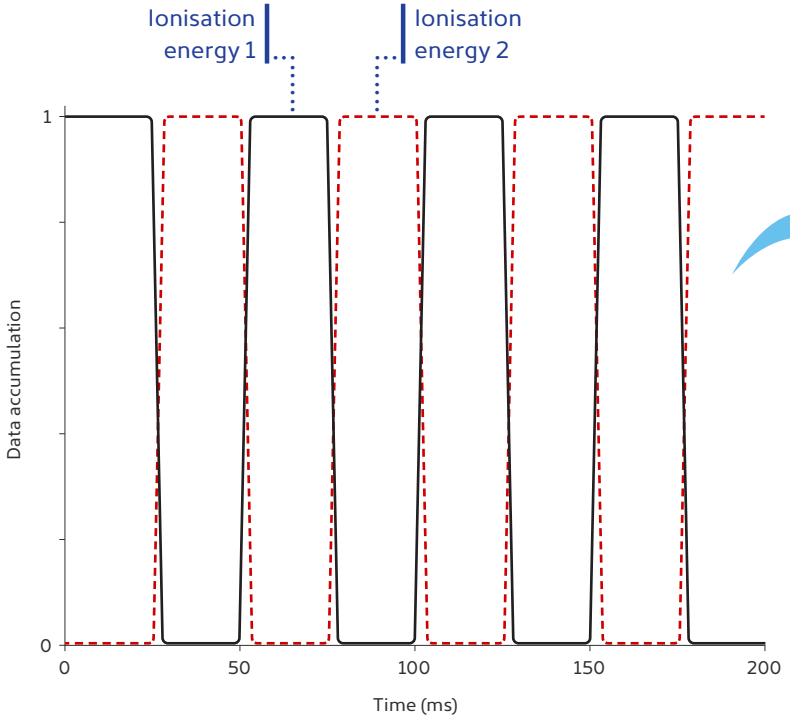
Confirm analyte identification by comparing BenchTOF2's accurate isotope abundances against theoretical values

Accelerate identification workflows further using time-saving software tools, such as auto-propagating peak tables and retention index (RI) filtering

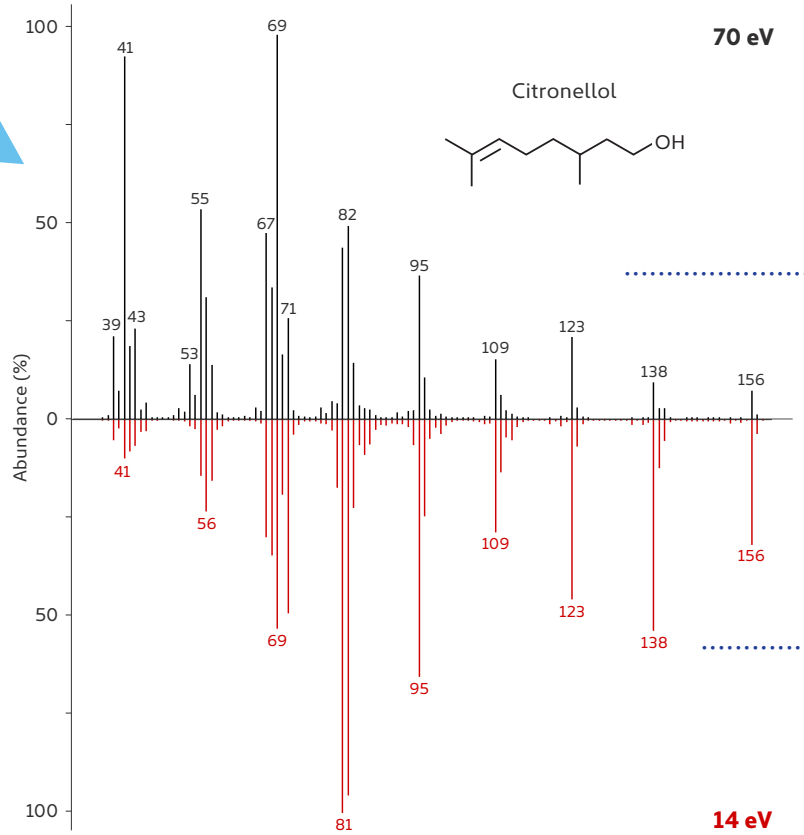
The qualitative viewer in ChromSpace® 1D provides powerful, easy-to-use data-mining, with streamlined tools to let you screen samples quickly and effortlessly.

