MasCom

Technologies GmbH

GC-APPI Interface

for

Thermo Scientific™

LC-MS Instruments

www.mascom-bremen.de

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for Thermo Scientific™ LC-MS Instruments

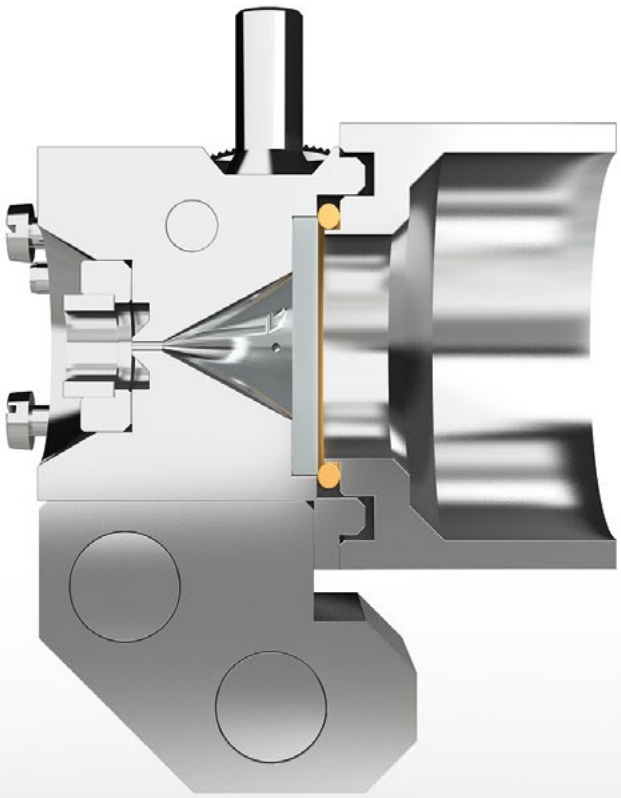
TECHNICAL OVERVIEW

The MasCom GC-(APPI) interface for Thermo Scientific LC-MS systems allows you to fully exploit the superb high-resolution performance of Orbitrap™ instruments for your GC analyses.

Within minutes the change from standard LC-(ESI) to GC-(APPI) is done. After heating up the transfer line and interface to operating temperature you are ready for the first GC injection!
High resolution and accurate mass with external calibration is now available for your GC-MS analyses!

FEATURES OF THE GC-APPI INTERFACE

- Swift change from LC-MS to GC-MS operation within minutes
- The MasCom GC-(APPI) interface hardware is fully compatible with current and previous LC Orbitrap systems
- Operation of the interface, transfer line and GC oven are seamlessly integrated into the Xcalibur data analysis software
- Integrated gas purifier system
- Widest range of ionizable compounds among all GC-(API)-MS methods available



High resolution, speed, accuracy and dynamic range are fully available even by running a wide range of different compounds. Accurate mass, at your fingertips‘ is not a phrase anymore in GC-MS – it has become reality.

