

VOC analyser

EV105

- Volatile Organic Compounds at ppb / ppt level
- Fast analysis
- Small 19" footprint
- Built-in electrically cooled trap



Get ready for tomorrow's analytics

Analysis of Volatile Organic Components using Thermal Desorption

Volatile components are present in nearly every atmosphere. Many of them are toxic, and have strict limit levels. Others may cause inconvenience due to low odour threshold levels. Thermal desorption (TD) is the technique of choice for air monitoring (indoor, outdoor, workplace, automobile interior, breath, etc.) It is an invaluable tool when sample enhancement is needed to reach the very low detection levels required. Gas chromatography enables better control and optimisation of fermentation processes, and allows a wide range of components to be analysed.

Principle of operation

VOCs are pre-concentrated on a built-in Peltier-cooled trap containing a suitable adsorbent. A precise sample volume, typically 25 mL to 1 L, is delivered to the trap using a pump and mass flow controller. After sampling, the trap is purged with an inert gas to remove air and water, ensuring good chromatography and preventing adsorbent degradation.

The trap is then rapidly heated (up to 100 °C/s), releasing the concentrated compounds, which are transferred to the analytical column by the carrier gas. Typical trapping and desorption temperatures range from 0 to 350 °C. Fast heating produces a narrow injection band, enabling rapid GC analysis, a key feature of the CompactGC4.0.

During desorption, the flow direction is reversed relative to sampling, allowing the use of multi-bed traps with two or three adsorbents of increasing trapping strength to cover a wide boiling-point range. Electrical cooling enables fully unattended operation without the need for CO₂ or liquid nitrogen.

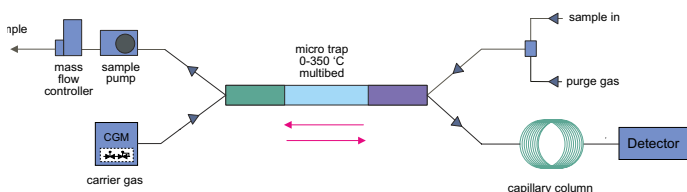


Figure 1 Diagram VOC analyser

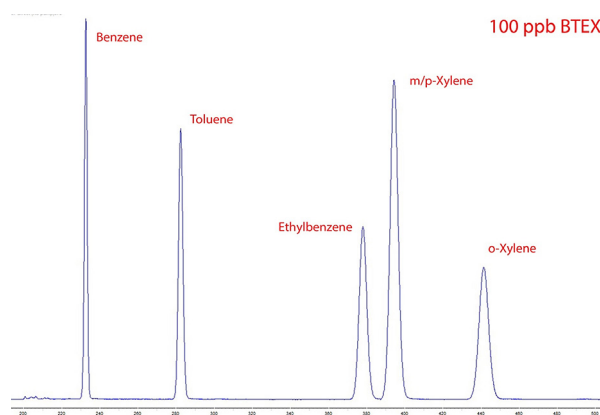


Figure 2 Chromatogram BTEX. Conditions:

Trap: U-T2GHP-2S (general purpose hydrophobic)
 Trap temperature: 30 to 300 °C
 Sample: 60 ml at 30 ml/min
 Trap Hold: 1 min
 GC Column: Rtx-VMS, 1.8u, 10m * 0.32 mm ID; 50 oC
 Carrier gas: He, 100 kPa, splitflow 10 ml/min
 Detector: FID; 110 oC
 Standard: 100 ppb BTEX in N2

Specification

- GAS CompactGC^{4.0} with two diaphragm gas switching valves, electrically cooled trap, FID, capillary column
- Trap low temperature: 0-50 °C
- Desorption temperature: 50-350 °C
- Trap heating rate: 100 °C/s
- Chromeleon chromatography data system
- Minimum detectability: low ppt, depending on trapped volume
- Repeatability: < 5 % RSD with internal sample pump
< 0.5 % RSD with pressurised sample

Ordering information EV105 - ABCDE

For selecting options ABCDE (e.g. valve type and passivation, pump and vacuum sampling, rotameter and sample connections, pressure and moisture sensors, hydrogen sensor for safety shut-off, power plug type and more), [see the options table in the order guide.](#)

About GAS

Global Analyser Solutions provides GC & GC-MS solutions for Energy, Refinery, Chemical and Environmental markets. Our analysers address a broad spectrum of measuring requirements with high precision and reliability. Please reach out for more information on our website. www.gassite.com