Leading the way in MS innovations

Tandem Ionisation® adds to the already innovative technology incorporated into BenchTOF2, by enabling simultaneous hard and soft EI ionisation. This patented technique provides complementary spectra for confident characterisation of targets and unknowns in a single run, without any hardware changes or additional method development – all data, all the time.



Tandem Ionisation works by quickly switching between two ionisation energies with speeds of up to 400 Hz, making it fully compatible with both GC and GC×GC separations.



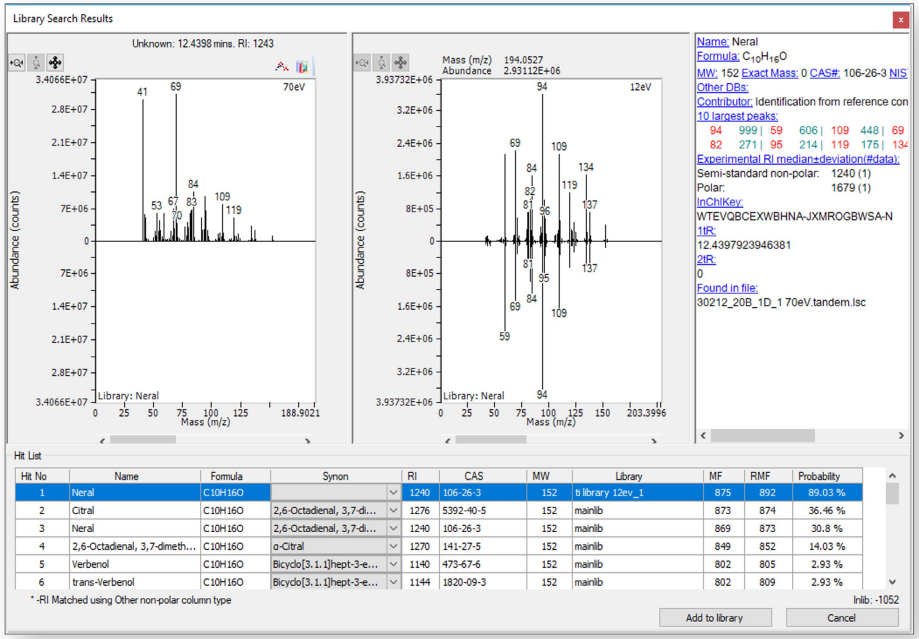
Benefit from the excellent spectral fidelity of BenchTOF2 at 70 eV while also acquiring complementary soft EI data

Confirm compound identity with help from reduced fragmentation and enhanced structurally-significant ions

Harness the power of Tandem Ionisation®

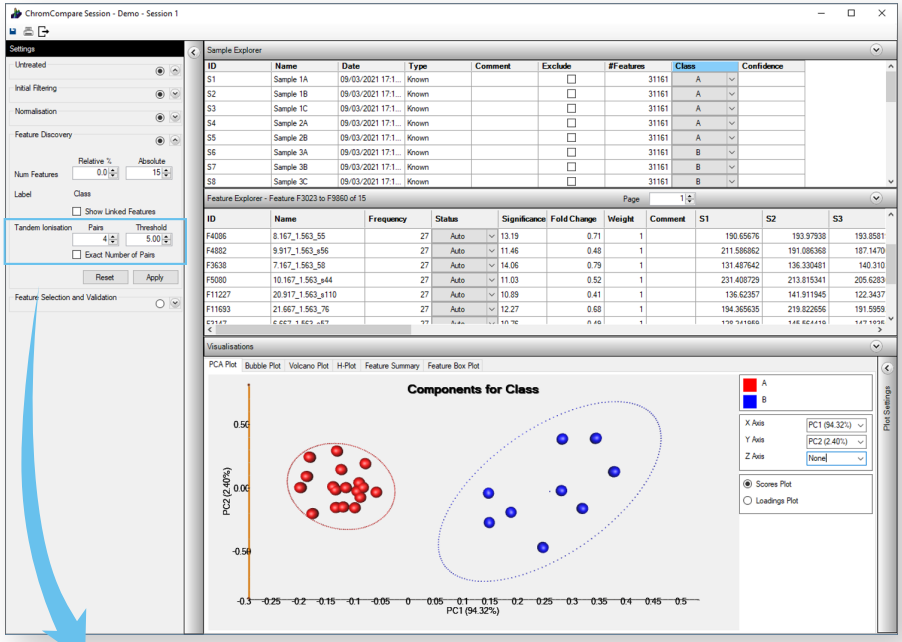
Tandem Ionisation is fully integrated into analytical workflows, allowing you to increase confidence without increasing analysis time. Using our new tandem file format, both MS data blocks are integrated into one datafile for streamlined processing, to fully benefit from soft EI data in library-searching, quantitation and non-target screening.

