VOC72M

GAS CHROMATOGRAPHY VOLATILE ORGANIC COMPOUNDS (BTEX) **ANALYZER**

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Elevating standards. For life.

The VOC72M's metrology, in accordance with EN 14662-3 standard for benzene measurement, is based on gas chromatography (GC) coupled with a photo-ionization detector (PID).

FEATURES AND BENEFITS

- Standard measured compounds: Benzene, Toluene, Ethylbenzene, m+p-Xylene, o-Xylene, 1-3 Butadiene...
- Performs all the functions, such as: sampling, analysis and data management, in a simple and completely autonomous mode
- Self-contained, completely automated and ready to use in less than 30 minutes
- GC column equipped with an innovative liquid-cooler; retention times are stable even with a fluctuating temperature
- Long-life capillary column
- High sensitivity, stable and linear response PID detector
- Ultrafast trap heater (heating rate >160°C/second)



COMPLIANT WITH:
QAL 1 EN15267, ISO 13964, 2008/50/EC, EN14662-3:2005, EN15267-1:2009, EN15267-2:2009, 40 CFR PART 53 AND 40 CFR PART 58

TÜV Rheinland®
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PRINCIPLE OF **OPERATION**

The VOC72M performs three main functions: the sampling,

the GC analysis and the data processing.

Sampling: The sampling is achieved with a single trap filled with a specific sorbent. Its flow through the trap is about 12 ml/min which gives a sampled volume of 165 ml with the standard 15 minute cycle (sampling time >90% of cycle time). Other cycle durations are possible from 10 to 30 minutes. A bypass flow of 35 ml/min maintains a sample input flow when the trap is not sampling.

GC analysis: At the end of the sampling cycle, the trap is connected to the GC column and quickly heated (35 to 380°C within 2 seconds). The compounds are thermally desorbed and flushed with nitrogen into the GC column. Then the trap is fastly cooled with a fan for a new sampling cycle. Inside the GC column, the compounds are moved forward by the nitrogen flow (the mobile phase) and retained by the internal coating (the stationary phase) causing a selective retardation of the compounds. In order to achieve an optimal separation within a minimal time, the GC column follows a multi slope thermal cycle from a cold step (25°C) for the injection to a hot step (160°C) for flushing all the heavy compounds (i-e compounds with a high boiling point).

At the end of the hot step, the GC column is cooled to the cold step for the next cycle.

The GC column output is connected to a photo ionization detector where the compound concentration is converted into a small electric signal. This signal is amplified and digitalized in the electrometer board. Its recording gives the chromatogram which exhibits a peak for each detected compound. An ambient air chromatogram may include over 100 peaks.

TECHNICAL **SPECIFICATIONS**

Measuring ranges	Max. 1000 µg/m³ (programmable)
Cycle duration	10, 12, 15, 20, 30 minutes (programmable)
Measuring noise (σ)	≤0.025 at 0.5 µg/m³ benzene
Lower detectable limit (2σ)	≤0.05 µg/m³ benzene
Long-term span drift	≤4% on 15 days
Lack of fit, largest residual	≤5% of the measured value
Repetability	≤0.05 µg/m³ at 5 µg/m³ benzene (<1% of the annual limit)
Sample flow	50ml/minute
Flow control	Integrated vaccum pump + heated micro capillary tube
Trap adsorbent	Carbopack®
GC Column	Stainless steel 15m x 0.25mm x 1 µm apolar
Carrier gas control	Electronic pressure control
Temperature control	20-170°C ±0,1°C 5 ramps up to 30°C/minute
GC detector	Photo-ionisation (PID)
Display	7" TFT colour touch screen
Serial link	RS232 / RS422, IP and USB
Operating temperature	0°C to 30°C
Power supply	100-240V + ground, 50-60Hz
Gas supply	Nitrogen 5,5 3,2 bar 15 ml/min
Electrical consumption	Average: 130VA, peak 200VA, stand-by 50VA
Dimensions (LxWxH) mm	601 x 483 x 133 (3U)
Weight	12.5 kg

MAIN **OPTIONS**

- ESTEL electronic boards (2 max) with:
  - 4 independent analog inputs (0-2.5 V) / outputs (0-1 V, 0-10 V, 0-20 mA, 4-20 mA)
  - 4 remote control inputs
  - 6 dry contacts
- RS232 or RS422 serial interface (max. one Estel board if this option is used)
- Span gas input (atmospheric pressure)
- Span gas input under pressure (1 Bar) for permanent connection to a gas cylinder

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VOC72M Datasheet
VOC72M Gas Chromatography Volatil Organic Compounds (BTEX) Analyzer
Specifications subject to change without notice.

OHSAS 18001:2007
ISO 14001:2015
ISO 9001:2015
CERTIFICATION