

Le Bulletin

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Some references

chromaS	Ref. C51000
TRSMEDOR ppb	Ref. M52022
TRSMEDOR ppm	Ref. M54022
Medor Ex	Ref. M55000
energyMEDOR ppm	Ref. M41000
energyMEDOR ppb	Ref. M42000
airMEDOR ppb	Ref. M10000
airMEDOR ppm	Ref. M12000

Case study

[Case study analyse du CO2](#)

[Case study chromaS](#)

[Case study energyMEDOR](#)

[Case story airMEDOR – Bâtiment de dégrillage](#)

[Case story airMEDOR – traitement des eaux usées](#)

Continuous analysis of sulfur compounds in waste water

Analysis with the **chromaS** of sulfur compounds before and after a *deodorization installation by chemical cleaning*

Selective analysis of : H_2S , CH_3SH , C_2H_5SH , DMS, DMDS, CS_2 :



Sulfur pollutants to be treated	Maximum concentrations inlet (mg/m ³)	Average concentrations inlet (mg/m ³)	Guaranties outlet (mg/m ³)
H_2S	10	2	0,07
R-SH	1,5	0,5	0,04
Total sulfur	12	2,5	0,12

There are numerous interests to this continuous analysis, which mainly resides at various steps of this installation commissioning :

- Process optimization
- Yield calculation
- Sulfur compounds speciation
- Reception of the installation and performances test
- Rapid analysis : 10 mn cycle time

TRSMEDOR: integration in an industrial process

The **recycling and valuation of wastes** is a major challenge for the conservation of the environment. **Chromatotec** currently works with the research center of a large French industrial group to add an analyzer in their composting process.

The system includes a supervisor, 6-stream multiplexer and a cabinet of analysis with a **TRSMEDOR**, an analyzer for total hydrocarbons and an analyzer for NH_3 (ammonia).

The **TRSMEDOR** along with the **industrial system** enables follow-up of concentrations of sulfur compounds like **DMDS**, H_2S , **Methyl-SH**, **DMS** from 10 ppb to 20 ppm.

Ref: M52022 TRSMEDOR



Analysis cabinet
For water cleaning plant

Journée Soufrés



22nd October 2009
Maison d'Aquitaine (PARIS)

chromaS application: emission monitoring in a paper mill

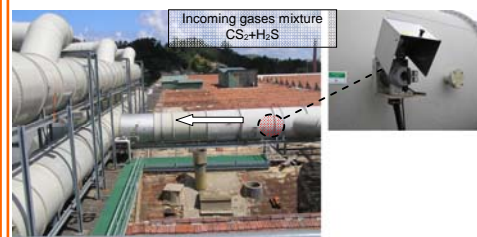
The **paper industry** uses large quantities of **sulphur substances** particularly during the process of cellulose cooking (Kraft burning).

The release of these substances in the air is an issue for the environment in terms of odors and toxicity. These factories have to be equipped with gas cleaning systems to limit their emissions.

Chromatotec recently installed two **chromaS** analyzers to validate and follow up the operation of bioactive cleaning systems ; a **CHROMA S** analyzer was installed upstream of the cleaning system and another one downstream to monitor the **concentrations of COS and H_2S** between 0 and 1000 mg / m³.

New application on heavy compounds is presently developed (certified cylinder) and a comparison is made between chromaS and MEDOR.

Ref: C51000 ChromaS.



Sample line inlet washing tank picture

chromaS : instrument characteristics

Chroma-S is an industrial GC with dual-flame photometric detector (FPD) :



chromaS analyser

- first hydrogen-rich flame to decompose VOC samples,
- second to reduce the sulfur compound to S_2 species which produce a blue chemiluminescent emission in the visible light spectrum. The blue light emission is passed through a photomultiplier tube. The signal is further amplified by an electrometer.

$H_2S/COS/MM/EM/SO_2/CS_2/DMS/DMDS$ can be analyzed in two main applications

- Application 1 : pack column, COS is very well separated from H_2S , DMDS is not analysed, SO_2 is separated, LDL: 1 ppb for combustion application in Refinery, Paper mills or unknown compounds.
- Application 2 (free of COS): capillary column SO_2 is separated from H_2S , LDL: 10 ppb Waste Water Plant application similar to Medor

Chroma S can be used for expertise, because the detection system is only for compounds with -S- molecule and permits to perform continuous improvement on key parameters as cycle time, LDL, detection range, compound separation.

New ASTM D7493-08 and Exp MEDOR

Gaseous fuels, such as natural gas, petroleum gases and bio-gases, contain varying amounts and types of odorous sulfur compounds. The accurate on-line measurement of these compounds is essential to gas processing, operation and utilization, and of regulatory interest.

ASTM has recently developed a new Standard TEST METHOD for online Measurement of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Electrochemical detection.



Exp MEDOR

The **energyMEDOR** manufactured by Chromatotec is the perfect equipment to fulfill this new ASTM method. Some of the features of the analyzer are: separation by chromatography technique, user friendly software, auto-calibration, calibration on each analysis via permeation tubes for safety reasons, robustness and reliability.



Installation on site

Now, Chromatotec has also engineered and manufactured the new EXP Medor designed to operate in hazardous area environment such as Class I, Division 2, group C & D.



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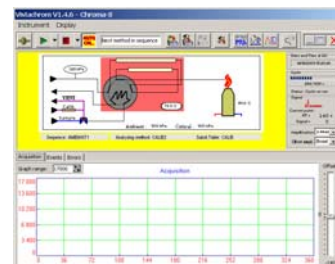
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chromaS : extension of range tanks to linearisation

For sulfur compounds analyzed, the signal response is not linear. Intensity emission is not proportional to sample amount. It is an exponential form in agreement with FPD detector theory. To solve the non linearity problem and extend the ranges we implemented a linearization program.

In 2009, **VISTACHROM 1.46** our new software version, uses automatic calibration (DMS from permeation tube) and automatic results taking account of linearization calculations.



Vistachrom 1.46

For each compounds we have drawn linearisation curves and obtained formula we integrate in substance table.

We use : $Y = aX^{0.6}$ (very near the theoretical expectation) with **regression factor up to 0.995**

Now detection range is ppb and ppm level. For example H_2S range is 0.01 to 10 mg/m^3 or 7 ppb to 7 ppm.

DVD for maintenance available

Chromatotec has now at the disposal of all customers and distributors DVDs for maintenance.

The DVDs available now are :



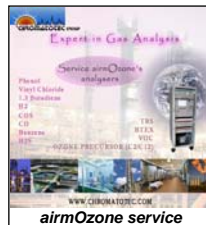
Service TRSMEDOR



Service energyMEDOR



Service airTOXIC



Service airmOzone



Service chromaS



Service PID & FID analysers

To get them, feel free to contact us providing the serial number of the equipment you would like to service.

Customer care: from 9 am to 6 pm (CES Time), we are at your disposal for service gas analyser/software/computer/ maintenance and calibration. To receive our news, send your email to info@chromatotec.com