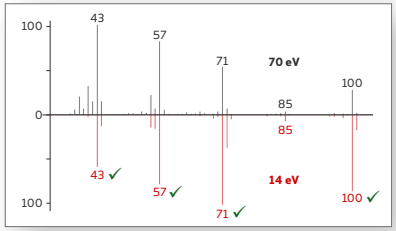
Add confidence with dual-library searching



Dual library searching adds confidence to identification, by using both 70 eV and soft EI spectra to find the top library match across both data blocks in a single workflow. In this case, the 12 eV data confirms the isomer as neral. ChromSpace® software offers easy batch addition to spectral libraries, simplifying the creation of soft EI libraries.

Improve discovery of true differences





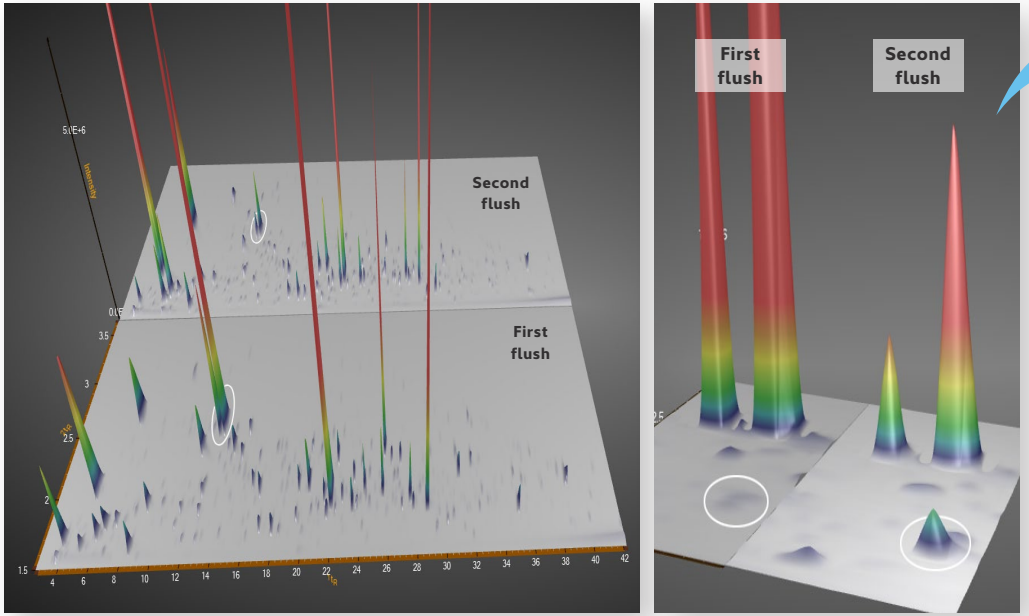
Using tandem data within the ChromCompare+™ chemometrics platform reduces the frequency of false positives and allows you to focus on the true differences between your samples.

