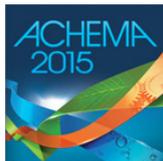


EXPERTS IN GAS ANALYSIS



**Achema - Exhibition grounds of Messe, Frankfurt am Main - Germany
15 - 19 June 2015, Hall 11.1, stand° F79**

1975 - 2015: 40th anniversary of MEDOR®

PGE, Korea Gas Corporation, Dominion Transmission Inc., Al Fajr Gas refinery, are at the top list of our MEDOR® analyzers users.

The first MEDOR® analyzer has been launched in 1975 for the natural gas odorization process control. Gaz de France was one of the leaders using such innovative technology.

Now, the technology has been deployed on more markets. Refineries, water treatment plants use it to quantify sulfurs at ppt or ppb concentration levels.

Latest development integrates turn-key solution with specific configuration to track sulfur compounds in natural gas or in ambient air. With Exp MEDOR® solution it is now possible to monitor gases as H₂S, Mercaptans, sulfides in hazardous environment (Class I, Division 2, Group C & D).

The MEDOR® has become the reference instrument in the field of expertise of natural gas in several countries especially in the United States.

Thus, its performance has been approved by the US standard ASTM D7493-08: Standard Test Method for On-line Measurement of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatograph and Electrochemical Detection. It is also certified ISO 6326/2 and meets the DIN 51855/7 standard.

In 2015, Chromatotec® celebrates the 40th anniversary of MEDOR® product line!



EXHIBITIONS 2015 - 2016

- **AWMA - USA**, Raleigh
22-25 June 2015
- **EUROANALYSIS - FRANCE**, Bordeaux
6-10 September 2015
- **ISPAC (International Symposium on Polycyclic Aromatic Compounds conference) - FRANCE**, Bordeaux
13-17 September 2015
- **OMCTS - CANADA**, Toronto
14-15 September 2015
- **ADIPEC - UAE**, Abu Dabi
9-12 November 2015
- **IWA ODOUR & AIR EMISSIONS CONFERENCE - FRANCE**, Paris
16-18 November 2015
- **PITTCON - USA**, Atlanta
6-10 March 2016
- **ARAB LAB - UAE**, Dubai
20-23 March 2016

On-line VOC fast analysis from ppt to % using GC/MS FID

Microelectronics semiconductor companies have interest for solutions able to ensure people's safety and control a good repeatability of industrial process. Chromatotec® has recently provided complementary solutions for the contaminants for this market with **AirmoSCANXpert GC/MS** fully integrated solutions.

Electronic boards are produced in clean air room by complex lithographic process. The use of very reactive chemicals is important.

Clean room technology, which relies on the use of HEPA and ULPA filtration, has in the past almost exclusively focused on the control of micro- and nano-particles. Nevertheless, as a consequence of device reduction, AMCs have also become a key detractor of yield.

These AMCs can impact the process and reduce the lifetime of equipment. Among the AMCs, silicon compounds are very problematic because they combine with oxygen to create amorphous silicon dioxide on optical surfaces, leading to non-reversible lens damages.

These optical tools are very expensive and need to be protected. Therefore, there is a need to analyze precisely and continuously gas process in air.

For such demand, Chromatotec® has provided AirmoSCAN Xpert, the last very sensitive online GC-MS-FID instrument for VOC identification and quantification. It is now possible to track more than 100 VOC and monitor molecules listed in PAMS 56, TO14, TO15, etc. Identification of compounds and quantification are now possible at **ppt, ppb, ppm and % levels**.

AirmoSCAN Xpert analyzer encompasses a specific trap to concentrate the sample, a column for separation of chemicals and two detectors: a new micro flame ionization detector (FID) and a mass spectrometer for quantification and identification respectively.

This user-friendly instrument monitors automatically all AMCs and allows increasing production efficiency filters and lenses lifetime. A special multiplexing system integrated in the MS allows measurements from two streams.

Therefore the same MS can be either coupled to two GC-FID (e.g. **airmoVOC C6-C12** and **airmoVOC C2-C6**) or one GC-FID with possibility to scan direct sample without separation on the second stream.

The new market demand is now in Datacenters where Chromatotec® plans to use his solution for process control management system to reduce energy consumption by managing ventilation systems with his analyzers.



