

## ONLINE GAS ANALYZER EXPERTS

### New product range for hazardous areas

Chromatotec has developed new ranges of auto-GCs and process-GCs for hazardous area operation. This allows Chromatotec to expand its markets and deploy its expertise in online gas trace and ultra-trace level analysis of VOCs and sulfur compounds.

Now many configurations of Chromatotec GC866 Exp (pressurized) and/or Exd (flameproof) are available with different levels of certification:

- ATEX and IECEx: zone 1, Group IIC or Group IIB + H<sub>2</sub> T4.
- CSA (in the USA and Canada): Class 2 Division 2 Group B, C & D T4.

MEDOR® Exp or Exd allow online sulfur measurement in natural gas, gaseous fuels and ambient air. The amount of applications has increased, from H<sub>2</sub>S at ppb level with H<sub>2</sub>S MEDOR to sulfur speciation including odorants and total sulfur at ppb or ppm range with energyMEDOR.

By adding a specific injection valve, we can go to a high concentration at high ppm or % or to a liquid application for LPG analysis. Easy track, a user-friendly odor and chemical dispersion modeling software, that uses weather conditions and site topology, can be included.

chromaPID or airTOXIC allow online VOCs measurement with our analyzer in Exp version. Thanks to these process-GC analyzers using PID detection we can analyze Benzene alone at ppm level for hygiene or quality control of gases. BTEX and Styrene in ambient air can be monitored in hazardous areas at ppt and ppb levels for air quality monitoring and many VOCs per request.



MEDOR  
Exp version

Online gas compositions and specific applications can be performed using our chromaTCD and/or chromENERGY which are auto-GCs with TCD detection.

Many options are available in a type of certification which allow high versatility of the GC866 Ex such as multiplexing, temperature regulation, 24 V DC, inbuilt nitrogen generator, internal calibration and on site computer access without opening the cabinet.

### Exhibitions 2019



**Natural Gas Odorization**  
Houston, USA  
27-28 August 2019 - Booth 7



**CEM INDIA**  
New Delhi, INDIA  
24-26 September 2019 - Booth 29



**ADIPEC 2019**  
Abu Dhabi - UAE  
11-14 November 2019  
French Pavilion Booth 9239

### Complete speciation of sulfur compounds in hazardous area zones I and II using Ex d certified solution

Natural gas is a natural resource present deep below the surface of the earth. In order to use and valorize natural gas, it is necessary to control its composition, which can vary depending on where it is extracted. Even if it is composed mainly of methane, natural gas contains some traces of sulfur compounds which can affect its quality and can have dramatic effects for its transportation (e.g. corrosion of the pipes). Therefore, companies that work with natural gas control the level of sulfur compound impurities as well as adding specific Mercaptans to make it odorized and easily detectable in case of a leak.

For this purpose, Chromatotec® has developed and manufactures the energyMEDOR® which measures with speciation all following sulfur

compounds generally present in the natural gas: H<sub>2</sub>S, DMS, DMDS and Mercaptans. This new instrument is designed to work in hazardous areas such as ATEX zone 1 without any purge gas requested for operation.

The MEDOR Ex d solution is one of the only instruments capable to analyze all previously mentioned sulfur compounds in hazardous areas without purge gas thanks to the MEDOR® wet cell detector. Other possibilities given to customers are using the FPD technology (requesting hydrogen and air for the flame and big volume of purge gas to operate in hazardous areas) used for sulfur compounds detection.

Chromatotec®'s energyMEDOR appears to be the best solution for these applications since



MEDOR Ex d Version

it only needs a very small amount of zero air or nitrogen to operate (down to 4 mL/min) and its MEDOR® wet cell Sulfur Specific Detector is capable to detect sulfurs as low as 1 ppb.

This certified solution has been designed to operate in zone I and II and can be used with 230V, 115V and 24V DC power supply making it quite unique on the market.

## Monitoring of odorants, VOCs and sulfur species in gas or liquid (LPG/LNG) matrices

Chromatotec®, specialist in the manufacturing of process gas analyzers for online monitoring, is now entering the world of liquid sample analysis through the development of a simplified enhanced liquid sampling system (XXvalveLPG) specifically designed to extract representative samples from the liquid phase.