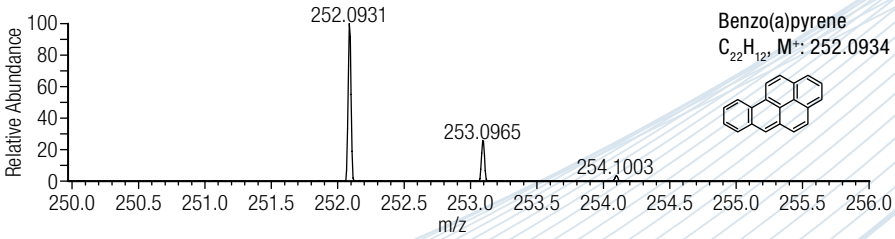
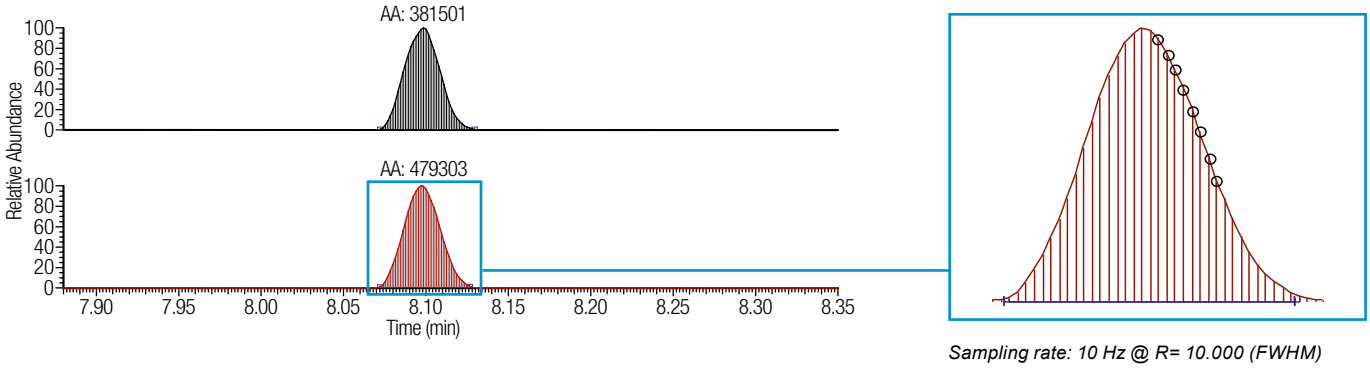


Diagram 1: Accurate mass spectra of Benzo(a)pyrene

The high sampling rate of the Exactive™ with high resolution and accurate mass performance results in excellent chromatographic separation capabilities.



Sampling rate: 10 Hz @ R= 10.000 (FWHM)

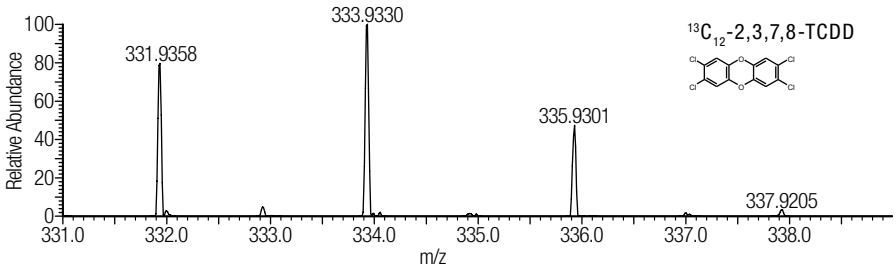


Diagram 2: Measurement of 5 pg $^{13}C_{12}$-2,3,7,8-TCDD on column with CS_2 as dopant

The addition of a dopant can help increasing the sensitivity without sacrificing the chromatographic performance.

High resolution and accurate mass available with external calibration are the key features of Orbitrap mass spectrometers. This technology has proven its value in LC-MS for almost ten years. Although the demand for the same performance in GC-MS has been voiced already many years ago, the MasCom GC-(APPI) interface for the first time enables these powerful capabilities of the Orbitrap systems for GC-MS analyses.