Discover more with comprehensive analytical resolution

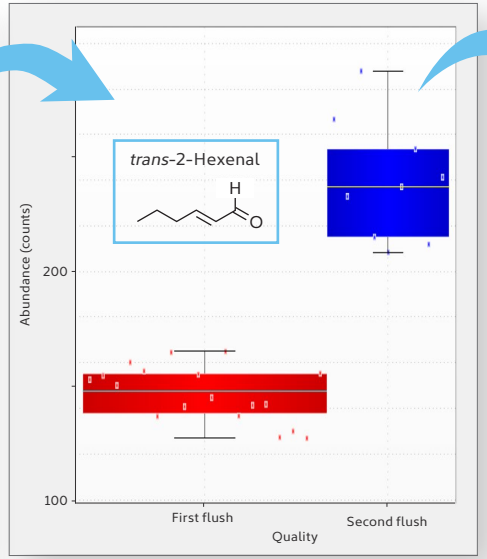
Relying on mass resolution alone may result in some compounds being overlooked, especially in the case of isomeric species. Combining the sensitive, selective detection of BenchTOF2 with enhanced separation by GC×GC and complementary Tandem Ionisation® spectra provides the comprehensive analytical resolution needed for confident non-target analysis.

Get the answers you need, more quickly and with greater confidence

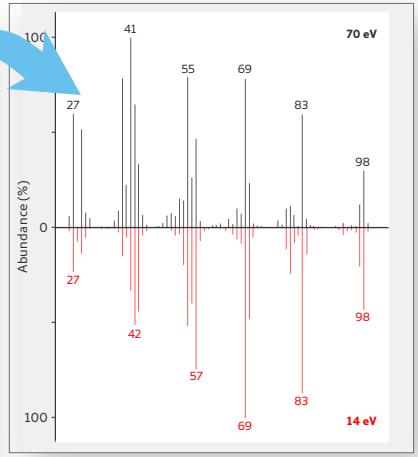
Achieve enhanced separation with GC×GC



Automate the discovery of true differences



Confirm identification using Tandem Ionisation data



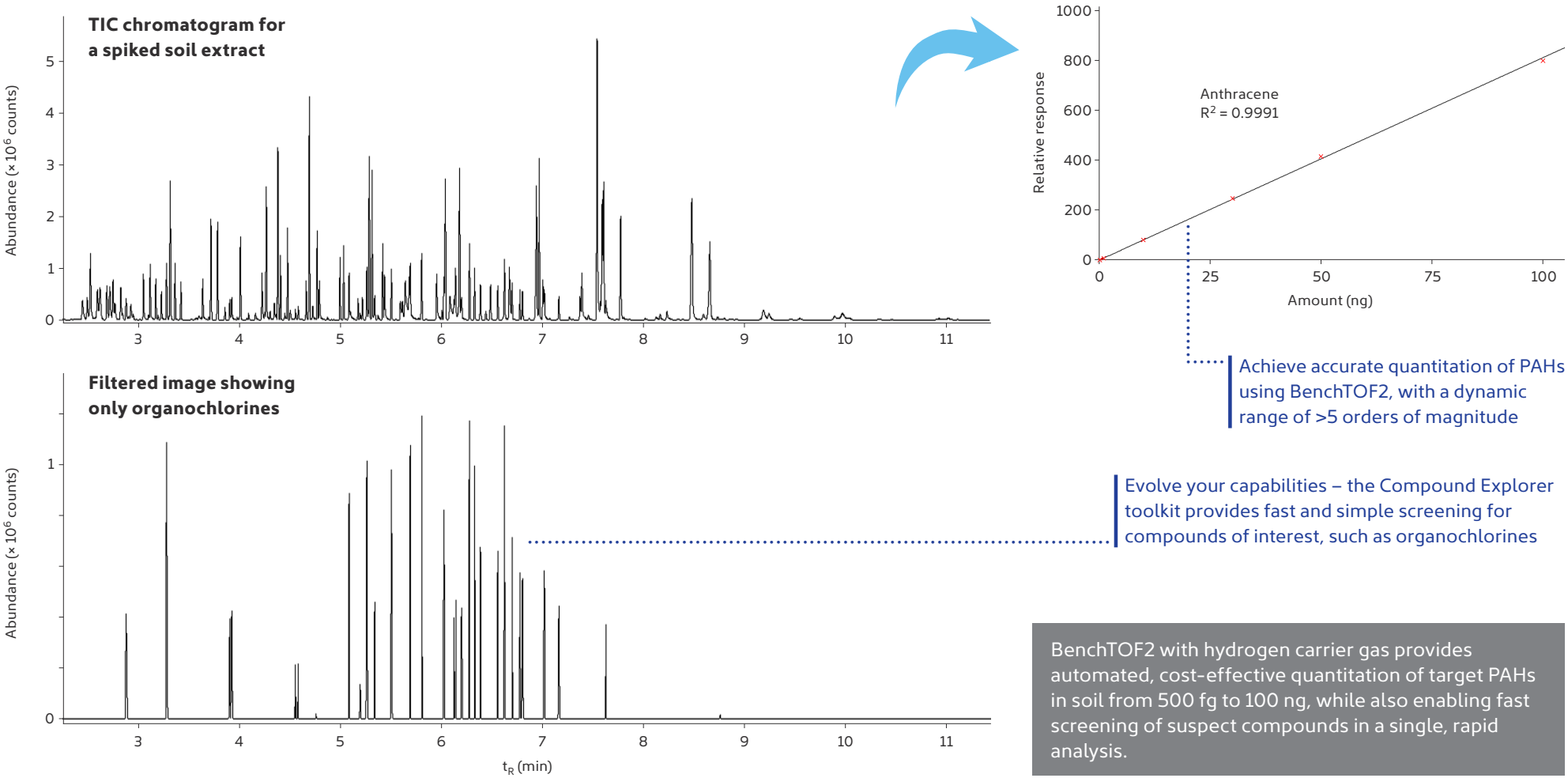
The comprehensive analytical resolution of GC×GC combined with BenchTOF2 and Tandem Ionisation easily uncovers key differences in the aroma profiles of two tea samples, revealing *trans*-2-hexenal (with a strong 'green' aroma) in the lower-quality 'second flush' teas.

