BreathSpec®



Sensitive Analyser for Metabolic Marker Substances in human Breath

BreathSpec® – Gas Chromatograph coupled to an Ion Mobility Spectrometer

The BreathSpec® represents the synergies of a fast gas chromatograph and the outstanding sensitivity of an IMS. Thus traces of Volatile Organic Compounds (VOCs) even in highly humid matrices like the human breath become detectable without any special sample preparation. Results are available within a few minutes and markers are typically detectable even at ppbv-/pptv-levels. The technical configuration, its menu as well as its extremely easy and reliable sampling through an attached CO_2-/O_2 device allows to simply generate data bases and run clinical studies with respect to different diseases.

Features

- Stand-alone unit with integrated computer
- Sampling unit including precise spirometry for side stream measurement of CO_2 / O_2
- Heated IMS, column, lines (< 80°C)
- Purification mode
- Access to all relevant parameters for method development: temperature control of IMS, column, drift and carrier gas flow rate
- Software controlled switching between positive and negative ionization mode
- Manual or fully-automatic operation incl. data acquisition, -analysis, visualization and data transfer to external devices
- Storage of data on internal memory or external network shares
- PC-Software package

Applications

- Monitoring of work related exposures to hazardous substances
- Detection and/or monitoring of diseases
- Control of drug decomposition (pharmaceuticals)

Technical Specification
Working principle: Ion Mobility Spectrometry
Ionisation: ß-radiation source (Tritium (^{3}H))
Activity: 300 MBq, below the exemption limit of 1 GBq, EURATOM guideline
Drift voltage polarity: Positive and negative, switchable
Sampling: Direct though mouthpiece, controlled by precise Spirometer
Range: Semi-quantitative, typically low ppb_v
Dynamic range: 1-3 orders of magnitude
Display: 6.4" TFT, VGA-Display
Input unit: Rotary pulse encoder
Processor: 400 MHz X-scale
Data acquisition: Ultra-fast ADIO-board
Data processing: X-board / Baseboard
Data storage: 2 GB Compact-Flash
Communication: RS232, USB, Ethernet
Electrical connectors: 2 x D-Sub 9-pole (for modem, console), D-Sub 15-pole (for external devices), RJ45 (for digital modem or SSH), 2 x USB-A
Power supply: 100-240 V AC, 50-60 Hz (external supply), 24 V DC / 5A, XLR-connector (internal)
Power consumption: < 180 Watt
Dimensions: 449 x 375 x 177 mm (WxDxH)
Weight: 15.5 kg
Housing: 19" compatible, IP 20 enclosure, EMC certificated
Cooling: Axial ventilator, temperature controlled, max. 5.5 m^3/h
Gas connectors: 3 mm stainless steel Swagelok connectors for gas in- and outlet

G.A.S. Gesellschaft für analytische Sensorsysteme mbH
Dortmund BioMedicineCenter / Otto-Hahn-Straße 15, D - 44227 Dortmund, Germany
Phone: +49 231 9742 6550 / Fax: +49 231 9742 6555 / info@gas-dortmund.de / www.gas-dortmund.de