**ADVANTAGES**

- **Sensitive**: Detection limits in the low ppb$_v$ ($\mu$g/m$^3$) range for VOCs with heteroatoms like ketones, aldehyds, alcohols, amins or halogenated compounds.
- **Selective** due to specific analyte ion drift times (2 dimensional separation, full orthogonality).
- **Flexible**: Positive and negative ion generation.
- **High GC sampling frequency**.
- **No licence for $^3$H source required** according to EU directive 96/29 EURATOM.
- **High reproducibility**.
- **Operation with nitrogen or synthetic air**.
- **Atmospheric Pressure Ionisation (API)**.
- **Stand alone data acquisition software** and software suite for 3D GC-IMS data analysis.
- **No need for a radiation protection officer**.

The stand-alone IMS by G.A.S. mbH enables the use of the IMS technology in very demanding gas phase applications where high separation capabilities and/or sensitivity are needed. Compared to other detectors the IMS offers a second dimension of separation and by that full orthogonality so that co-eluting compounds can still be separated before they are detected at low-/sub ppb level. According to the laws of IMS that operates at atmospheric pressure ions are separated by their mass and structure so that isomeric compounds can also be separated.

The applied tritium source with a low intensity lies below the exemption limit of the EU directive 29/96 EURATOM. The operation of the device can be in the positive mode to e.g. test for heteroatomic compounds while also performing with outstanding sensitivity in the negative mode for e.g. halogenated substances.

The device comes as ready-to-couple with softwares for setting of detector parameters same as drift gas flow. The provided transfer line is temperature-controlled to avoid ‘cold spots’. With the oven exit on the right the GC-typical MSD (mass sensitive detector), usually located on the left side, can still be used in parallel.

*Coupling available for Agilent GCs 6890/7890B and Shimadzu GC-2010 Plus*
APPLICATIONS

• Analysis of complex headspace compositions of raw material, foodstuff or beverages regarding flavour inducing compounds, e.g. [1]

• Support of sensory panels via impartial flavour documentation in quality control resp. off-smell detection

• Detection of low sulphurous compounds (H₂S, COS, DMS, mercaptanes) or halogenated hydrocarbons (methylene chloride, chloroform, e.g.) at low ppb-level

• Test for aldehydes, ketones, alcohols, siloxanes, carboxylic acids, aromatic compounds, esters, ether, terpenes, isocyanates, etc., [1-2]
