



Online Analytical Solutions Experts

# ONLINE ANALYSIS OF SULFUR COMPOUNDS

## MEDOR<sup>®</sup> Ex

ATEX / IECEx / CSA International



ODORIZATION · DEODORIZATION · QUALITY · SAFETY

*The MEDOR® Ex from CHROMATOTEC® offers continuous, online analysis of sulfur compounds from concentrations as low as 1 ppb in natural and biogas feeds.*

*The compounds analyzed by the system include all naturally occurring sulfurs such as  $H_2S$ , methyl and ethyl mercaptan as well as all odorant blends.*

*The system uses proven GC technology developed and improved over 35 years for odorization, quality and safety applications in a wide variety of processes. The quality and performance of our systems have been recognized worldwide with recognition from Standard Organizations such as ISO, ASTM and CSA.*

### Odorization Application

The MEDOR® Ex 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, landfill and biogas sites.

The integrated software transfers all results and information to a host system automatically.

### Process monitoring – Gas cleaning & desulfurization

For sulfur removal processes, such as Landfill or BioGas treatment before injection into a pipeline network requires careful monitoring and control.

With detection limits as low as 1 ppb  $H_2S$ , the MEDOR® Ex system offers users unparalleled security for process monitoring.

With the internal multiplexer, monitoring before and after treatment is possible with one analysis system.

The integrated software, Vistachrom is equipped with concentration based alarm thresholds which will trigger safety measures in the event of process failure.

Natural gas destined for cracking processes is easily monitored automatically to ensure protection for catalytic plants.

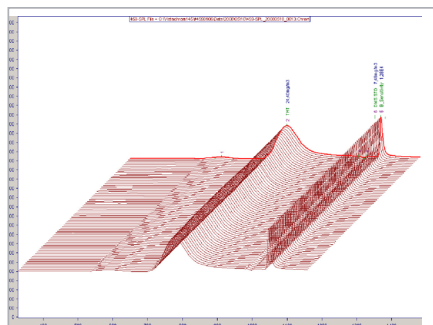
Our internal permeation system offers automatic validation of results & data with full traceability.

### Pipeline Quality Control

The MEDOR® Ex is widely used for sulfur content in natural gas storage and transport.

Non-odorized gas can be analyzed for natural sulfur species before and during transport or storage.

The continuing development of the energyMEDOR® system has led to a new ASTM guideline being defined:



### ASTM D7493-22

Standard Test Method for Online Measurement of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatograph and Electrochemical Detection

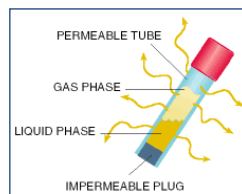
# Features & benefits of the MEDOR® Ex system

## Electrochemical detection

The use of our sulfur specific electrochemical cell ensures no interference of results. The only gas required by the system is a feed of Nitrogen and instrument air to purge the cabinet.

## Internal calibration system

All MEDOR® Ex instruments are supplied with internal calibration by permeation tube. Results are thus automatically validated. No external calibration cylinders are required for operation.



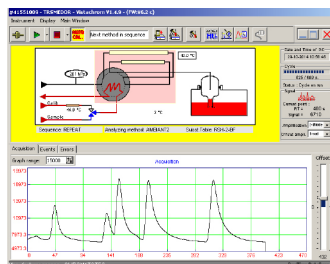
## Vistachrom Software

The Vistachrom operating software developed by CHROMATOTEC® offers a user-friendly interface for easy operation and processing of data.

Alarms, status reports and results are easily transferred through a range of options including MODBUS and 4-20mA, with 0 mA for instrument default.

Automatic calibration and sampling can be easily set-up and modified, directly or remotely as required.

Calculation module : average, statistics, odor index ...



## Speciation of compounds

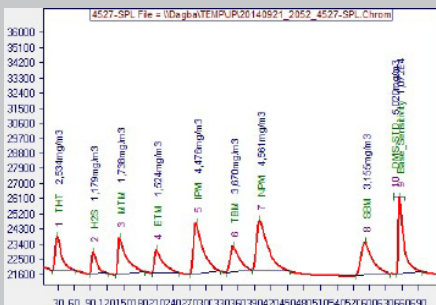
The MEDOR® Ex offers full speciation of all analyzed compounds. Each individual sulfur component is analyzed and quantified ensuring no thermal conversion of compounds is required.

H<sub>2</sub>S, methyl mercaptan, ethyl mercaptan, THT, TBM, NPM, SBM, IPM, DMS, DMDS are all analyzed by the MEDOR® Ex.

## Exd Rated Enclosure

The MEDOR® Ex is supplied in a stainless steel purged cabinet.

The system is certified ATEX zone 1 and Zone 2, or CSA International for Class 1 Division 2 areas.



## Low maintenance

The MEDOR® Ex is an extremely low maintenance system offering considerable cost savings over the lifetime of the system.

Capillary columns and the Electrochemical detection system have lifetimes in excess of 10 years ensuring users have minimal annual maintenance procedures.

MEDOR® Ex  
[www.chromatotec.com](http://www.chromatotec.com)

# Technical Specifications MEDOR® Ex

|                                       |                                                                                                                                                                                                                                      |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Measurement Principle                 | Wet cell with reservoir for long term stability                                                                                                                                                                                      |
| Sulfur compounds analysis             | Total or speciated compound results. H <sub>2</sub> S, methyl mercaptan, ethyl mercaptan, THT, TBM, NPM, SBM, IPM, DMS, DMDS are all analyzed by the MEDOR® Ex COS in option                                                         |
| Detection Limit                       | Down to 1 ppb H <sub>2</sub> S                                                                                                                                                                                                       |
| Measuring Range                       | 1 ppb to 1000 ppm (7 µg/m <sup>3</sup> to 1400 mg/m <sup>3</sup> )<br>% in option                                                                                                                                                    |
| Cycle Time                            | H <sub>2</sub> S/TOS/TS: 120 seconds<br>Speciation + Total Sulfurs: 600 seconds                                                                                                                                                      |
| Relative Standard Deviation           | < 3 % over 48 h period on concentration<br>< 0,5 % over 48 h period on retention time                                                                                                                                                |
| Data Management                       | Module 4-20 mA with 4 output and 0 mA for default instrument; MODBUS RTU/RS485; ethernet storage of all results on internal SSD memory                                                                                               |
| Electrical Power Supply & Consumption | 230V AC / 50-60Hz (115V AC / 50-60Hz)<br>Mean power consumption 150 VA<br>24V DC in option                                                                                                                                           |
| Gas Supply                            | Carrier gas : N <sub>2</sub> or Air (3 Bar): 4 ml/min<br>Internal calibration: 50 ml/min<br>Pneumatic valve: 90 ml/commutation<br>Sample gas: (1 Bar): 10 l/h                                                                        |
| Option                                | Automatic tank filling for MEDOR detector                                                                                                                                                                                            |
| Dimensions & Weight                   | Analyzer Cabinet: 1900mm x 800mm x 600mm (H x W x D)<br>Net Weight: 95 kg (120 kg with frame)                                                                                                                                        |
| Norms & Certifications                | Fully compliant with ASTM D7493-22, ISO 19739:2004, DIN 51855/7, and ASTM Type 1 Standard<br><b>CSA Class 1 Division 2 T4</b><br><b>ATEX : ATEX or IECEx: Zone 1 and 2 - II 2 G Exp and Exd xb IIC T4 Gb Ta=Up to -20°C to +55°C</b> |

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