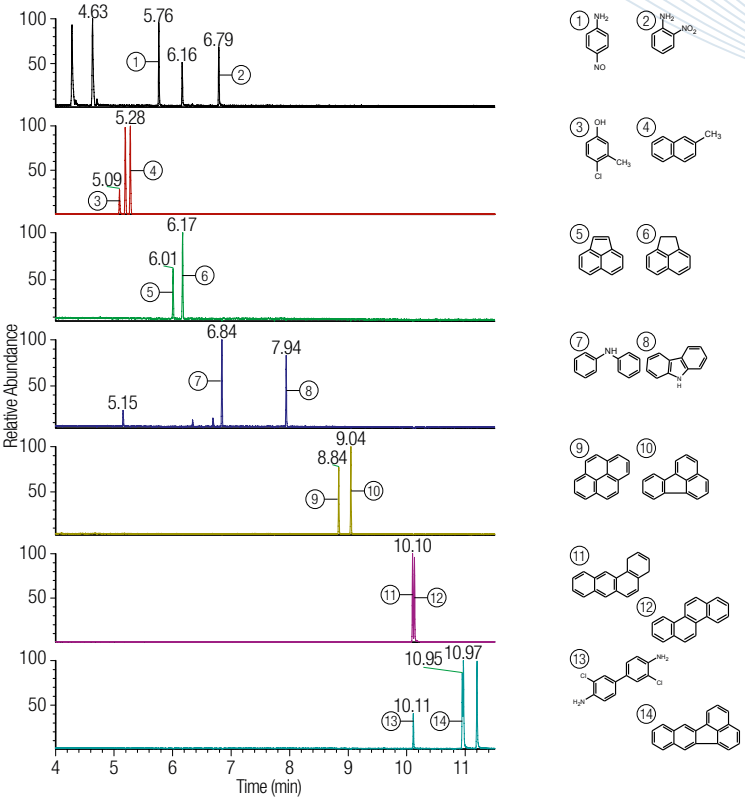
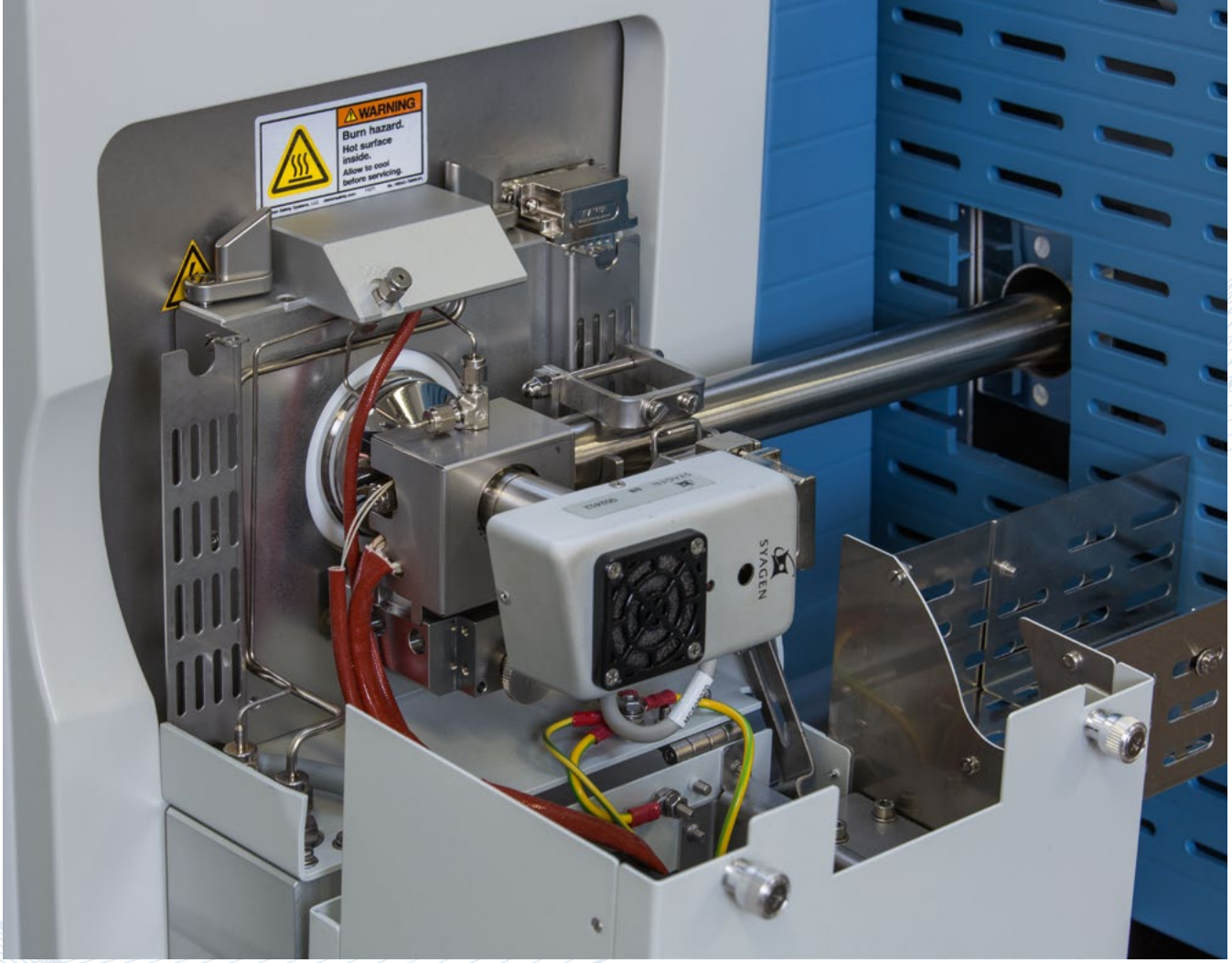