The extracted liquid sample is vaporized and injected in continuous mode into the column of the auto-GC analyzer with speciation of more than 16 sulfur compounds or 123 Volatile Organic Compounds (VOCs) according to the configuration type.

Considering sulfur compounds approach, H<sub>2</sub>S, mercaptans such as tert-butyl mercaptan (TBM), dimethyl sulfide (DMS) and/or Total Sulfur (TS) can be analyzed in Liquid Propane Gas (LPG), Liquefied Natural Gas (LNG) and other liquid samples such as crude oil, diesel, fuel, oil, water and condensates at very low concentration levels (ppb and/or ppm) in automatic routine mode.

This is very useful to control the effectiveness of the odorization process of LPG as it is

usually odorized with DMS and TBM to alert in case of leakage. Chromatotec®'s liquid valve allows performing the analyses directly from the liquid phase to overcome the problem of lack of uniformity of the odorized liquid vapors due to the different boiling points of the species when associated with auto-GC with a MEDOR® sulfur specific electrochemical detector, such as energyMEDOR® analyzer.



Analyzer with internal calibration

It is available with dedicated configuration for safe and hazardous areas: ATEX, IECEx, CSA and CSA international certifications for its application in refineries and petrochemical plants.

## Monitoring of liquid matrices by Gas Chromatography using a simplified and enhanced headspace sampling system

Chromatotec® presents a headspace sampling system designed to extract representative samples from the liquid phase.

The vaporized sample can be preconcentrated using a trap to achieve quantification at very low concentration levels (ppb and/or ppm). Then, it is injected automatically and in continuous mode into the auto-GC analyzer. Speciation of sulfur compounds or VOCs is done with a MEDOR® sulfur specific electrochemical detector or a FID respectively. The complete system allows online analysis without human intervention.

This technology can be used for a wide variety of applications in the oil and gas industry. It allowed controlling the effectiveness of the LPG odorization process with DMS and TBM, to alert in case of leakage.

In aqueous mode, it has been applied for the analysis of acrylonitrile. This polymer is used in plastics, fibers or as a component of additives to enhance oil recovery. This sampling system reduces the risk of polymerization of its monomer, acrylamide, avoiding the clogging of the column.

## Combined VOCs and Odor Monitoring for Odor and Chemical Control Units: A Major Challenge for Industries

When odor issues occur at an industrial site, rapid diagnosis must be done to define the best source treatment strategy. Manual sampling techniques can lead to problems during sampling and transport to the laboratory for analysis. Therefore, there is a need for online analyzers to monitor odors constituents such as methane and non-methane Volatile Organic Compounds (VOCs). Online monitoring of methane (CH<sub>4</sub>) and Non-Methane Total Hydrocarbons (THC) with an all-in-one solution allow accurate and fastest results.

The fully automatic, wall-mounted instrument proposed by Chromatotec® consists in an automated Gas Chromatograph (GC) with Flame Ionization Detection (FID): chromaTHC. It provides the ability to quantify CH<sub>4</sub> and nmTHC (with THC by sum) concentrations from ppb to ppm within only 2 minutes and without matrix effects.

Designed for odor and chemical control units, it includes a built-in computer and zero air and hydrogen generators. The measurement system performance evaluation is completed using the internal calibration with a permeation tube to provide automatic data validation. Additionally, a 3G/4G MODEM is available for data transmission and automatic alarm by SMS function to inform user and provider when media support (charcoal or bio filters) is saturated and needs to be replaced.

This user-friendly system does not require specialized people to operate. The high quality of the information is assured without the need for verification by an expert.



ChromaTHC analyzer

## Brand new : LCD display on Wall Mounted Box

Chromatotec® is now able to integrate a projected touch screen for systems available in wall mounted box (MEDOR, BTX or airToxic analyzers).



Dedicated to hazardous areas, this LCD display has excellent optical properties as it responds to light touch and is extremely robust.

EUROPE  
SAINT-ANTOINE - FRANCE

USA  
HOUSTON - TEXAS

ASIA  
BEIJING - CHINA