

# Ei2300 Monitoring System

## Siloxanes

Complex and varying gas matrices make siloxanes difficult and expensive to measure. The Ei2300 Siloxane Monitoring System is an independent and fully automated measurement system developed to precisely quantify the concentration of siloxanes in biogas. The instrument separates compounds in two separate stages, combining the selectivity of a Gas Chromatograph (GC) with the extraordinary sensitivity (low ppbv) of an Ion Mobility Spectrometer (IMS).

### Applications

- ▶ Wastewater Treatment Plants
- ▶ Landfills
- ▶ Dairy Farms
- ▶ Hog and Pig Farms
- ▶ Food Waste Digesters (co-digestion)
- ▶ Others

### Available Configurations

- ▶ Tabletop
- ▶ Rack-Mounted
- ▶ Commercial and Industrial Enclosure
  - ▶ NEMA 4/IP66 Rated
  - ▶ Table and Wall Mountable
  - ▶ Window to View LCD Screen
  - ▶ Full Remote Access
  - ▶ Secure Enclosure
    - ▶ Keyed Front Door Handle with Padlock Option
    - ▶ Access to Rear Door Latch Only via Front Door
  - ▶ Integrated, Heated Sampling System
  - ▶ Heated Sample Line
  - ▶ Options
    - ▶ Hazardous Rated Enclosure (Class 1, Division 2)
    - ▶ Side Mounted Air Conditioning Unit
    - ▶ Remote Access Hardware



## Key Features

- ▶ Precise Measurements
- ▶ Easy to Operate
- ▶ No Analytical Specialist Needed
- ▶ Two-fold Matrix Separation
  - ▷ Gas Chromatograph
  - ▷ Ion Mobility Spectrometer

Proprietary Calibration Procedure Limits of Quantification (LOQ)	
Species	Silicon (Si) (mg/m <sup>3</sup> )
(TMSOL) Trimethylsilanol	0.006
(L2) Hexamethyldisiloxane	0.007
(L3) Octamethyltrisiloxane	0.007
(L4) Decamethyltetrasiloxane	0.007
(D3) Hexamethylcyclotrisiloxane	0.008
(D4) Octamethylcyclotetrasiloxane	0.008
(D5) Decamethylcyclopentasiloxane	0.008
(L5) Dodecamethylpentasiloxane	0.037
(D6) Dodecamethylcyclohexasiloxane	0.038

Start		System	Info
Last Quantification Results		09.01.2017 / 09:46:38	MEA
TOTAL Si	1.3 mg/m <sup>3</sup>		CAL
TOTAL SiO <sub>2</sub>	2.7 mg/m <sup>3</sup>		
TOTAL SILOXANES	3.8 mg/m <sup>3</sup>		INTERVAL
L2	0.1 mg/m <sup>3</sup>		
L3	1.8 mg/m <sup>3</sup>		
L4	0.2 mg/m <sup>3</sup>		
L5	n.d.		
D3	0.7 mg/m <sup>3</sup>		
D4	0.5 mg/m <sup>3</sup>		
D5	0.5 mg/m <sup>3</sup>		
D6	n.d.		
SCOPE	Clear	Report...	History
RESULTS	1F3-00065	READY SILOX1	SMB 192.168.100.59 DHCP 10:13 Sep. 16, 2016 Log

Technical Specifications			
Separation I	GC Retention Time	Purge Gas Requirement	Nitrogen: Quality 5.0 (cylinder or generator)
Gas Chromatograph (GC)	Isotherm (< 80° C)	Operation	Manual: 6.4" TFT touchscreen Online Remote Test: User defined intervals
Capillary Column	30m	Data Storage (Internal)	16 GB Flash Memory
Separation II	Drift Time Ion Mobility Spectrometer (TOF-IMS)	Data Output	USB, 4-20mA, MODBUS (TCP)
Ionization	β-radiation - <sup>3</sup> H	Ambient Temperature	Operation 0 - 40° C
Activity	300 MBq, below the exemption limit of 1 GBq acc. to EURATOM guideline	Moisture	Up to 95% non-condensing
Detection	Electrometer, Ion Mobility Spectrometer	Power Range	100 -240 V AC, 50 - 60 Hz
LoD for Siloxanes	One digit ppb	Power Consumption	< 200 Watt
Typical Range for Siloxanes	0 - 1.5 mg/m <sup>3</sup>	Weight	34 lbs (15.5 kg)
Pneumatics	Two Electronic Pressure Controllers (EPC) for flow stability and GC ramping	Dimensions	17.7 x 17.1 x 7 in (No Case) 449 x 435 x 177 mm (No Case)
Sampling	Ambient pressure, Firmware controlled pump plus heated electrical six port valve, Liquid trap (water condensation) optional	Housing	19", IP 20 Enclosure, CE Marking

GC-IMS Supplied By:

