

EXPERTS IN GAS ANALYSIS

Revolutionary analyzer for Odor and Sulfur monitoring Scalable solution VigiEnose/vigiOdor

VigiEnose from Chromatotec® is an automated solution dedicated to measurement of odor, VOCs and speciation of Sulfur Compounds for industrial market (waste water treatment plants, landfills and refineries) at very low concentration levels.

With sensitivity lower than what the human nose can detect, this VigiEnose analyzer is able to identify the origin and the level of odors with a chemical approach to quantify leakage around the site. It also allows to be alerted when emissions limits are exceeded and to determine deodorization process efficiency, in order to optimize the performance of treatment facilities.

This unique solution provides reliable results with automatic data validation with embedded calibration system to be confident on results provided.

Integrated to the VigiOdor web platform, it offers possibility to define the odor and its chemical impact on neighborhood, according to real climate conditions and nearby residents' observations. Thanks to performances tests using sensory panel perception around the site, industrials can then anticipate nuisance and treat emissions before they affect nearby neighborhood.



24 - 29 October 2016
Pavilion 3, Booth L25



Hall 9, Booth #9250

Exhibitions in 2017

PITTCON - USA, Atlanta
5-9 March 2017

ARAB LAB - UAE, Dubai
20-23 March 2017

ANALYSE INDUSTRIELLE
France, Paris
15-16 March 2017

MEDOR Exp for Oil & Gas applications: Sulfur compounds impurities detection in Natural Gas/ LPG / Propane / Butane Odorization, quality control and process monitoring

The MEDOR® Exp from Chromatotec® is aimed at online monitoring of sulfur compounds in hazardous zones. This analyzer offers continuous analysis and full speciation of all naturally occurring sulfur compounds such as H₂S, Methyl and Ethyl Mercaptan as well as odorants blends, from concentrations as low as 1 ppb.

The system uses proven auto-GC technology for odorization, quality and safety applications in a wide variety of processes:

- **Odorization application:** The MEDOR® Exp has been developed to monitor all available odorant and mercaptan blends available from all manufacturers. The system can be used to continually analyze and control odorant injection systems for natural and biogas sites.
- **Pipeline quality control:** The analyzer is widely used for sulfur content in natural gas storage and transport. Odorless gas can be analyzed for natural sulfur species before and during transport or storage.
- **Process monitoring – gas cleaning & desulfurization:** Sulfur removal processes, such as biogas treatment before injection into a pipeline network, requires careful monitoring and control. With detection limits as low as 1 ppb H₂S, the MEDOR® Exp system offers users unparalleled security for process monitoring.

A system validated all around the world

The quality and performance of the system has been recognized worldwide by Standard Organizations such as ISO and ASTM. The MEDOR® Exp is supplied in a stainless steel purged cabinet. The system is certified ATEX zone 1 and 2, group IIC T4 and CSA (Class 1 Division 2). for hazardous areas.

The Exp cabinet is protected by continuous flow with an X or Z purge system certified for zone 1 and zone 2 respectively. This purging system includes pressure regulator with a flow restrictor to control the inlet dilution.



Medor Ex Analyzer



A flow controller is located at the valve outlet to validate the flow out of the cabinet. The cabinet is pressurized and diluted continuously.

IP 66 class allows the use of the unit in waterproof case environment and reduces the instrument air consumption volume needed for the continuous dilution. H₂S, mercaptans and total sulfur can be analyzed by MEDOR® Exp with only nitrogen used for analysis and integrated calibration device.

One of the main advantages of MEDOR® is that no additional hazardous area is created in the analyzer as it could be the case with hydrogen or air presence and a flame. The worst case is taken into account to calculate the dilution flow to stay under the explosive condition.

If pressure inside the cabinet is not higher than ambient pressure, the power is switched off by the X-purge system. For service there is a by-pass key to open the cabinet without pressure inside.

Due to these improvements, Chromatotec® provides a full analytical solution for natural gas monitoring in hazardous area.

ChromENERGY for control of performances and C1C6+ monitoring

Gas turbine engines derive their power from burning fuel in a combustion chamber and using the fast flowing combustion gases to drive a turbine in much the same way as the high pressure steam drives a steam turbine. To minimize the size and weight of the turbine for a given output power, the output per pound of airflow should be maximized. This is obtained by maximizing the air flow through the turbine which in turn depends on maximizing the pressure ratio between the air inlet and exhaust outlet.

Thermal efficiency is important because it directly affects the fuel consumption and operating costs. So the Process unit system efficiency evaluation is a crucial point. ChromEnergy was used for electrical gas power plant application to monitor gas quality and check performances ration before and after the process.

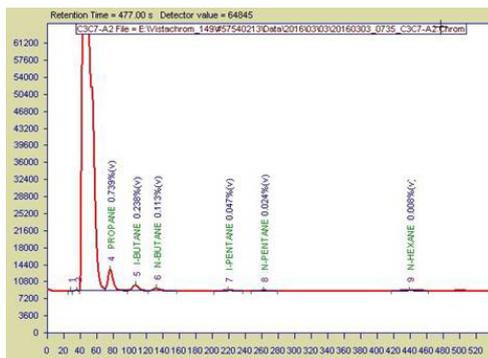
ChromEnergy from the Chromatotec product line is part of solution provided for Oil & Gas market. Where energyMEDOR is more focused on Sulfurs monitoring and odorization, application, the chromEnergy gas analyzer designed for the measurement of hydrocarbons.

Using a Thermal Conductivity Detector (TCD), this automatic gas chromatograph analyzer is the perfect tool to detect and quantify hydrocarbons from C1 to C6+. This equipment works with isothermal mode. Coupled with the last version of Chromatotec's software (Vistachrom), the instrument is able to provide calorific value and WOBBE index to the end user on automatic mode.

With its high sensitivity and robustness, the analyzer is a perfect instrument for natural gas characterization. The chromatograms mentioned hereafter illustrates its capabilities to quantify the hydrocarbons as iso- or linear propane, butane, pentane (iso and linear) or hexane. When hexane is not present, performances and cycle time can be increased with reduce cycle time.

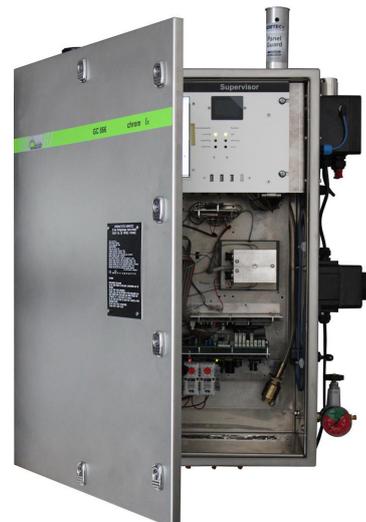


In term of functions, end user has defined some individual alarms per type of molecule. Thanks to software capabilities, C1C6+ group has been created as additive parameter to check global profile and be warned when significant changes of concentration are observed. Thanks to the embedded PC and Modbus data transfer protocol, user check results from dedicated Supervision center offering results at a glance. The 4-20 mA output option allows to adjust the process by direct integration of the signal on the process.



**C1C6+ analysis
realized with chromENERGY**

Combined with energyMEDOR, Chromatotec offers a very competitive & efficient solution for hazardous areas for energy and oil & gas market applications in any type of environment.



ChromENERGY Analyzer for C1C6+

Integrated Wall Mount Enclosure for ChromENERGY. Includes:

- Weather-proof, IP 66 Stainless Steel enclosure
- Front Door, hinged, gasketed, Front door lock
- Internal heater/VORTEX cooler and thermostat
- Electrical 15A Din Rail Mount Terminals
- Stainless Steel Bulkhead Pass-through module (4 ports)
- RS-232/RS-485 port, WP
- 120V 60Hz 20A Power Cord

Continuous Monitoring of Polycyclic Aromatic Hydrocarbons using Automatic Thermal Desorption-Gas Chromatography

Polycyclic Aromatic Hydrocarbons (PAHs) are a group of over 100 different chemicals that are known to be formed typically during incomplete combustion of organic matter at high temperature. Their major sources in the atmosphere include industrial processes, vehicle exhausts, waste incinerations, and domestic heating emissions. Due to their carcinogenic/mutagenic effects, 16 PAHs are currently listed as priority air pollutants.

Actual analytical methods dedicated to monitor PAHs require multistep sampling preparations and are not suited for continuous monitoring. Automatic Thermal Desorption-Gas chromatography equipped with flame ionization detector is the standard method for the monitoring of volatile and semi-volatile hydrocarbons (MCERTs 2012).

This technique allows for identifying and quantifying continuously hydrocarbons from ethane to naphthalene.

Chromatotec has developed a new and simple method for sampling and determination of PAHs in gas and solid phase in air by using thermal desorption technique followed by gas chromatography equipped with two detectors: a flame ionization detector and a Mass spectrometer. With cycle times of 1 hour, the system is perfectly suited for the continuous monitoring of PAHs from ppq to ppb levels, especially for industrial process characterization and optimization.

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