Diagram 3: Selected ion chromatogram of EPA Mix 8270

Use your existing LC-MS Orbitrap instrument and expand its capabilities to high resolution GC-MS. With MasCom‘s new GC-(APPI) interface you are able to run a GC sample at any time on your LC-MS instrument.

FEATURES OF THE GC-APPI IONIZATION METHOD

- Direct interaction of VUV photons with analytes = true single photon ionization with very little excess energy deposition in generated molecular ions
- Almost exclusive formation of intact molecular radical cation ($M^{\bullet+}$) with little or no fragmentation, in contrast to GC-(EI)-MS
- Ionization of a wide range of organic compounds including dioxins with very high sensitivity in the fg-range
- Better suited for the detection of small organic compounds as GC-(APCI)-MS
- Virtually no matrix effects, adduct formation, or other transformation reactions observed, in contrast to GC-(APCI)-MS
- The very high reproducibility of the GC chromatograms allows MS/MS analyses at pre-selected GC retention times leading to ultimately high selectivity for e.g. in targeted analyses. Structural information about unknown compounds in non-targeted analyses becomes readily available
- Optionally, very simple addition of dopants to the ion source chamber leads to strongly increased selectivity of the method towards compound classes; e.g. toluene (“soft” protonation) or CS_2 (“soft” charge transfer)



Get the most out of your Orbitrap...

...by expanding it to GC-MS with the new MasCom GC-(APPI) interface

The MasCom GC-(APPI) interface design is fully compatible to all Xcalibur source housings. It allows you to switch from LC to GC operation within minutes. The entire GC-system (oven, transfer line, APPI ion source) is simply operated as a standard Xcalibur device and part of the instrument method. Together with the ease of use, the MasCom GC-(APPI) interface is a must for any analytical laboratory using Orbitrap MS.

MASCOM TECHNOLOGIES

MasCom Technologies, located in Bremen, Germany, was founded in 1991 and has started with offering service and repair for high resolution mass spectrometer from Thermo Fisher (former Finnigan MAT). Today MasCom Technologies refurbishes and sells mass spectrometer and provides worldwide service and repair for ion trap MS, quadrupole MS, and high resolution GC-MS systems from Thermo Fisher. Almost exclusively MasCom offers service for the MAT95XL/XP instruments for more than 20 years. In 2000 the on-line shop for MS spare parts and consumables was opened and expanded until today with over 7000 different parts sold to more than 3000 customers worldwide. For more than 15 years MasCom also manufactures secondary electron multipliers (SEM) and has become one of the world leading manufacturer for multipliers.

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