GC-IMS-SILOX

Precise on-site Quantification of Siloxanes in Biogas, Landfill and Digester Gas

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The GC-IMS-SILOX is a stand-alone device that has been developed for user-friendly and reliable one-site measurements of siloxanes in biogas, landfill or sewage gas. The device has a straightforward single-click menu and can alternatively be run as online monitoring system testing the gas automatically in user defined intervals. Results of siloxanes, silica (SiO_2) same as silicon ('Total Si') are stored on its flash memory and shown on the 6.4" touchscreen or the 'Total Si' value is transfered via 4 – 20 mA or MODBUS (TCP).

To run the system it only takes power and nitrogen (cylinder or N_2-generator). Flexible sampling is assured by an integrated pump and a six-port valve to either test from gas sample-bags or as preferred directly from the gas pipe via a by-pass. Condensation water can be trapped by the use of an optional (GENIE-) filter.

GC-IMS-SILOX – KEY FEATURES

- Patented (EP12 816 669.1-1559, US 14/368,669)
- 2-fold separation of GC and IMS
- Manual or automatic operation including data acquisition, analysis, visualisation and export of customized alarms
- Standard ranges available:
  Low: Single siloxanes (L2 – L5, D3 – D5): 0.03 – 2 mg/m³ and 'Total Si': 0.1 – 5.0 mg/m³
  High: Single siloxanes (L2 – L5, D3 – D5): 0.1 – 5 mg/m³* and 'Total Si': 0.4 – 12 mg/m³
- High reproducibility (σ < 3 %)
- One-point calibration functionality
- Heating mode (> 100 °C) for cleaning
- Adjustable alarm thresholds

** Not all calibration range are available up to 5 mg/m³*

Technical Specification

Separation I: Retention time
Gas chromatograph (GC): Isotherm (< 80 °C)
Capillary Column: 30 m

Separation II: Drift time
Ion Mobility Spectrometer (TOF-IMS)
Ionisation: ß-radiation - ^3H
Activity: 300 MBq, below the exemption limit of 1 GBq acc. to EURATOM guideline

Detection: Electrometer
Ion Mobility Spectrometer
LoD for siloxanes: one digit ppb
Typical range for siloxanes: 0.03 – 5.0 mg/m³

Pneumatics: 2 Electronic Pressure Controler (EPC) for flow stability and GC ramping

Sampling: Ambient pressure
Firmware controled pump plus heated electrical 6-port-valve
Liquid trap (condensation water) optional

Requirement purge gas:
Nitrogen: Quality 5.0 (cylinder or generator)

Operation: Manual: Touch-screen 6.4" TFT
Remote test on-line: User defined intervals

Data Storage (internal): Flash memory 16 GB
Data output: USB, 4 – 20mA, MODBUS (TCP)

Temperature: Operation 0 – 40 °C
Moisture: up to 95 % non condensating

Power range: 100 – 240 V AC, 50 – 60 Hz

Power consumption: < 200 Watt

Dimensions: 449 x 435 x 177 mm (W x D x H)

Weight: 15.5 kg

Housing: 19", IP 20 enclosure, CE Marking

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