Continuous Odor, Sulfurs and VOC monitoring with vigiODOR solution

2 minutes for CH₄ and NM-THC quantification without matrix effects

Chromatotec® is pleased to announce the new vigiODOR solution launching. vigiODOR solution is a complete solution for online odor monitoring including on-line analyzers, dispersion modeling and complaints management.

This solution offers a comprehensive and novel solution for Odor Monitoring and complaints management, including:

- Predictive and live modeling software
- Complaint management module
- Odor Monitoring Station
- Automatic self-calibration system
- Data acquisition and transmission
- Meteorological station

The solution provides a comprehensive suite of real-time dispersion modeling and complaint management. It offers automatic notification for odor exceedance levels, online registration of complains, recalculation of odor concentration at specific location & time. The data are mapped automatically against the complaint and includes complaint risk forecast based on predictive modeling.

VigiODOR solution is based on an initial odor inventory and updated continuously with GC analyzer data, field olfactometer results and a local meteorological weather station.

The trsMEDOR® tracks sulfur molecules and provides chemical and olfactive global fingerprint when associated with PID detector and correlate results with sensory evaluation.

This truly unique solution is based on GC Analyzer according to ISO6326/2 & DIN51855/7, ASTM D7493-08 with detection limit under 1ppb for H₂S

and DMS with interference free.

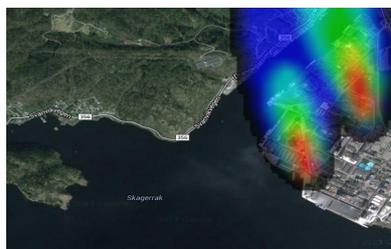
The main advantages of vigiODOR solution over existing technologies as electronic nose or sensors are the use of a GC Analyzer providing a reliable measurement with self-calibration.

Chemical to odor correlation is continuously improved with use based on SM100 readings. Robustness of detector (e.g. 10 year sensor life for sulfur detector).

This solution already deployed in the United Arab Emirates will be deployed on a sewage in Poland to confirm the acceptance of this full turnkey solution.



vigiNOSE analyzer (TRSMEDOR® & PID)



Odor & chemical dynamic plume

Unlike instruments that measure only methane and total hydrocarbons, the chromaTHC developed by Chromatotec® provides a direct measurement of **methane and non-methane** concentrations without any calculation or conversion. This allows accurate and precise measurement of low levels of non-methane hydrocarbons (**NM-THC**), even in the presence of methane at much higher concentrations. The GC column used in the chromaTHC achieves absolute separation of methane from all other volatile organic compounds. Also, the special configuration of the analytical system allows complete separation of the matrix gas from methane and VOCs.

Therefore the measurements are independent from the amount of oxygen in the sample. The stability and accuracy of the system can be checked daily with the internal calibration system mounted in the instruments.

The chromaTHC allows very fast (**2 minutes**) and accurate measurements of methane and non-methane **without any matrix effects**.

This system can control a multiplexing system for multi-stream analysis. Vistachrom software records all data in an embedded computer and can transfer all results and information using different data transfer protocols.

Sulfurs monitoring at ppb level in hazardous area with MEDOR® Exp analyzer

In 2009, Chromatotec® has launched his first version of MEDOR® Exp cabinet dedicated for **sulfur monitoring in hazardous areas**.

Initially, the MEDOR® analyzer was Class 1 Div 2, group C&D USA certified. It received CSA International recognition on second time.

Chromatotec® has then extended his offer with a full package including MEDOR® and ChromENERGY for Gas Quality control dedicated to Petrochemistry, refineries and Gas storage areas where **ATEX zone 2 Ex II 3G Ex pz IIC T4** is required.

The MEDOR® unit allows to detect sulfurs at trace levels, the ChromENERGY allows to quantify Hydrocarbons C1-C6+ and provides Calorific Power Index value at the same time. Results are obtained at a glance with VISTACHROM software installed on unique embedded computer.

Now Chromatotec® technologies are under process to obtain higher certification level for ATEX and CSA.

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. 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 there 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 its new improvements, Chromatotec® provides a full analytical solution for natural gas monitoring in hazardous area.



MEDOR® Exp analyzer

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