BenchTOF2 – The ideal partner for GC×GC

Rapid secondary separations in GC×GC can result in peak widths less than 100 ms, meaning detector speeds of over 100 Hz are essential to maintain at least 10 datapoints across a peak. BenchTOF2 is more than capable of meeting this requirement, making it the ideal partner for GC×GC.

Deliver more in routine analysis

The needs of demanding routine applications are exceeded with BenchTOF2 and ChromSpace® software. Confident identification is achieved through effortless screening against spectral libraries, with Extended Dynamic Range (EDR) and faster methods further improving productivity. The revolutionary BenchTOF2 delivers this high performance while being fully certified for use with hydrogen carrier gas – a necessity for all modern laboratories.

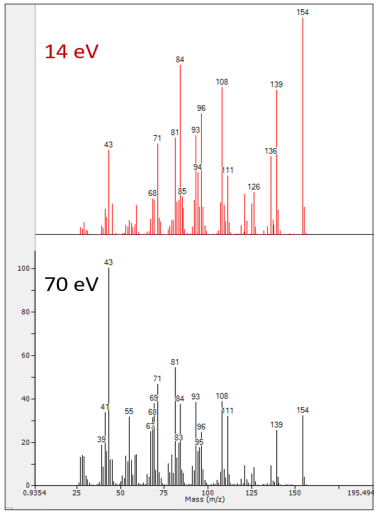


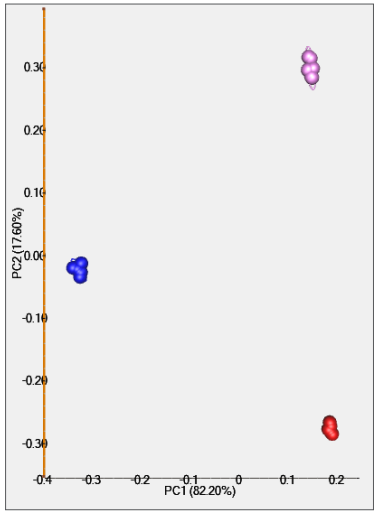
BenchTOF2 with hydrogen carrier gas provides automated, cost-effective quantitation of target PAHs in soil from 500 fg to 100 ng, while also enabling fast screening of suspect compounds in a single, rapid analysis.

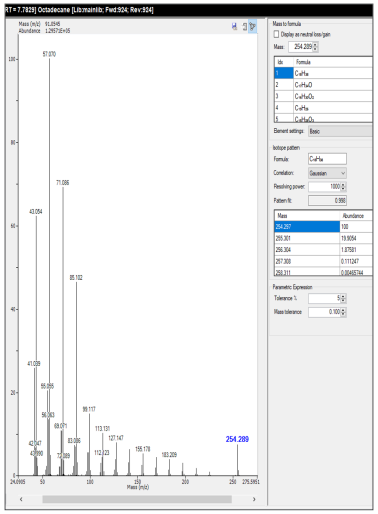
Intelligent, connected workflows

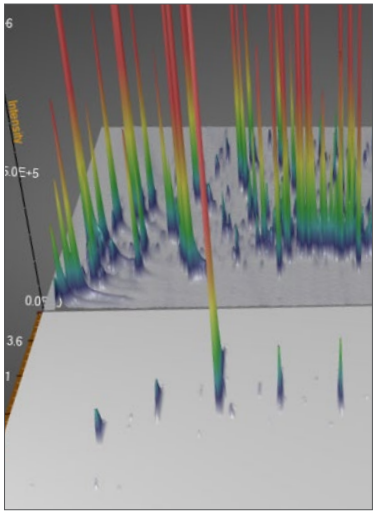
The high performance of BenchTOF2 is harnessed within connected workflows in the ChromSpace® software suite. This allows you to transition quickly and easily from discovery approaches, where you don't know what compounds are important, to fast, targeted methods – all within the same hardware platform and user interface.

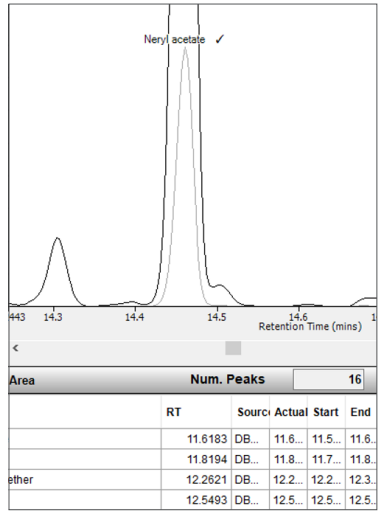
1. **Gain extra dimensions of information** with Tandem Ionisation® capability
2. **Find key differences between samples** with multivariate statistics in ChromCompare+™
3. **Confidently identify key differences** using the mass-to-formula calculator
4. **Quickly filter 1D & 2D chromatograms** using the Compound Explorer toolkit
5. **Effortlessly transition** to fast targeted or quantitative methods for improved productivity











Discover more

When you don't know what you are looking for

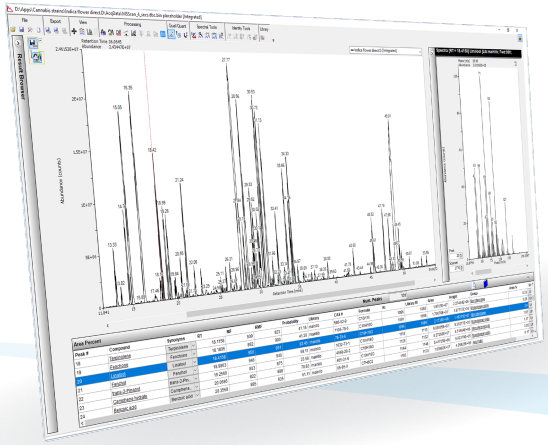
Deliver more

Once you know which compounds are important

Versatile software to meet your changing needs

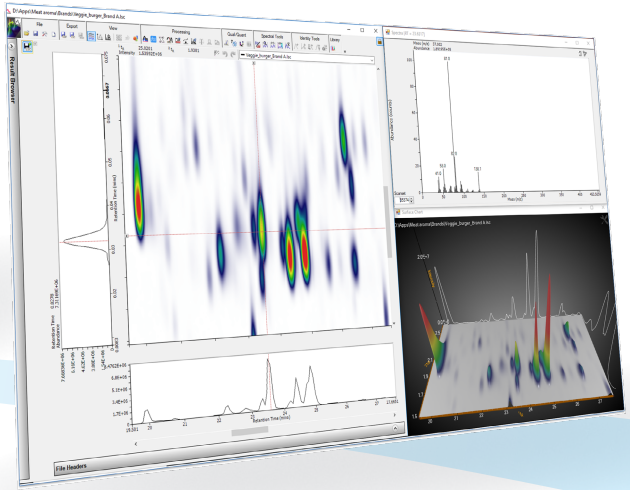
SepSolve's powerful ChromSpace® software family makes BenchTOF2 intuitive to use, allowing you to quickly produce high-quality results. It seamlessly connects workflows without re-engineering processes or losing information, allowing it to adapt easily to meet your laboratory's changing needs.

Intuitive tools for qualitative and quantitative GC–MS analysis



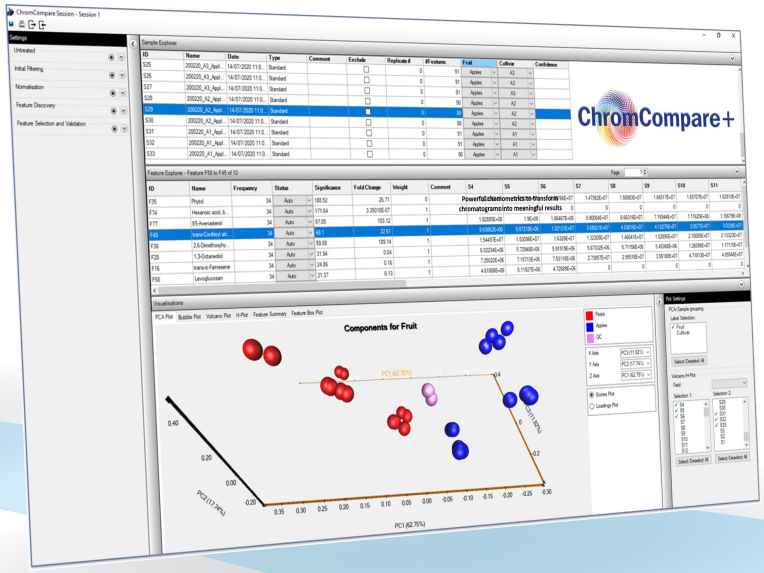
ChromSpace 1D is an intuitive software platform for BenchTOF2, incorporating full instrument control and powerful data-processing tools for both qualitative and quantitative GC–MS applications.

Evolve your lab's capabilities and harness the power of GC×GC



ChromSpace adds compatibility for GC×GC data analysis in the same user-friendly interface. Powerful data exploration, group-type analysis and peak merging ensure that GC×GC is a productive contributor in any lab.

Powerful chemometrics to transform chromatograms into meaningful results



ChromCompare+™ adds automated alignment and easy-to-use chemometrics to quickly find the key differences between complex chromatographic datasets, and generate useable results.

A strategic partnership that works for you

With our wealth of GC–MS knowledge and expertise, we are the ideal strategic partners to provide the support you need to advance your laboratory's success. We make your life easier, by integrating BenchTOF2 into complete end-to-end workflows – for streamlined analysis, from sample introduction through to data analysis, across a range of applications.

THERMAL DESORPTION (TD)

TD systems such as the TD100-xr™ multi-tube thermal desorber provide high-throughput automated analysis – in applications from breath biomarker discovery to the analysis of off-odours from plastics.

EXTRACTION & ENRICHMENT

The Centri® platform provides unrivalled flexibility for unattended, rapid and efficient extraction and enrichment of VOCs and SVOCs – so it is ideal for food and beverage profiling.

SAMPLE PREPARATION ROBOTS (SPR)

The modular design of our SPR systems enables additional tools to be added as required. This makes them perfect for expanding capacity beyond liquid injections in environmental and petrochemical labs.

TRAINING & SUPPORT

Our experienced application chemists provide the training and support you need for your full system, at technical centres around the globe.

About SepSolve Analytical

SepSolve Analytical provides analytical platforms for separation scientists, including equipment for automated sample introduction, advanced GC separation, state-of-the-art mass spectrometry and powerful data analysis.

Together, these tools enable you to discover more about your sample, and to deliver higher throughput for both research and routine applications. To ensure you get the best from your investment, our experienced application chemists provide access to the training and support you need, at support centres around the globe.

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